Republic of Indonesia
Ministry of Agriculture

Public-Private-Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System in the Republic of Indonesia

Project Completion Report

April 2021

JAPAN INTERNATIONAL COOPERATION AGENCY

IMG Inc.
Task Co., Ltd

ED
JR
21-019

Map

Exchange Rate (Apr 2021)
IDR 1 = JPY 0.00759
USD 1 = 110.209

Project Photos

Rain Shelters (Tomato)

Cultivation with Nets (Bean)

Demonstration of Pruning (Crystal Guava)

Nursery Management

Mizuna Covered with *Pass Lite*
(Collaboration with UNITIKA LTD.)

Short-term Training for Level C FGs

Harvests of Median Potatoes
(Collaboration with PT. Calbee Wings Food)

Kuroda Carrots after Washing and Sorting

Third Business Forum

Business Negotiation during Business Forum

Momotaro Tomato at Papaya Fresh Gallery

Kuroda Carrot Promotional Campaign

Signing of KUR Contract in Cianjur

Counterpart Training in Japan
(Visit to Ota Market)

Fourth JCC

100th Weekly Meeting at DGH,
Ministry of Agriculture

Table of Contents

List of Tables and Figures

Acronyms

ADS	Agribusiness Development Station
ASEAN	Association of South-East Asian Nations
ASPARTAN	Farmers' Market Association
BNI	Bank Negara Indonesia
CWF	PT. Calbee Wings Food
DGH	Directorate General of Horticulture
DINAS	Agriculture Department
FG	Farmers' group
GAP	Good Agricultural Practice
HSI	PT. Hasil Sayur Indonesia
IDACA	Institute of the Development of Agricultural Cooperation in Asia
IDR	Indonesian Rupiah
IPB	Bogor University of Agriculture
IPM	Integrated Pest Management
JA	Japan Agricultural Cooperatives
JCC	Joint Coordinating Committee
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
KMBM	Koperasi Maju Berkah Mandiri
KUR	Kredit Ushaha Rakyat
MOA	Ministry of Agriculture
NPL	Non-Performing Loan
PDM	Project Design Matrix
POPT	Controller of Plants Infectious Organisms
PT	Perseroan Terbatas
R/D	Record of Discussions
SDGs	Sustainable Development Goals
STA	Sub Terminal of Agribusinesses
TTP	Agriculture Research Park
UNPAD	Padjadjaran University
UPTD	Regional Technical Implementation Unit

Project Overview

1 Project Background

Personal disposable income in Indonesia has been increasing with recent economic growth. The share of the high and middle-income class (those with annual disposable income per household more than USD 5,000 and less than USD 35,000), who have strong consumption rates, increased from 5.8% in 1990 to 57.7% in 2010 and is expected to reach 73.5% by 2020.[1] The food market (both processed and fresh food) in Indonesia has been expanding rapidly due to changes in the income structure and an increasing diversity of food preferences. Such diversification includes a tendency to prefer healthy, environmentally friendly, safer and higher quality food; an interest in new types of food as seen in a boom in western and Japanese food; and the use of fast food and processed food that shortens cooking times. The rapid increase in vegetable and fruit imports indicates an increase in the number of consumers seeking high-quality vegetables and fruits. Food expenditures in Indonesia increased by 48% in the four years from 2005 to 2009. Should this trend continue, the size of the food market will reach IDR 1,925 trillion by 2020.[2] Modern retail and food service industries, such as hypermarkets, convenience stores, restaurants and fast food shops, are expanding rapidly in the urban areas where most of the middle-income groups reside. The use of modern shops is becoming common mainly among younger generation, those under thirty years old, who comprise more than 50% of the total population and the middle-income segment.

However, the modernization of the agriculture distribution system and food market is not advancing in Indonesia as fast as in other major ASEAN countries. The modern retail share of total food sales remains low; traditional retail such as public markets called Pasar and family-owned small shops and vendors still accounts for the majority of sales. The distribution problem for traditional markets rests in its complexity and high costs, which are mostly attributable to the involvement of many middlemen.[3] Lack of sanitation is also a problem with wholesale and retail markets. Moreover, modern retailers who intend to continuously procure products of a certain level of quality and safety have to independently identify trusted business partners. Furthermore, underdeveloped cold chains and transport infrastructure make fresh food quality control quite difficult. As a result, retailers prefer to import high-quality horticultural products despite the fact that the domestic agriculture sector has the ability to produce such products.

Difficulties accessing modern markets demotivate farmers from producing safe and high-quality horticultural products as they are not able to sell their products at the prices that compensate for the extra production costs and labor. As such, establishing distribution channels between farmers and modern markets specifically for safe and high-quality horticultural products will lead to positive outcomes including the enhancement of farmers' incomes and incentives to produce such products, the stable supply of safe and high-quality horticultural products to the food service industry, the meeting of the needs of high and middle-income consumers, and a resulting increase in direct investments and overall business activities in the sector.

Against this backdrop, in August 2013 the Government of Indonesia requested the Government of Japan to implement a technical cooperation project to support the establishment of supply chains of safe and high-quality horticultural products. Based on the Record of Discussions signed between the Indonesian Ministry of Agriculture (MOA) and JICA on the 25th of September 2015, JICA contracted the implementation of the Project to joint venture of IMG Inc. and Task Co., Ltd.

2 Project Objectives

The objective of the Project was to achieve the following goals, purpose and outputs defined in the final version of the Project Design Matrix (PDM).

[1] Badan Pusat Statistik, Perkembangan Beberapa Indikator Utama Sosial-Ekonomi Indonesia.
[2] Ditto.
[3] The Project defines "suppliers" as middlemen who supply to modern markets, and "traders" as middlemen who supply to other middlemen or local markets but not to modern markets.

Super Goal	Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the farmers' groups in West Java Province.
Overall Goal	Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the farmers' groups at the model sites in West Java Province.
Project Purpose	Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the target farmers' groups at the model sites in West Java Province.
Output 1-1	Technique to produce and cultivate safe and high-quality agricultural products is acquired by the target farmers.
Output 1-2	Capacity to plan and carry out cultivation according to market needs is attained by the target farmers.
Output 1-3	Target farmers' groups' marketing channels are developed.
Output 1-4	Target farmers' groups' access to finance is improved.
Output 2	Managerial capacity of government officials who promote modernized production & distribution systems is strengthened.

The PDM was modified four times over the course of the project. Bandung and West Bandung Districts, both of which have high potential for horticultural production, had not originally been part of the Project's target districts. With the baseline survey indicating that the challenges for farmers' groups (FG) in both districts were mostly similar to those of the other four districts, it was agreed in the second Joint Coordination Committee (JCC) in October 2016 that Bandung and West Bandung Districts would be included in the Project's target districts.

The major amendments to PDM approved in the third JCC meeting in December 2017 were: i) Outputs and Activities were not changed, but re-arranged or rephrased in order to clearly present project targets and activities in the PDM; ii) a "Super Goal" was set as a milestone for the future development of a modernized horticulture production and distribution system in Indonesia by applying and disseminating the JICA Project's outcomes; iii) the "Overall Goal" and its target areas were made more specific (narrowed down) in order to have them be more realistic and measurable; and iv) indicators for the Project Purpose and the Overall Goal were modified.

It was agreed in the fifth JCC meeting in September 2019 that the Project period would be extended for four months (i.e. the date for the completion of field activities in Indonesia be extended from December 2019 to April 2020) to implement another round of trial projects during the rainy season. The main objectives of the extension were: i) to consolidate FGs' collaboration with the selected suppliers and modern markets that was established through the trial project in the dry season; ii) to conduct an additional round of contract farming with identified suppliers and modern markets in order to - a) improve FGs' capacity for post-harvest management, b) strengthen FGs' negotiation and coordination skills, and c) establish contract farming arrangements that were more appropriate for both farmers and partners; and iii) to conclude the third batch Kredit Usaha Rakyat (KUR) and conduct follow-up activities with the recipients of KUR.

Due to the Covid-19 pandemic, the terminal evaluation and other wrap-up events scheduled in March to April 2020 were postponed. Therefore, the Project period was re-extended for one year to implement the remaining activities with the aim of ensuring sustainability of the project results.

Furthermore, based on the recommendation by the terminal evaluation conducted in September 2020, the specific indicators of Overall Goal were set, and accordingly PDM was revised in March 2021.

3 Project Period

February 2016-March 2021, five years and two months.

4 Implementing Agencies

Directorate General of Horticulture (DGH), Ministry of Agriculture, District/City Agriculture Department (DINAS) of West Java Province, Cianjur District, Garut District, Bogor City/District, Sukabumi City/District, Bandung District, and West Bandung District.

5 Project Sites

Special Capital Region of Jakarta and six districts and two cities in West Java Province: Cianjur District, Garut District, Bogor City/District, Sukabumi City/District, Bandung District, and West Bandung District.

Figure 1 Project Sites

Source: Rossche Licensed under CC BY-SA 3.0 via Wikimedia Commons
http://commons.wikimedia.org/wiki/File:Map_of_West_Java_with_cities_and_regencies_names.png#/media/File:Map_of_West_Java_with_cities_and_regencies_names.png

6 Project Implementation Structure

In order to conduct regular monitoring of the field activities taking place in the large area of the project site and respond to any issues as they occurred, the Project team was structured as set out below with three levels of local staffing (excluding a secretary) being deployed.

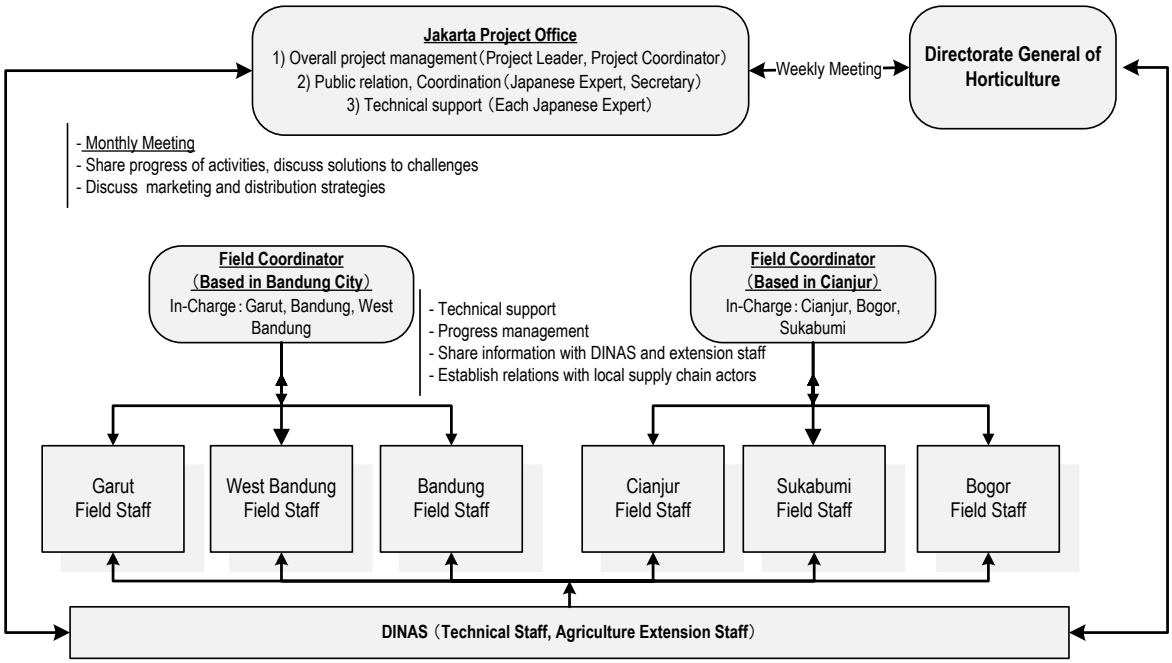


Figure 2　Project Implementation Structure

7　Experts

The following experts were assigned to the Project.

Table 1　Experts Assigned to the Project Stage 1 (2016, Start-up Phase)

Responsibilities	Name
Team Leader / Marketing / Product Development	MORI Shinichi
Sub-Team Leader / Marketing	NISHIMURA Tsutomu
Farming Technology	MORITA Tateo
Promotion of Farmers' Groups	MATSUMI Yasuko, KAJITA Mio
Promotion of Farmers' Groups / Public Private Partnership	SHIMIZU Toshihiro
Access to Finance	YONEYAMA Akiko
Post-harvest Management	TANAKA Shunsuke

Table 2　Experts Assigned to the Project Stage 2 (2017-2021)

Responsibilities	Name
Team Leader / Product Marketing and Distribution / Capacity Building	NISHIMURA Tsutomu
Public Private Partnership	MORI Shinichi
Farming Technology / Post-harvest Management	MORITA Tateo
Farming Technology	YAMAZAKI Masaru
Promotion of Farmers' Groups / Public Private Partnership	SHIMIZU Toshihiro
Access to Finance	YONEYAMA Akiko
Impact Analysis / Product Marketing and Distribution	SUENAGA Jumpei
Promotion of Information and Digital Technologies	TAKEUCHI Tomonari
Survey on the use of E-Commerce	KITANO Masato

Chapter 1 Project Activities

1-1 Activities for Output 1-1

Output 1-1: Technique to produce and cultivate safe and high-quality agricultural products is acquired by the target farmers

1-1-1 Trial Project

For Output 1-1, the Project conducted two rounds of trail projects annually (one in dry season and the other in rainy season[4]), during which farmers learned and practiced improved cultivation techniques for the selected commodities introduced by the Project (the final version of the technical guides, planting and work calendars and planting and shipping calendars are attached as Annex 8.1~8.3). The trial project field was in principle set to be 100m^2, for which most of the necessary inputs such as seed, soil fertilizer and pesticide were provided by the Project. From 2017, six rounds of trial projects were carried out with a cumulative total of 1,396 participating farmers as shown below.

Table 3 Participants of the Trial Projects

	2017		2018		2019		Total
	Dry	Rainy	Dry	Rainy	Dry	Rainy	
Number of FGs	30	30	31	31	34	27	183
Number of farmers							
Bogor	45	44	41	35	35	36	236
Sukabumi	50	35	44	39	28	23	219
Cianjur	50	46	46	46	52	42	282
Garut	60	43	49	51	32	24	259
Bandung	50	31	40	35	26	21	203
West Bandung	34	27	34	29	45	28	197
Total	289	226	254	235	218	174	1,396

In the first two years, participating FGs were selected mostly in consultation with the Agricultural Departments (DINAS) of each district. Upon the selection of participating FGs, the Project divided the medium-level FGs[5] into three levels (levels A, B and C) according to the criteria in Table 4. Only level A and B FGs were selected for the trial project while short-term intensive training was provided to level C farmers in two batches.

[4] Dry season: April to September, Rainy season: October to March

[5] The Project regards medium-level FGs as groups of non-subsistence farmers who i) conduct agriculture as a main source of income and ii) have experience in cultivation and sales of multiple commodities.

Table 4 Classification of the Medium-level FGs

Level	Scale/Organizational Operation/Financial Base	Cultivation/Quality Control Techniques	Distribution/Market
A	• Relatively large, diverse farmers' groups composed of hundreds to thousands of farmers depending on product items. • Have highly organized know-how on business management and a manager (businessman) who is capable of carrying out the business. • Have sufficient financial resources to purchase inputs for production, agricultural machinery and greenhouses.	• Have sufficient knowledge and experience in producing high-quality horticultural products and organic farming. • Have a strong willingness to introduce new varieties and improve cultivation techniques • Have a continuous supply system for high-quality horticultural products with room for improvements to the freshness controls and the shipping system.	• Have collection, sorting and packaging facilities as well as trucks for transportation. • Continuously ship horticultural products to supermarkets including high-end supermarkets as well as to food processing companies. • Expected to become able to manage sales orders in a more organized and prompter manner by introducing a simple IT technology.
B	• Medium-sized farmers' groups composed of dozens of farmers residing within proximity to each other. • Have experience in organized activities under capable leadership. • Have a certain level of financial resources.	• Have basic techniques and equipment to produce safe and high-quality horticultural products. • Possess a strong willingness to introduce new varieties and improve cultivation techniques. • Have some members using greenhouses and agricultural machinery.	• Ship a certain quantity of products independently to modern markets, such as supermarkets, to meet a broader market. • Have simple collection and packaging facilities; however, with limited transportation means (mostly dependent on external transporters).
C	• Spontaneously formed groups composed of neighboring farmers. • Have limited financial resources (facing difficulty in obtaining necessary equipment; most of them are dependent on loans from traders).	• Have basic skills in horticultural crop cultivation. • Need to improve cultivation techniques, quality control, and post-harvest techniques. • Use greenhouses to a limited extent.	• Ship products mainly to traditional markets and partially to supermarkets for mass markets via middlemen. • Shipping of products to supermarkets is limited due to difficulties meeting the required quality, quantity and packaging. • Cannot cope with price fluctuations because of a lack of cultivation planning within the group.

The Project took the following steps in selecting target FGs for the trial projects:

1) Selecting "focus areas" for each target area;
2) Listing potential FGs at Levels A-C by DINAS;
3) Conducting field visits to each group by the JICA expert team and DINAS;
4) Finalizing the FGs' list for the baseline survey;
5) Conducting the baseline survey; and
6) Confirming target FGs for each area (Levels A-C).

Since dealing with dispersed FGs was not efficient, the Project needed to select FGs that were within close proximity to each other. In order to select the Kecamatans (from Cianjur District, Garut District, Bogor City and Sukabumi City) that were suitable for farming in terms of cultivation condition, such as meteorological

and geographical features, and market access; the JICA expert team requested DINAS to select "focus areas" in each of these districts and cities where horticultural crop cultivation was particularly active. The Project then asked DINAS to list candidate FGs in these focus areas with reference to the above classification criteria. Following that, the Project together with DINAS visited and assessed the listed FGs and selected the participating FGs for the years 2017 and 2018. The participating FGs in 2019 were mostly those who participated in the trial project in the previous years with a demonstrated strong commitment though a few new participants were recommended by DINAS.

Through the implementation of six rounds of trial projects, the Project introduced improved cultivation techniques for selected commodities to participating FGs in order for farmers to be able to achieve a higher yield with a quality as demanded by markets. The following table presents examples of the introduced techniques. (For more details, refer to the technical guide for each commodity under Annex 8.1.)

Table 5 Examples of the Introduced Techniques

Improved Technique	Expected Outcomes
Nursery management (most commodities)	
With a pot-up method, grow plants in the nursery for a longer period of time and transplant only good seedlings.	• The plants grow uniformly in a healthy condition. • The plants become more disease tolerant at a later stage.
Fertilization (most commodities)	
Apply compost together with fertilizers. Top-dress fertilizer where root tips grow so that the roots become wide and strong.	• The plants absorb necessary nutrients even at later stages and grow longer.
Rain shelter (tomato, broccoli, and lettuce in rainy season)	
Utilize locally available materials (plastic tunnels) to cover plants for efficient rain protection to produce adequate quality vegetables during rainy season without greenhouse facilities.	• Rain-caused diseases are controlled by the application of plastic tunnels. • Vegetables of adequate quality can be harvested during rainy season.
Net (Bean, Kyuri[6])	
Introduce net training methods with proper pruning in order to increase growing space efficiency.	• Quantity as well as quality of fruit is improved by the application of the techniques. • A healthy growing condition is ensured for a longer harvesting period.

The Project field staff regularly monitored the progress of these activities. The JICA experts, including the expert in cultivation technique and post-harvest management, frequently visited the participants' fields in all six target districts to provide them with appropriate guidance.

1-1-1-1 2017 Dry Season

The first round of trial projects started in February 2017 with 289 participating farmers from 30 FGs across six districts as set out below. At the request of collaborating suppliers and supermarkets as well as in consideration of the farmers' views, 14 commodities were selected.

[6] Japanese cucumber

Table 6 Commodities and Number of Participants in the 2017 Dry Season

	District/City	Bogor	Sukabumi	Cianjur	Garut	Bandung	West Bandung	Total
	No. of FGs	5	5	5	5	5	5	30
1	Chili		44	4	19		5	72
2	Shallot				10	3		13
3	Beef Tomato			6		1	2	9
4	Tomato		4	10	19	2	8	43
5	Potato				4	4		8
6	Paprika				1		6	7
7	Kuroda Carrot		2	20	7	10		39
8	Bean					10	7	17
9	Lettuce						2	2
10	Broccoli						4	4
11	Crystal Guava	45						45
12	Strawberry					10		10
13	Kyuri			10				10
14	Other Japanese Vegetables[7]					10		10
Total		45	50	50	60	50	34	289

From the 16th of March to the 7th of April 2017 the Project conducted the first round of field demonstrations for the target FGs across all the target areas to instruct the farmers on nursery management, including seeding procedures, the preparation of nursery beds, proper fertilization methods for land preparation and transplanting. The second round of field demonstrations was conducted from mid-May to instruct farmers on proper transplanting methods for seedlings. The field staff regularly monitored each farmer's field with JICA experts also frequently visiting and providing instruction. Observations on the fields and actions to be taken in subsequent seasons are summarized in Table 7.

Table 7 Observations in the 2017 Dry Season and Actions for Further Improvement

	Observations	Actions for Further Improvement
Tomato/Chili	(+) Improvements in yield and extended harvest period through appropriate pruning. (-) Outbreak of soil-borne diseases and other diseases caused by viruses.	• Introduction of a soil sterilization method by applying specific fungicide to prevent the outbreak of soil-borne diseases. • Application of appropriate pruning to control pest and disease as a preventive measure.
Paprika	(-) Emergence of thrips that obtained resistance to pesticides due to pesticide use.	• Properly scheduled application of pesticides at several stages starting from the nursery.
Beans	(+) Improvements in yield as a result of introducing nets against which bean vines are trained.	• Use of affordable nets.
Kuroda Carrot	(+) Promotion of a new variety - "Kuroda". (-) Damage caused by nematodes. (-) Uneven size of carrots due to improper thinning.	• Introduction of proper cultivation management to improve the quality of products (conduct weeding and thinning in a timely manner). • Identification of new markets and promotion of Nantes carrot.
Beef Tomato	(+) Improvements in yield and quality as a result of improved cultivation management.	• Promotion of beef tomato in modern markets.

[7] Momotaro tomato, Nasu

Crystal Guava	(-) Defect of fruit bags introduced by the Project. (+) Improvement in efficiency of fertilization by applying compost.	• Introduction of appropriate fruits bags • Selection of proper pesticides and fungicides • Promotion of crystal guava to modern markets
Nursery Management	(-) Poor germination rate due to the nursery soil's low quality (-) Outbreak of pests and disease due to poor nursery management (+) Extended harvest period and improvement in yield resulted from transplanting good seedlings	• Implementation of proper nursery management (a preventive measure for pest and disease) • Proper selection of seedlings for transplanting.

Table 8 below illustrates the yields of commodities achieved in the 2017 dry season. Some farmers successfully increased their harvest by 100% or more as compared to their conventional practices, and improved fruit quality. Others, though having followed the instruction, had a lower output due to a variety of reasons such as shady plots and disease/insect spread from surrounding fields. Although subject to the external factors, the techniques the trial projects introduced could increase the overall production of better quality commodities when appropriately applied in a suitable environment.

Table 8 Yield in the 2017 Dry Season (kg/100m^2)

	Highest	Average	Average in Indonesia[8]
Beef Tomato	908	595	-
Tomato	674	319	173
Chili	238	47	84
Kuroda Carrot	223	114	175[9]
Broccoli	185	183	-
Bean	271	127	117
Kyuri	436	237	106
Crystal Guava (kg/20 trees)	800	180	-

The profitability of each commodity is shown in Table 9. Material costs include all materials (seedlings, fertilizers, pesticides/fungicides, rain shelters, etc.) used in one season.[10] The percentage shows the share of farmers whose sales were larger than material costs.

Table 9 Profitability in the 2017 Dry Season

	Material Cost (IDR/100 m^2)	Share of farmers who could cover the material cost
Beef Tomato (Dry)	1,773,100	83%
Tomato (Dry)	756,400	60%
Chili	810,900	19%
Kuroda Carrot	374,750	21%
Broccoli (Dry)	674,900	100%
Bean	686,000	50%
Kyuri (Dry)	925,400	33%
Crystal Guava	1,071,000	57%

Over half of the farmers cultivating beef tomatoes, tomatoes, broccoli and crystal guavas made a profit applying the techniques introduced by the Project. The investment could be economically justified as

[8] The average yield in Indonesia is calculated with the DGH's data on each commodity's cultivated area and production from the 2018 National Census.
[9] The figure is for carrots in general, not for Kuroda carrots specifically.
[10] The cost of durable materials, such as rain shelters and nets, is divided by the number of seasons for which the materials are usually used.

farmers would be able to benefit from greater yields. For the other vegetables, a modern market that values that level of quality and thus purchases at a higher price still needs to be found.

1-1-1-2 2017 Rainy Season

The number of participants in the 2017 rainy season is shown below. Since some of the participants in the dry season dropped out due to poor performance, the total number decreased from 289 in the dry season to 226 in the rainy season. The eleven commodities selected for the rainy season were also planted in the preceding dry season.

Table 10 Commodities and Number of Participants in the 2017 Rainy Season

	District/City	Bogor	Sukabumi	Cianjur	Garut	Bandung	West Bandung	Total
	No. of FGs	5	5	5	5	5	5	30
1	Shallot				6			6
2	Beef Tomato			11			5	16
3	Tomato		9		27	5	13	54
4	Paprika				1		4	5
5	Kuroda Carrot		7		9	16		32
6	Bean		19					19
7	Broccoli			26			5	31
8	Crystal Guava	44						44
9	Strawberry					2		2
10	Kyuri			9				9
11	Other Japanese Vegetables[11]					8		8
Total		44	35	46	43	31	27	226

The trial project for the rainy season began in early October 2017 with the Project providing a technical guide, work calendar, and materials for sowing and nurseries. The remaining materials, such as rain shelters, were provided from the end of October.

Table 11 Observations in the 2017 Rainy Season

Commodity	Observations
Beef Tomato	• Due to the limited availability of seedlings of the variety used in the previous dry season, a locally available variety (BTM) was employed in the second round. • Since BTM was susceptible to disease and its fruits tended to be smaller (150-180 g), it had difficulties meeting supermarkets specifications (over 200g for grade A).
Tomato	• The application of granular pesticides to the planting holes at the time of transplanting resulted in limited damage by pests. • Some farmers did not conduct appropriate pruning and thinning; as a result, excessive vegetative growth hindered aeration and caused disease. • Due to strong winds that blew away or destroyed the rain shelters, some FGs could not evaluate the effectiveness of the rain shelters.
Paprika	• Rotational use of different pesticides controlled thrip numbers, and the frequency of pesticide application was reduced by half.
Kuroda Carrot	• In some fields, germination was not uniform due to: i) sown seed being washed away by rain; or ii) the depth of sowing not being uniform. • Since weeding was a significant burden, the use of an appropriate herbicide would be considered in the subsequent year. • Since the Indonesian market demanded thinner carrots as compared to Japan, spacing was instructed to be 2-3 cm. • Inadequate thinning led to smaller carrots (below 10 cm in length), which could not be accepted by modern markets and thus were sold in the local market at a lower price.

[11] Momotaro tomato, Kabocha, Nasu, Piman, Mizuna, Komatsuna

Bean	• The use of a net increased yields though its improper use affected quality in some fields. • Most members reached the target yield (100 kg out of 100m^2 of land).
Broccoli	• Broccoli under a rain shelter grew better than in an open field. The basal fertilizer was not washed away by rain thanks to the rain shelter and mulch. • Good quality resulted in a higher selling price. • Some farmers felt that a longer period in the nursery stage required more labor, resulting in higher costs.

Table 11 above summarizes the observations on the main commodities grown in the 2017 rainy season. With the soil media components adjusted, the germination rate was improved and the conditions of the nurseries for most commodities were better than those in the dry season. The harvest results are shown in Table 12 below.

Table 12 Yield in the 2017 Rainy Season (kg/100m^2)

	Highest	Average	Average in Indonesia
Beef Tomato	1,152	386	-
Tomato	997	480	173
Kuroda Carrot	225	80	175
Bean	274	173	117
Broccoli	209	100	-
Crystal Guava (kg/20 trees)	460	152	-
Kyuri	326	180	106

Table 13 Profitability in the 2017 Rainy Season

	Material Cost (IDR/100 m^2)	Share of farmers who could cover the material cost
Beef Tomato (Rainy)	1,398,067	100%
Tomato (Rainy)	998,800	50%
Kuroda Carrot	374,750	18%
Broccoli (Rainy)	917,300	55%
Bean	686,000	11%
Crystal Guava	1,071,000	69%
Kyuri (Rainy)	1,129,050	11%

For some commodities, material costs in rainy season were different from those in dry season. The cultivation of tomato, broccoli and kyuri required a rain shelter only in rainy season, resulting in a higher cost. With the variety used in the previous dry season not being available due to technical issues with the seedling producer; the Project employed a different variety of beef tomato in rainy season, which resulted in a reduction in costs as compared to previous dry season.

The harvested amounts of tomato, bean and kyuri were higher than local averages. However, the share of farmers who could make a profit from these commodities was not high; less than 20% of farmers growing Kuroda carrots, beans,[12] and kyuri could cover the material cost. This suggests that selling prices higher than those in the local market, in addition to the increased yields, would be necessary for a better profit. In the absence of quality-conscious buyers, farmers do not have much incentive to improve the quality of produce, which could even reduce the prospects for future market opportunities. Thus, efforts for linking farmers to good markets must be made simultaneously with technical support.

In late May 2018, following the end of the trial project in the 2017 rainy season, the Project held wrap-up workshops for the 2017 trial project in each district with the following objectives: i) to present the overall results of both rounds of the trial project in 2017; ii) to draw lessons from the trial project; and iii) to

[12] In the 2017 rainy season, the average selling price below IDR 2,500, which was less than half of that of dry season (over IDR 5,500), resulted in the low share of farmers who could cover the material cost.

examine and achieve consensus on future prospects or actions. A total of 152 farmers from the six districts as well as 56 representatives from DGH and DINAS participated in the workshops (see Annex 8.4).

Table 14 Number of Participants for the 2017 Trial Project Wrap-up Workshops

District/City	Garut	West Bandung	Bandung	Bogor	Cianjur	Sukabumi	Total
Date	22 May	23 May	24 May	28 May	30 May	31 May	
Farmers	21	21	29	18	39	24	152
DINAS	4	6	8	11	4	9	42
DGH	0	5	3	4	2	0	14
Total	25	32	40	33	45	32	208

In order to draw attention to the comparison between successful and unsuccessful cases in the trial project, five to seven posters were prepared for both cases and presented in the workshops. Table 15 provides the contents of the posters presented at the respective sites. Referring to the posters, farmers with support from project staff explained their experiences, and then actively exchanged information about the trial project with other participating farmers. Participants appreciated the exchanging of ideas and findings with other participants.

Table 15 Commodities Presented in Posters and Discussed in the Wrap-up Workshops

District/City	Posters	Group Discussions			
Garut	Tomato (4), Potato, Carrot	Tomato	Chili	Carrot	Shallot
West Bandung	Tomato (2), Beef Tomato, Broccoli, Beans, Paprika	Paprika	Beef Tomato	Tomato	Broccoli
Bandung	Tomato (2), Beans (2), Carrot (2)	Carrot	Tomato	Bean	Strawberry
Bogor	Crystal guava (6)	Crystal Guava			
Cianjur	Tomato (2), Beef Tomato, Carrot, Broccoli, Kyuri	Beef Tomato	Broccoli	Carrot	Kyuri
Sukabumi	Tomato (2), Chili, Beans, Carrot	Chili	Tomato	Carrot	Beans

After the poster session, farmers were divided into four groups to discuss the pros and cons of the trial project for the commodities listed above. Representative farmers from each group summarized their findings and presented them in a plenary meeting. During the action plan session following the discussions and with the support from the project staff, all participants wrote their personal commitments on a post-it note, and each FG discussed them and made their group's plan. Many groups expressed their commitment to continue applying the techniques learned through the trial project as well as to strengthen the group's capacity to collectively conduct marketing and delivery of horticulture products.

1-1-1-3 2018 Dry Season

Thirteen commodities were originally identified for the 2017 trial project. After the completion of the two rounds of the 2017 trial project, the Project reviewed the results of all the commodities and then selected nine commodities for the 2018 trial project since farmers were able to make tangible improvements in the quality of these commodities with the introduced techniques. The Project prepared a project sheet for each commodity that included the purpose and expected results of the trial project (refer to Annex 8.5). After introductory meetings held in each target district, the project staff together with DINAS extension staff visited FGs to meet all members to explain the details of the trial project and confirming their commitments. Commodities and the number of participants for the 2018 dry season are shown below.

Table 16 Commodities and Number of Participants for the 2018 Dry Season

	District/City	Bogor	Sukabumi	Cianjur	Garut	Bandung	West Bandung	Total
	No. of FGs	5	6	5	5	5	5	31
1	Chili	17	9					26
2	Beef Tomato			1			6	7
3	Tomato		10	19	49	7	10	95
4	Paprika						4	4
5	Kuroda Carrot			18		26		44
6	Bean	9	25	8			10	52
7	Broccoli					7		7
8	Kyuri						4	4
9	Crystal Guava	15						15
Total		41	44	46	49	40	34	254

The trial project in the 2018 dry season started with the launching workshop in April 2018, followed by the field demonstrations in nursery management across all six districts. The results of the harvest are shown in Table 17 below.

Table 17 Yield of the 2018 Dry Season (kg/100m^2)

	Highest	Average	Average in Indonesia
Beef Tomato	572	333	-
Tomato	1,380	575	173
Chili	223	101	84
Kuroda Carrot	520	219	175
Bean	570	214	117
Kyuri	508	276	106
Crystal Guava (kg/20 trees)	314	115	-

Most commodities' average production, except for beef tomato and crystal guava, increased from that of the dry season in the previous year. The 2018 dry season lasted longer than usual; for six months from May until October. The dry conditions prevented the outbreak of pest and disease though water shortages hindered the growth of plants.

Table 18 Profitability of the 2018 Dry Season

	Material Cost (IDR/100 m^2)	Share of farmers who could cover the material cost
Beef Tomato (Dry)	1,773,100	50%
Tomato (Dry)	756,400	80%
Chili	810,900	68%
Kuroda Carrot	374,750	77%
Bean	686,000	79%
Kyuri (Dry)	925,400	75%
Crystal Guava	1,071,000	40%

Since most commodities' average yield increased as compared to the 2017 dry season, the share of farmers who could cover costs also increased except for beef tomato, broccoli and crystal guava.

Following the completion of the trial project in the dry season, the Project held a series of workshops at each DINAS in early October 2018 with the participation of two representatives from each FG to summarize the outcomes of the first round of the 2018 trial project. The participants discussed the pros and cons of the introduced techniques; the main points of which are set out below.

Table 19 Main Points Raised during the Workshops

Commodity	The Pros (+)	The Cons (-)
Bean	• Yield and quality (uniform size and straight) of beans mostly improved by using nets. • The number of pesticide applications was reduced. • Easier to conduct harvest, top-dressing, and spraying.	• Needed more material and labor to prepare a nursery. • Needed two people for one week to install nets.
Tomato	• Survival rate of transplanted plants improved. • Pesticide use during the nursery stage was reduced. • Seedlings were more resistant to dryness after transplanting. • Yield and quality of tomatoes improved.	• Need more labor for nursery management and transplanting. • Not optimal yield due to lack of irrigation water and drought at some FGs (especially in Cianjur and Garut).
Paprika	• Reduction in the number of pesticide applications by half through the recommended application. • Costs from pesticide application were reduced. • Same produce quality and yield as normal pesticide application.	• Some of the recommended pesticides by the Project are not locally available.
Chili	• Easy to take care of plants through introduced nursery management and cultivation techniques.	• Soil-borne diseases were found in some trial project fields. • Outbreak of diseases transmitted by thrips and other insects.
Carrot	• Easier to take care of plants, such as weeding, by planting two rows in one bed. • Basal fertilizer helped to grow bulbs.	• Need to find a better market for Kuroda carrot.[13] • Lack of irrigation water during the dry season inhibited germination and tuber growth. • Soil quality affected carrot quality.
Crystal Guava	• Increase in sweetness by applying potassium fertilizer.	• New shoots did not grow optimally due to dry season.
Kyuri	• Stronger seedlings under nursery management. • Maintenance of nursery was more cost-effective. • Yields increased.	• Some products were bent.

1-1-1-4 2018 Rainy Season

After the 2018 dry season, one FG dropped out of the trial project. In its place, one new group joined in the rainy season while several farmers in the dry season were removed due to poor performance. In total, 235 members including 47 new farmers were selected for the second round of the 2018 trial project. With seedlings not available in the target area, beef tomato was removed for the rainy season.

[13] Local markets offer same price for Kuroda carrot and local carrots.

Table 20 Commodities and Number of Members for the 2018 Rainy Season

	District/City	Bogor	Sukabumi	Cianjur	Garut	Bandung	West Bandung	Total
	No. of FGs	5	6	6	5	5	4	31
1	Chili	6	10		20			36
2	Tomato	7	21		31		16	75
3	Paprika						3	3
4	Bean		8					8
5	Broccoli	10		43		35	10	98
6	Kyuri			3				3
7	Crystal Guava	12						12
Total		35	39	46	51	35	29	235

The introductory meeting was held at each project site in early October (together with the wrap-up workshop for the dry season). The Project distributed necessary inputs, such as seed and nursery materials, to each FG in late October. Project staff conducted field demonstrations from early to mid-November in order to provide trial project participants with guidance on seedling and nursery management methods at each project site. Then, with the technical guides and a planting - work calendar provided by the Project, farmers conducted the trial projects. Observations during the 2018 rainy season are summarized below.

Table 21 Observations on the 2018 Rainy Season

Commodity	Observations
Tomato	• Some farmers experienced several advantages, such as increased yields resulting from the extended harvest period, improved produce quality, and low disease risks, through the use of temporary rain shelters for tomato production in the rainy season. • Many fields suffered severely from long rains in the late rainy season, which caused a disease outbreak and a sharp decrease in the harvest while fields with rain shelters maintained a higher level of harvest.
Chili	• Farmers understand the effectiveness of pinching, having observed the significant differences between pinched and non-pinched plants in plant vigor and the number of fruits generated on plants. • Many seedlings were eaten by crickets after transplanting.
Broccoli	• The leader of Padajaya in Cianjur conducted a comparative study of Broccoli cultivation not applying a rain shelter on his own field which is located next to the trial project field (with a rain shelter). While 100% of the harvests from the rain sheltered beds could be shipped, 60% of the harvests from his own land without a rain shelter were damaged and thus could not be shipped. He installed rain shelters on his own land after the comparison. • In Bandung, a soil disease (clubroot) spread and affected the harvest. One of the main causes of the disease can be soil degradation resulting from continuous replanting and excessive use of immature compost.
Bean	• With the average yield more than doubling from the previous year, three farmers harvested over 500 kg. Farmers appreciated that nets can greatly improve the quality and quantity of the harvest. Some of the farmers of Padajaya started using the nets for their own cultivation • As the quality of the harvested beans was good, the Project linked the participating FGs in Sukabumi with a local supplier (PT. Hasil Sayur Indonesia: HSI), which enabled farmers to sell their beans at a higher price (+IDR 500) than to local markets.
Kyuri	• All three participants harvested more than 150 kg from 100 m^2 of land, which was much higher than the local average. • The sales price is significantly different between the case of Korean restaurants (two farmers) and that of the local market (one farmer): the former is about 10 times that of the latter. The farmer who sold to the local market harvested as much as 235 kg, but the cost could not be covered with the price being IDR 1,750/kg.
Crystal Guava	• Trimming and pruning techniques were appreciated by the farmers after they observed better growth on properly trimmed and pruned trees.
Paprika	• The number of thrips was well controlled with half the amount of pesticide usually used with the conventional method.

Tomato, bean and kyuri achieved an average yield far higher than the national average.

Table 22 Yield in the 2018 Rainy Season (kg/100m^2)

	Highest	Average	Average in Indonesia
Tomato	939	374	173
Chili	235	53	84
Broccoli	210	106	-
Bean	543	440	117
Kyuri	235	208	106
Crystal Guava (kg/20 trees)	444	203	-

The profitability of most commodities, except broccoli, improved compared to the rainy season in 2017 as represented by the increased share of the participants who could cover the material cost (Table 23).

Table 23 Profitability in the 2018 Rainy Season

	Material Cost (IDR/100 m^2)	Share of farmers who could cover the material cost
Tomato (Rainy)	998,800	75%
Chili	810,900	38%
Broccoli (Rainy)	917,300	55%
Bean	686,000	100%
Kyuri (Rainy)	1,129,050	67%
Crystal Guava	1,071,000	67%

1-1-1-5 2019 Dry Season

218 farmers from 34 FGs in 6 districts participated in the trial project for the 2019 dry season, as the table below demonstrates. The Project first selected commodities that had potential to realize a better profit as well as the FGs and farmers from the 2017 and 2018 trial projects who were willing to work with the Project. After the meetings involving DINAS, suppliers and leaders of the selected FGs, the participants who had been recommended or had shown their willingness to join the trial project were added to the list of the trial project with some new commodities to be tested.

Table 24 Commodities and Number of Participants for the 2019 Dry Season

	District/City	Bogor	Sukabumi	Cianjur	Garut	Bandung	West Bandung	Total
	No. of FGs	6	7	5	6	6	4	34
1	Crystal Guava	14						14
2	Bean	21	26	6			10	63
3	Broccoli			17			20	37
4	Cauliflower			9				9
5	Kuroda Carrot			6	13	22		41
6	Paprika						3	3
7	Tomato		2		19		10	31
8	Momotaro Tomato			3		2		5
9	Nasu[14]			5		1		6
10	Piman[15]					1	2	3
11	Mizuna			6				6
Total		35	28	52	32	26	45	218

Following the results of the trial projects of the preceding two years, the 2019 trial project focused on establishing more solid value chains for the identified products in collaboration with different market actors

[14] Japanese eggplant
[15] Japanese bell pepper

(suppliers, supermarkets, food industries, exporters, etc.). After having a series of meetings with suppliers as well as FGs, the Project linked the participating FGs with new markets as summarized in Table 25. The Project prepared a planting and shipping plan for each FG customized to the demand of each market.

Table 25 Marketing Arrangements for the 2019 Dry Season

Commodities	FGs	Market and Shipping Arrangements
Bogor District/City		
Crystal Guava	Bina Tani Sepakat, Pemuda Tani naratas	• Own market (retail shops)
Bean	Bakti Mandiri Sukajadi, Rukun Tani, Tunas Tani Pangrango, Citra Tani Kencana	• Local traders • Wholesale market in Bogor
Sukabumi District/City		
Bean	Mucekil Al Mujahidin Ciloa Hikmah Tani, Bumi Mekar Pandan Arum	• HSI (local supplier) ✧ Amount: 300 - 500 kg per week ✧ Shipment: daily or twice a week ✧ Specification: Grade A straight without damage ✧ Delivery to: HSI's packing station
Tomato	Sugih Mukti	• Local market
Cianjur		
Broccoli Cauliflower Kuroda Carrot	Saluyu Utama Mujagi Saridona 2	• PT. Sayuran Siap Saji (supplier) ✧ Shipping Day: Mon., Wed., Sat. ✧ Delivery to: Collection point at Cipanas ✧ Price: Broccoli IDR 10,000 - 14,000/kg, Cauliflower IDR 7,000 - 11,000/kg, Carrot IDR 5,000/kg
Bean	Padajaya, Mucekil	• Local trader
Momotaro Tomato Nasu	Mujagi	• Papaya (supermarket)
Garut		
Kuroda carrot	Cikandang Agro Yosen Hitda Mandiri Mukti Tani Jando	• PT. Agro Seleras Abadi (supplier) ✧ Amount: 500 - 1,000 kg per week ✧ Specification: Grade A and baby carrot ✧ Delivery to: ASPARTAN in Garut City
Tomato	Cikandang Agro, Yosen Hitda Mandiri Mukti Tani Jando Barokha Kurnia Tani Mekar Tani	• PT. Sayuran Siap Saji (supplier) ✧ Specification: 100 - 120 g per fruit (7 - 8 pcs per kg) ✧ Shipping Day: Mon., Tue, Thu., Sat. ✧ Delivery to: Collection point at Cigedug ✧ Price: IDR 4,500 - 5,500/kg
Bandung		
Kuroda Carrot	Al Ittifaq Hikmah Farm Hataki Mekar Tani	• AEON and Super Indo (supermarket) through Al Ittifaq ✧ FGs bring produce to Al Ittifaq ✧ Al Ittifaq washes, sorts, packs, and delivers carrots to the market.
Momotaro Tomato	Lyco Farm	• Yogya (supermarket)
Japanese Vegetables[16]	Saribhakti	• Papaya (supermarket)
West Bandung		
Tomato	Sinar Mukti	• Own market (retail shop)
Bean	Sinar Mukti	• PT. Mahkota Multi Mandiri (supplier) ✧ 400 - 500 kg per week for export

[16] Momotaro tomato, Nasu, Piman, Mizuna

Broccoli	Panen Lestari	• Total Buah Segar (supermarket) ✧ 200 kg per week (3 times per week: 60 - 70 kg per shipment)
Piman	Gerbang Emas	• Papaya (supermarket)
Paprika	FRT	• Own market

The Project reviewed the technical guide for each trial project and modified the planting and farm management methods so that the produce could meet the size and quality requirements demanded by the markets. Table 26 sets out the main changes to the cultivation methods applied to the trial project.

Table 26 Main Changes in Cultivation Methods Applied in the 2019 Dry Season

Trial Project	Purpose	Applied Cultivation Method
Broccoli	Enlarge the size of buds to make them suitable for processing (500~700 g per bud).	Spacing between plants is expanded to 60 cm.
Kuroda Carrot	Increase total yield and productivity.	Cultivation of plants with 4 rows on a bed instead of 2 rows.
Bean	Compare production costs, yields, and quality of produce.	The direct sowing method (without making seedlings) is applied at a selected member's field.
Tomato	Enlarge the size of produce (100~120 g) to meet market demand.	Spacing between plants is expanded to 60 cm from 50 cm.
Momotaro tomato	Increase yield and create better cultivation environment.	Expand the space between beds to 1.5m (bed width: 1m, alley width: 0.5m).

In the 2019 dry season, a long drought severely affected farmers who lacked good irrigation systems. Despite the difficult situation, most farmers could maintain reasonable harvests. As shown in Table 27, the average yield of tomato and bean was twice as much as the average in Indonesia.

Table 27 Yield in the 2019 Dry Season (kg/100m^2)

	Highest	Average	Average Yield in Indonesia
Tomato	783	436	173
Broccoli	268	109	-
Cauliflower	494	327	-
Bean	578	240	117
Crystal Guava (kg/20 trees)	355	239	-
Kuroda Carrot	328	117	175
Momotaro Tomato	595	577	-

Most of the farmers were able to make a profit from most commodities. All cauliflower farmers succeeded in covering the material costs while the profitability of crystal guava and bean greatly increased.

Table 28 Profitability in the 2019 Dry Season

	Material Cost (IDR/100 m^2)	Share of farmers who could cover the material cost
Tomato (Dry)	756,400	86%
Broccoli (Dry)	674,900	91%
Cauliflower	674,900	100%
Bean	686,000	87%
Crystal Guava	1,071,000	93%
Kuroda Carrot	374,750	63%
Momotaro Tomato	1,001,400	100%

Table 29 summarizes observations on the main commodities, followed by a summary of shipments to collaborating modern market actors. While transactions with modern markets benefited many farmers with high selling prices, some farmers encountered miscommunication issues with suppliers, which led to the

rejection of many products. Even when failing to meet buyer requirements, the produce was still able to be sold in the local market. As such, proper sorting is highly important.

Table 29 Observations on the 2019 Dry Season

Commodity	Observations
Tomato	• Six FGs in Garut were planning to sell tomatoes to a supplier, PT. Sayuran Siap Saji. The harvest began in mid-August, but the supplier did not purchase tomatoes from these FGs as having enough tomatoes from other contract farmers. The trial project farmers had to sell the harvested tomatoes to the local market when the price was as low as IDR 500-1,000/kg. • Sayuran Siap Saji started buying tomatoes from the FGs in mid-September. Its purchasing price was IDR 4,500/kg.
Broccoli	• In Cianjur, three FGs (Saluyu, Utama, and Saridona 2) had shipping arrangements with Sayuran Siap Saji. Since 44% of the third shipment from the Saluyu FG was rejected without sufficient explanation. Saluyu discontinued the subsequent shipment and then sold the harvests to a local trader instead. Due to the low quality of the harvests due to pests, Saridona 2 could not ship broccoli to Sayuran Siap Saji but sold to a local trader. • In West Bandung, 20 participants were divided into four groups to start planting at different times. Most of them recorded a yield of around 100 kg from 100 m^2 of land. 70% of the harvests was grade A, except for four farmers who had a bad harvest due to the water shortages during the dry season.
Cauliflower	• Two FGs in Cianjur supplied cauliflower to Sayuran Siap Saji. Damage caused by pests was observed in some fields, which lead to a high rejection rate by the supplier.
Bean	• In Sukabumi, the harvest was supposed to be shipped to a local supplier, HSI, but due to several factors such as miscommunication between HSI and the farmers, the farmers did not sell beans to the supplier but sold to a local trader in late August. • A lack of water hindered the growth of beans, resulting in low yields. • With good irrigation and proper field management, farmers in Cianjur had a good harvest. The selling price to a local trader was as high as IDR 10,000/kg on average, which was elevated due to a supply shortage in the dry season.
Crystal Guava	• With the water shortage having affected the yield, some farmers completed the harvest in the dry season early and started preparations (trimming, pruning, fertilization, etc.) for the coming rainy season.
Kuroda Carrot	• In Bandung, the harvest was sub-optimal due to the lack of water. • Farmers in Garut were planning to supply Kuroda carrots to a supplier, PT. Agro Selaras Abadi. In the first shipment, the two parties could not reach an agreement on the arrangements such as the specifications, the packing method and how to deal with rejected carrots. The farmers discontinued shipments to Agro Selaras, and started shipping to Al Ittifaq that sells Kuroda to AEON and Super Indo. • In Cianjur, Kuroda carrots have been harvested and shipped to Papaya since late September. With the majority of the first two shipments being small carrots (around 10 cm in length), Papaya requested the supplying of a larger volume of bigger carrots (around 15 cm).
Japanese Vegetables	• The Mujagi FG in Cianjur has been supplying Japanese vegetables (Momotaro tomato, nasu, mizuna, and Kuroda carrot) to Papaya since the end of August. Since the harvest has been stable, the FG is planning to expand the cultivation of Momotaro tomato. • New markets other than Papaya should be found for the Japanese vegetables. • Piman from the FRT FG in West Bandung has been sold to Papaya through Saribhakti. While the sales price (per kilo) of piman to Saribhakti was not much different from that of paprika on FRT's own market,[17] piman fruits are smaller and lighter than paprika.[18] With growing piman being less advantageous in profitability than paprika with the current selling prices, direct supply to supermarkets should be sought.

[17] The sales price of piman to Saribhakti is IDR 32,000/kg while the sales price of paprika to FRT's own market is IDR 22,000/kg for green ones and IDR 30,000/kg for red ones.
[18] Three to four paprika fruits weigh 1 kg, while about 20 fruits are needed to weigh 1 kg for piman.

Table 30 Summary of Shipment to Collaborating Market Actors in the 2019 Dry Season

Commodity	District/City	No. of FG	Shipped (kg)	Accepted (kg)	Rejected (kg)	Good Product Rate (%)
To Sayuran Siap Saji						
Broccoli	Cianjur	3	726	607	119	84%
Cauliflower	Cianjur	2	1,162[19]	732	430	63%
Tomato	Garut	5	4,989	4,640	349	93%
To HSI						
Bean	Sukabumi	5	913[20]	402	512	44%
To Papaya						
Momotaro Tomato	Cianjur	1	1,132	1,117	15	99%
Nasu	Cianjur	1	993	985	8	99%
Kuroda Carrot	Cianjur	1	338	335	3	99%
Mizuna	Cianjur	1	119	113	6	95%
To Al Ittifaq						
Kuroda Carrot	Bandung, Garut	4	2,825	2,070	755	73%
To Agro Selaras Abadi						
Kuroda Carrot	Garut	1	400	0	400	0%

1-1-1-6 2019 Rainy Season

As discussed above, the trial project in the 2019 dry season focused on establishing solid value chains between FGs and different market actors, such as suppliers and supermarkets. With a view to making these relationships sustainable, the Project continued to support FGs in producing commodities for modern markets through the last round of the trial project (the 2019 rainy season).

Table 31 Commodities and Number of Participants in the 2019 Rainy Season

	District/City	Bogor	Sukabumi	Cianjur	Garut	Bandung	West Bandung	Total
	No. of FGs	5	6	5	5	4	2	27
1	Crystal Guava	21						21
2	Chili	5						5
3	Bean		8					8
4	Broccoli			13			18	31
5	Red Cabbage			5				5
6	Head Lettuce			5				5
7	Kuroda Carrot			4	14	13		31
8	Tomato	10	15	8	8		10	51
9	Momotaro Tomato			5		1		6
10	Piman			1				1
11	Industrial Potato				2	3		5
12	Kabocha[21]			1				1
Total		36	23	42	24	17	28	170

Following a series of meetings with suppliers as well as FGs, the Project put in place marketing arrangements for participating FGs as summarized in Table 32. With support from Project staff, farmers prepared schedules for cultivation and shipment that would meet the demand from suppliers.

[19] The actual weight at the shipment was 1,660 kg, 30% of which was represented by leaves and a stem. These were deducted from the total weight to obtain the good product rate shown in Table 30.
[20] The figure includes 230 kg of harvests from a non-target FG since it was collectively shipped and graded with target FGs.
[21] Japanese pumpkin

Table 32 Marketing Arrangements for the 2019 Rainy Season

Commodities	FGs	Market
Bogor District/City		
Tomato	Tunas Tani Pangrango	Sayuran Siap Saji
Tomato	Teguh Jaya Tani	Tunas Tani Pangrango (to Sayuran Siap Saji)
Chili	Bakti Mandiri	Wholesale market in Bogor
Crystal Guava	Bina Tani Sepakat	Own shops and retailers
Crystal Guava	Pemuda Tani Naratas	Retailers, direct customers
Sukabumi District/City		
Tomato	Ciloa, Bumi Mekar, Hikmah Tani, Al Mujahidin	HSI
Bean	Pandan Arum, Mucekil	HSI
Cianjur		
Kuroda Carrot	Mujagi, Padajaya, Utama	Papaya
Piman	Mujagi	Papaya
Broccoli	Padajaya, Saridona 2	Sayuran Siap Saji
Tomato	Utama	Sayuran Siap Saji
Momotaro Tomato	Mujagi, Utama	Papaya
Red Cabbage	Saluyu	Sayuran Siap Saji
Head Lettuce	Saluyu	Sayuran Siap Saji
Garut		
Industrial Potato	Cikandang Agro	Calbee Wings Food
Tomato	Hitda Mandiri, Mukti Tani Jando, Mekar Tani	Sayuran Siap Saji
Kuroda Carrot	Hitda Mandiri, Mukti Tani Jando, Mekar Tani, Barokah Karunia Tani	Al Ittifaq through Cikandang Agro
Bandung		
Momotaro Tomato	Al Ittifaq	Mujagi (to Papaya)
Kuroda Carrot	Hataki, Hikmah Farm, Mekar Tani	Al Ittifaq (to AEON and Super Indo)
Industrial Potato	Hikmah Farm, Mekar Tani	Calbee Wings Food
West Bandung		
Tomato	Panen Lestari	Yogya/Griya, Total Buah Segar
Broccoli	Sinar Mukti	Retailers with the own brand name “Rumah Sayur”

The resulting yields and profitability are set out in the following tables.

Table 33 Yield in the 2019 Rainy Season (kg/100m^2)

	Highest	Average	Average in Indonesia
Tomato	1,053	337	173
Broccoli	182	118	-
Bean	478	328	117
Crystal Guava (kg/20 trees)	855	341	-
Kuroda Carrot	143	24	175
Momotaro Tomato	333	153	-
Chili	211	156	84
Head Lettuce	174	144	-

Table 34 Profitability in the 2019 Rainy Season

	Material Cost (IDR/100 m^2)	Share of farmers who could cover the material cost
Tomato (Rainy)	998,800	55%
Broccoli (Rainy)	917,300	80%
Bean	686,000	100%
Crystal Guava	1,071,000	90%
Kuroda Carrot	374,750	10%
Momotaro Tomato	1,001,400	75%
Chili	810,900	100%
Head Lettuce	833,400	25%

Observations for the 2019 rainy season are summarized in Table 35, followed by the summaries (as of March 2020) of the shipments to the collaborating modern market actors. FGs in Cianjur established a cooperative called Koperasi Maju Berkah Mandiri (KMBM), through which four FGs shipped vegetables to Sayuran Siap Saji. As shown in Table 37, since KMBM sorted the harvests from farmers before shipping them to the supplier, the rejection rates at Sayuran Siap Saji were low with those rejected by KMBM being sold to other markets. Due to the COVID-19 outbreak, inter-district transportation was restricted from late March 2020, and thus many supermarkets in Jakarta canceled orders, resulting in low shipment amounts in the rainy season. Due to sharply decreased demand for Kuroda carrots from supermarkets, Al Ittifaq in Bandung could not receive Kuroda carrots harvested by other FGs, as a result of which many farmers could not sell produce at a better price, resulting in low profitability. In addition, the yield of Kuroda carrot was not optimum due to heavy rain right after sowing and germination, which caused poor growth of seedlings.

Table 35 Observations on the 2019 Rainy Season

Commodity	Observations
Tomato	• By selling to HSI, farmers in Sukabumi benefitted from a selling price of IDR 7,000/kg, which was about 1.5 times higher than the local market price. • Some rain shelters in Tunas Tani Pangrango in Bogor were damaged by strong winds, which resulted in an outbreak of rain-caused diseases. • In West Bandung, potassium deficiency caused fallen flowers and changed the color of stems and leaves, in response to which the Project provided instruction on proper top-dressing.
Broccoli	• In Cianjur, the use of rain shelters improved the yield and quality of broccoli, which led to a higher selling price (IDR 13,000/kg) to local suppliers while the price of broccoli grown without rain shelters was only IDR 8,000/kg. • Due to the above-mentioned high selling price to local suppliers, selling produce at IDR 14,000/kg to Sayuran Siap Saji, whose requirements were stricter, became unattractive to farmers.
Bean	• In Sukabumi, two farmers harvested over 400 kg from 100 m^2 of land, almost three times larger than the Indonesian average. Due to lower sales prices, however, the profit they made remained the same as that of the previous dry season when the yield was lower. • More farmers grow beans in rainy seasons than in dry seasons, and thus the increased supply in the market lowered the price of beans.
Crystal Guava	• Having enough water in this rainy season, most farmers were able to keep their guava trees in good condition and achieved high yields with good quality. • One farmer grew around 90 guava trees, 20 of which were under the trial project; he managed the rest using his own method with little fertilizer being applied. The total yield from all 90 trees in one harvest was 70 kg, half of which was produced by the 20 trees under the trial project. Although he witnessed this great difference in productivity, he still did not apply the techniques introduced by the Project to other plants because of the workload.

Kuroda Carrot	• Intensive rain washed away the sown seed and thus the germination rate was low for some fields. The heavy rain also swept the soil from the beds, especially those with carrots sown in two rows, resulting in poor plant growth.[22] • Some Kuroda carrots harvested in Garut and Bandung were sold to Hataki FG in Bandung at the high price of IDR 8,000 per kg. • Due to the COVID-19 outbreak, the demand from supermarkets sharply decreased, and thus Al Ittifaq could not receive Kuroda carrots harvested by other FGs, as a result of which many farmers could not sell produce at a better price, resulting in low profitability.
Momotaro Tomato	• The yield was low due to a viral disease in the field of Utama in Cianjur. • The condition of Momotaro tomatoes in the field of Al Ittifaq was sub-optimal due to disease outbreaks (powdery mildew and a viral disease) as well as a physical disorder that resulted from excessive nitrogen absorption.
Chili	• Two of the five participants in Bogor harvested around 200 kg from 100 m^2 of land, which was more than twice the Indonesian average. All five farmers had sales greater than the material costs.
Head Lettuce	• Selling to a local market at the price of IDR 10,000/kg was more beneficial to farmers than selling to Sayuran Siap Saji at IDR 4,500/kg.

Table 36 Summary of Shipment to Collaborating Market Actors in the 2019 Rainy Season

Commodity	District	No. of FG	Shipped (kg)	Accepted (kg)	Rejected (kg)	Good Product Rate (%)
To Sayuran Siap Saji						
Tomato	Garut, Bogor	5	1,402	1,398	4	100%
To HSI						
Bean	Sukabumi	2	86.0	83.9	2.1	98%
Tomato	Sukabumi	4	428.5	426.3	2.2	99%
To Papaya						
Piman	Cianjur	1	106.5	106.5	0	100%
Momotaro Tomato	Cianjur	2	556.0	555.5	0.5	100%
Kabocha	Cianjur	1	24	24	0	100%
Kuroda Carrot	Cianjur	3	47	47	0	100%
To Hataki						
Kuroda Carrot	Bandung, Garut	2	31	31	0	100%

Table 37 Summary of Shipment to Sayuran Siap Saji from FGs in Cianjur through KMBM in the 2019 Rainy Season

Commodity	No. of FG	Shipped	By KMBM		Good Product Rate (%)	By Sayuran Siap Saji		Good Product Rate (%)
			Accepted	Rejected		Accepted	Rejected	
Broccoli	3	543	486	57	90%	463.5	22.5	95%
Head Lettuce	1	477	429	48	90%	398.5	30.5	93%
Red Cabbage	1	39	38	1	97%	29	9	76%
Tomato	2	2,730	2,719	11	100%	2,641.5	77.5	97%

1-1-1-7 2020 Rainy Season

In response to the recommendation by the terminal evaluation, the trial project in the 2020 rainy season (October 2020 to March 2021) was implemented for seeing the profitability of the introduced techniques when they were applied in regular field sizes (400 to 1,200 m^2). Due to implementation of activities under Covid-19 pandemic, the number of participants were minimal, two to four farmers in each district, who were recommended by DINAS from the participants in the 2019 trial project. Same as the past trial projects, the Project provided materials, such as basal fertilizer, seeds, and mulching sheets, necessary for the

[22] With the soil carried away by the rain, the roots of young carrots just after germination were exposed. This inhibited the growth of the roots.

preparation of planting, while farmers covered costs of some materials and agro-chemicals applied during the cultivation as well as labor costs. The Project prepared a format to record all the expenses during the cultivation and revenues from the harvests. The table below is the summary of the trial project in the 2020 rainy season.

Table 38 Summary of the Trial Project in the 2020 Rainy Season

	FG	Commodity	Land Size (m^2)
Bogor District			
1	Bina Tani Sepakat	Crystal Guava	95 trees
2	Bina Tani Sepakat	Crystal Guava	54 trees
Sukabumi City			
1	Mucekil	Bean	492
2	Mucekil	Bean	400
Sukabumi District			
1	Hikmah Tani	Tomato	812
Cianjur District			
1	Mujagi	Kyuri	320
2	Mujagi	Kabocha	270
Garut District			
1	Mekar Tani	Bean	400
2	Mekar Tani[23]	Curly Chili	500
3	Cikandang Agro	Tomato	500
4	Hitda Mandiri	Tomato	400
Bandung District			
1	Hikmah Farm	Kuroda carrot	1,000
West Bandung District			
1	Sinar Mukti	Kyuri	600
2	Sinar Mukti	Broccoli	500
3	Sinar Mukti	Broccoli	400
4	Panen Lestari	Broccoli	550
5	Panen Lestari	Broccoli	550

(1) Kabocha

Mujagi in Cianjur grew a Japanese variety of Kabocha (Delica) in 270 m^2 of land for a supermarket, Papaya Fresh Gallery in Jakarta. The selling price was agreed at IDR 10,000/kg, which was more than twice as high as the price of the local variety to the local market. A total of 407 kg of fruits were harvested by February 2021, of which only 70 kg was shipped to Papaya. As a result, the farmer made a loss of IDR 2.317,100 as shown in the following table.

[23] Profit and loss analysis of Mekar Tani's chili production could not be made because harvest was not started by the end of the Project period. However, the farmer observed a higher number of fruits in one plant and improved resistance to disease compared to his regular chili production in the fields nearby.

Table 39 Profit and Loss Analysis of the Kabocha Trial Project (IDR)

District	Cianjur	Reference Indicator in Japan
FG	Mujagi	
Land size (m^2)	270	
Yield (sold amount) (kg)	70	
Yield per 100 m^2	26	
Total cost of production (1)	3,017,100	
Input and other costs	2,237,100 (74.1%)	
Seed	500,000	
Fertilizer	177,600	
Manure/Compost	297,000	
Materials	547,500	
Pesticide	230,000	
Fungicide	458,000	
Sac/Package	0	
Transport	27,000	
Others	0	
Labor costs	780,000 (25.9%)	
Total sales (2)	700,000	
Average selling price (IDR/kg)	10,000	
Gross profit (3) = (2)-(1)	-2,317,100	
Profit rate (4) = (3)/(2)	-331.0%	30.0%[24]

There were several reasons for the low quality of the harvests. Wild boars damaged many fruits from late January to early February. Long rain and fog in early February brought disease to many plants. To avoid further damage of the disease, Mujagi harvested all the fruits in early February, some of which were still immature, and kept all the harvests in the warehouse to ripen them. However, many fruits were mildewed due to the humid condition in the warehouse and thus thrown away.

If the damage of the boars had been avoided and most plants had been sold to Papaya (around 500 kg), the farmer could have made a profit of over IDR 2 million. To maintain the quality, it is important to make a cultivation plan to have harvest before or after rainy season. Measures against wild boars should also be taken, such as selecting fields in residential areas instead of those in mountainous areas. In rainy season, the use of rain shelters (roofs only) is more recommended than that of screen houses for natural pollination.

(2) Kyuri

Mujagi in Cianjur cultivated Kyuri in 320 m^2 and harvested 1,018 kg, of which 899 kg was sold to Papaya in Jakarta and the local market while Sinar Mukti in West Bandung grew Kyuri in 400 m^2 and had 2,361 kg of harvests mainly for a local market.

[24] Agricultural performance indicator of Hiroshima prefecture. https://www.pref.hiroshima.lg.jp/soshiki/84/1268015506945.html

Table 40 Profit and Loss Analysis of the Kyuri Trial Projects (IDR)

District	Cianjur	West Bandung	Reference Indicator in Japan
FG	Mujagi	Sinar Mukti	
Land size (m^2)	320	400	
Yield (sold amount) (kg)	899	2,361	
Yield per 100 m^2	281	590	
Total cost of production (1)	4,753,600	4,016,000	
Input and other costs	2,833,600 (59.6%)	3,181,000 (79.2%)	
Seed	170,000	180,000	
Fertilizer	562,600	608,000	
Manure/Compost	704,000	900,000	
Materials	435,000	1,039,000	
Pesticide	150,000	50,000	
Fungicide	748,000	275,000	
Sac/Package	0	0	
Transport	64,000	0	
Others	0	129,000	
Labor costs	1,920,000 (40.4%)	835,000 (20.8%)	
Total sales (2)	7,028,000	6,109,500	
Average selling price (IDR/kg)	7,818	2,588	
Gross profit (3) = (2)-(1)	2,274,400	2,093,500	
Profit rate (4) = (3)/(2)	32.4%	34.3%	56.4%[25]

Both FGs achieved profit rates of over 30% thanks to the use of nets and other techniques introduced. Especially Sinar Mukti appreciated that the nets had allowed kyuri vines to grow wider and improved the quality of fruits (most of them were straight). The rate of good products meeting the supermarket's requirement improved from 60% to 95%, which is as high as that of agricultural corporates cultivating kyuri in screen houses.

Sinar Mukti originally planned to ship Kyuri to a supplier (to a supermarket) at good prices. Due to the oversupply of Kyuri to the supermarket from different sources, however, the FG had to sell most harvests to the local market at IDR 2,588/kg on average. Having acquired the techniques to maintain the good quality of Kyuri, Sinar Mukti should further diversify its markets to achieve a higher profit rate.

(3) Bean

Two farmers of Mucekil in Sukabumi City cultivated beans in 492 m^2 and 400 m^2 respectively for the local market. With yields of around 300 kg per 100 m^2, both farmers made a profit of over IDR 5 million. Another bean farmer of Mekar Tani in Garut had harvests of 268 kg/100 m^2 for a local market, which resulted in a profit of only IDR 1,162,500.

[25] Agricultural performance indicator of Nagano prefecture. https://www.pref.nagano.lg.jp/nogi/keiei/keiei_list.html

Table 41 Profit and Loss Analysis of the Bean Trial Projects (IDR)

District/City	Sukabumi City	Sukabumi City	Garut	Reference Indicator in Japan
FG	Mucekil	Mucekil	Mekar Tani	
Land size (m^2)	492	400	400	
Yield (sold amount) (kg)	1,472	1,365	1,070	
Yield per 100 m^2	299	341	268	
Total cost of production (1)	3,261,000	2,635,750	3,904,000	
Input and other costs	3,261,000 (100%)	2,635,750 (100%)	1,998,000 (51.2%)	
Seed	219,000	219,000	292,000	
Fertilizer	767,500	598,000	584,000	
Manure/Compost	984,000	800,000	600,000	
Materials	950,500	818,750	472,000	
Pesticide	245,000	105,000	50,000	
Fungicide	95,000	95,000	0	
Sac/Package	0	0	0	
Transport	0	0	0	
Others	0	0	0	
Labor costs	0 (0%)	0 (0%)	1,906,000 (48.8%)	
Total sales (2)	9,657,000	8,219,000	5,066,500	
Average selling price (IDR/kg)	6,560	6,021	4,735	
Gross profit (3) = (2)-(1)	6,396,000	5,583,250	1,162,500	
Profit rate (3)/(2)	66.2%	67.9%	22.9%	62.3%[26]

The effective use of net allowed the two farmers of Mucekil to achieve the yield of around or over 300 kg per 100 m^2. They did not hire any labor since the farmers and their family members did all the work in the fields, which minimized the production costs. Furthermore, they enjoyed relatively preferable local market price (around IDR 6,000-6,500/kg). As a result, their profit rates reached over 65%, which meets the indicator of 62.3% for Japanese farmers.

Although the yield of the farmer in Garut was still good (2.3 times as high as the Indonesian average of 117 kg/100 m^2), his profit rate was around one third of that of the other two farmers in Sukabumi. Labor costs accounted for 48.8% of the total production costs. Furthermore, the lower local market price in Garut (IDR 4,735 on average) than that of Sukabumi resulted in the lower sales and profit.

(4) Broccoli

Four farmers of Panen Lestari and Sinar Mukti in West Bandung cultivated broccoli in 500-600 m^2 of land. Panen Lestari farmers sold harvests to a supermarket and local market while Sinar Mukti farmers sold harvests to consumers through Instagram or Shopee (an EC site) under their own brand “Rumah Sayur” and also to a local trader/market. Their yields ranged from 98 kg to 184 kg per 100 m^2.

[26] Agricultural performance indicator of Nagano prefecture. https://www.pref.nagano.lg.jp/nogi/keiei/keiei_list.html

Table 42 Profit and Loss Analysis of the Broccoli Trial Projects (IDR)

District/City	West Bandung	West Bandung	West Bandung	West Bandung	Reference Indicator in Japan
FG	Panen Lestari	Panen Lestari	Sinar Mukti	Sinar Mukti	
Land size (m^2)	550	550	600	500	
Yield (sold amount) (kg)	1,013	538	920	677	
Yield per 100 m^2	184	98	153	135	
Total cost of production (1)	6,071,900	6,089,700	5,838,200	5,085,853	
Input and other costs	5,091,900 (83.9%)	4,701,700 (77.2%)	4,628,200 (79.3%)	4,194,853 (82.5%)	
Seed	230,000	230,000	230,000	318,020	
Fertilizer	1,033,900	1,168,700	1,018,800	849,000	
Manure/Compost	1,500,000	650,000	750,000	500,000	
Materials	1,978,000	2,278,000	2,254,400	2,105,333	
Pesticide	75,000	100,000	100,000	83,333	
Fungicide	275,000	275,000	275,000	229,167	
Sac/Package	0	0	0	0	
Transport	0	0	0	0	
Others	0	0	0	110,000	
Labor costs	980,000 (16.1%)	1,388,000 (22.8%)	1,210,000 (20.7%)	891,000 (17.5%)	
Total sales (2)	9,837,000	6,994,000	9,789,000	7,725,000	
Average selling price (IDR/kg)	9,711	13,000	10,640	11,411	
Gross profit (3) = (2)-(1)	3,765,100	904,300	3,950,800	2,639,147	
Profit rate (3)/(2)	38.3%	12.9%	40.4%	34.2%	29.3%[27]

With rain shelters improving the quality of buds and minimizing the damage of disease that could be extensive in rainy season, three out of four farmers had yields of over 100 kg/100 m^2. With the selling price being around IDR 10,000/kg, all the farmers made a profit, three of whom met the indicator for Japanese farmers. The input costs of a farmer of Sinar Mukti was high since many seed did not germinate, for which he purchased additional seed and grew them in the nursery to transplant them in 100 m^2. Neverthless, he achieved a profit rate of 34.2%. One of the farmers of Panen Lestari had the yield of 538 kg at the end of the Project. With his harvest still continuing, however, over 100 kg of additional harvests expected will improve the profitability.[28] Although rain shelters are costly, as input and other costs accounted for around 80% of the production costs, the farmers understood that investment in the rain shelters could pay off and contribute to higher profitability.

(5) Crystal Guava

Two farmers of Bina Tani Sepakat in Bogor grew Crystal Guava, both of whom had learned the introduced techniques in the previous rounds of the trial projects. This time, they applied the techniques to the larger number of trees.

[27] Agricultural performance indicator of Nagano prefecture. https://www.pref.nagano.lg.jp/nogi/keiei/keiei_list.html
[28] Around 20% of the profit rate is expected by the end of cultivation.

Table 43 Profit and Loss Analysis of the Crystal Guava Trial Projects (IDR)

District	Bogor	Bogor
FG	Bina Tani Sepakat	Bina Tani Sepakat
Number of trees	95	54
Yield (sold amount) (kg)	1,965	1,624
Yield per 20 trees	414	601
Total cost of production (1)	7,196,110	4,426,932
Input and other costs	4,796,110 (66.6%)	2,982,932 (67.4%)
Seed	0	0
Fertilizer	523,260	297,432
Manure/Compost	0	0
Materials	2,707,850	1,803,500
Pesticide	572,250	317,700
Fungicide	992,750	564,300
Sac/Package	0	0
Transport	0	0
Others	0	0
Labor costs	2,400,000 (33.4%)	1,444,000 (32.6%)
Total sales (2)	15,892,000	11,713,000
Average selling price (IDR/kg)	8,088	7,060
Gross profit (3) = (2)-(1)	8,695,890	7,286,068
Profit rate (3)/(2)	54.7%	62.2%

The two farmers had the yields of 414 kg and 601kg per 20 trees,[29] with high profit rates of 54.7% and 62.2%, respectively. Since the former farmer made a good profit even with disease observed in some parts of the field, he appreciated the benefits of the introduced techniques.

The decreased market prices in the wholesale market near Jakarta (IDR 6,500/kg for Grade A and B and IDR 3,000 for Grade C in February and March 2021, which were 30-40% lower than usual prices) due to a high supply of crystal guava affected the profitability. The farmers, therefore, diversified their marketing channels by directly selling to consumers.

(6) Kuroda Carrot

Hikmah Farm in Bandung grew Kuroda Carrot in 1,000 m^2 of land. A total of 480 kg was harvested and sold to a supplier to Horeca. As a result, the farmer made a loss of IDR 4,876,250 as shown in the following table.

[29] The two farmers yields were around two times as high as the average yield of the former trial projects in rainy season, which was around 230 kg.

Table 44 Profit and Loss Analysis of the Kuroda Carrot Trial Project (IDR)

District	Bandung	Reference Indicator in Japan
FG	Hikmah Farm	
Land size (m^2)	1,000	
Yield (sold amount) (kg)	480	
Yield per 100 m^2	48	
Total cost of production (1)	6,076,250	
Input and other costs	4,433,250 (73.0%)	
Seed	182,000	
Fertilizer	2,930,750	
Manure/Compost	0	
Materials	0	
Pesticide	606,750	
Fungicide	588,750	
Sac/Package	0	
Transport	0	
Others	125,000	
Labor costs	1,643,000 (27.0%)	
Total sales (2)	1,200,000	
Average selling price (IDR/kg)	2,500	
Gross profit (3) = (2)-(1)	-4,876,250	
Profit rate (4) = (3)/(2)	-406.4%	30%[30]

To prevent the seed from being flushed away by rain, the seed was sown in four rows. Although the plants seemed to grow healthy with no major damage by rain, the yield was as low as 48 kg /100 m^2, partly because of the suboptimal germination rate. Besides, many tubers were short or forked and thus could not be sold, which might have been caused by poor drainage of the soil; it might have suffocated roots and hindered their growth.

Proper thinning should be conducted to maintain appropriate planting spaces, to remove unhealthy plants, and hence to improve the yield and quality of roots. According to Takii Seed, sowing seed with soil can also promote germination. For better drainage, the company also recommended deeper plowing or making higher beds though they require more labor. The selection of lands suitable for Kuroda Carrots (soil with good drainage), therefore, is important to achieve profitable cultivation of Kuroda Carrots.

(7) Tomato

One farmer of Hikmah Tani in Sukabumi cultivated tomatoes for in 812 m^2 and two farmers of Cikandang Agro and Hitda Mandiri in Garut grew tomatoes in 400 m^2 respectively. Hikmah Tani sold the harvested tomatoes to a trader who appreciated the quality and a market in Cianjur, where the selling price was high, while two FGs in Garut sold their harvests to local markets. Hikmah Tani's yield was 1,020 kg per 100 m^2 while that of Cikandang Agro was 31 kg and Hitda Mandiri was 417 kg per 100 m^2.

[30] Agricultural performance indicator of Chiba prefecture for carrot in general.
https://www.pref.chiba.lg.jp/nousui/keikaku/nourinsuisan/kibankyouka.html

Table 45 Profit and Loss Analysis of the Tomato Trial Projects (IDR)

District	Sukabumi	Garut	Garut	Reference Indicator in Japan
FG	Hikmah Tani	Cikandang Agro	Hitda Mandiri	
Land size (m^2)	812	400	400	
Yield (sold amount) (kg)	8,281	122	1,669	
Yield per 100 m^2	1,020	31	417	
Total cost of production (1)	13,229,000	4,910,000	4,773,000	
Input and other costs	10,229,000 (77.3%)	2,961,000 (60.3%)	2,961,000 (62.0%)	
Seed	460,000	165,000	165,000	
Fertilizer	857,000	608,000	608,000	
Manure/Compost	812,000	168,000	168,000	
Materials	4,654,000	1,715,000	1,715,000	
Pesticide	327,000	50,000	50,000	
Fungicide	442,000	255,000	255,000	
Sac/Package	0	0	0	
Transport	2,500,000	0	0	
Others	177,000	0	0	
Labor costs	3,000,000 (22.7%)	1,949,000 (39.7%)	1,812,000 (38.0%)	
Total sales (2)	46,383,000	365,500	5,887,100	
Average selling price (IDR/kg)	5,601	2,996	3,527	
Gross profit (3) = (2)-(1)	33,154,000	-4,544,500	1,114,100	
Profit rate (4) = (3)/(2)	71.5%	-1243.4%	18.9%	26.8%[31]

In Hikmah Tani's field, installed rain shelters as well as appropriate care taken by the farmer effectively controlled the disease spread and greatly improved the yield and quality of fruits (size and shape). With the good quality of fruits, the farmer marketed his produce to a new trader, who purchased good quality tomatoes at a higher price (IDR 5,000/kg compared to IDR 3,000/kg in the local market). With the information from the project staff on a high demand for good quality large tomatoes from a buyer in the Cipanas Market in Cianjur, the farmer contacted and negotiated with him, after which he sold large tomatoes to the buyer at IDR 6,000-7,000/kg. At the end of the project, the farmer still continues harvesting, expecting 1,500 kg of additional harvests by the end of the cultivation.

Cikandang Agro in Garut suffered from the disease from the beginning; 70% of the seedlings in the nursery were infected with disease. Although half of the plants were replaced, disease still spread due to lack of care by the farmer as well as thick fog, which resulted in the low yield of 122 kg. In contrast, with the minimal damage of the disease, Hitda Mandiri harvested 1,669 kg by the end of the project. Harvesting still continues with around 800 kg of additional harvests expected by the end of cultivation[32]. The farmer appreciated that the introduced techniques such as rain shelters improved the plants' resistance to disease and increased the number of fruits per plant.

(8) Other Activities[33]

i) Variety Test of Kuroda Carrot

In collaboration with Takii Seed, the growth of two new varieties of Kuroda Carrot that are suitable for rainy season was compared to the variety that was used in the past trial projects and suffered from disease

[31] Agricultural performance indicator of Nagano prefecture. https://www.pref.nagano.lg.jp/nogi/keiei/keiei_list.html
[32] Around 35-40% of the profit rate is expected by the end of cultivation.
[33] Good practices related to sales promotion and cooperation with different actors for improvement of farming initiated by the farmers groups during the 2020 rainy season are summarized in Annex 8.18.

in rainy season. They were grown in 250 m^2 each in the fields of Hikmah Farm in Bandung. The harvest results are summarized in the following table.

Table 46 Results of the Kuroda Carrot Variety Test

Variety	Terracotta	TI-108	New Kuroda
Description	Tolerant of disease in humid condition (available in the Philippines as a variety for rainy season).	Tolerant of rain and high temperature (available in the Philippines as a variety for rainy season).	Registered in Indonesia and used in the past trial projects.
Yield (kg/250 m^2)	230	85	105
Yield (kg/100 m^2)	92	34	42

Although the plants did not show any severe damage by rain, the yields of the two varieties were far lower than the expected yield (300 kg/100 m^2). Similar to the result of the Kuroda Carrot trial project described above, the germination rate was not optimal. Many tubers were short or forked due to poor drainage of the soil. While proper thinning, deeper plowing, or making higher beds can be countermeasures against the problems, the test could not show any advantages of the two varieties in rainy season. Since the yield and quality of Kuroda Carrots tend to be lower in the soil with poor drainage, Takii Seed proposed to conduct another variety test in a different field.

ii) Long Bean Production in the Demo Plot

On the 23rd of January, Bina Tani Sepakat in Bogor held a training on long bean cultivation to share the techniques introduced by the Project with the FG's members and other neighboring farmers. In the demo plot (200 m^2), the leader of Bina Tani Sepakat taught seven farmers the techniques (nursery, installation of nets, pinching main shoots to promote the growth of side shoots, top dressing, trimming, etc.). The project staff also attended the training, where they also explained the benefits of using nets and shared the successful cases of bean production in other districts.

The leader highly appreciated that the introduced techniques did not only improve the yield and quality of harvests but also make the cultivation easier. The yield from the demo plot amounted to 301 kg (151 kg/100 m^2), which is 29% higher than the Indonesian average of 117 kg/100 m^2.

iii) Collaboration with a Private Company in Crystal Guava Production

Bina Tani Sepakat in Bogor is collaborating with PT. Agro Berkah Sinergi in crystal guava production. With funds for the field, inputs, and labor provided by the company, a total of 1,200 nursery trees were transplanted in 1.4 ha of land. The FG and company will search for markets together while the profit from the sales of crystal guavas will be shared between them. Since it will take two years for the trees to start fruiting, the FG also planted seedlings of sweet potato and chili between the crystal guava trees to make a profit earlier from the same field.

1-1-1-8 Technical Workshops on Crystal Guava

Five FGs in Bogor City/District implemented a trial project on crystal guava. In collaboration with the Center for Tropical Horticulture Studies, Bogor University of Agriculture (IPB), the Project held a technical workshop on the production of crystal guava for each round of the trial project. The workshops consisted of a lecture/discussion session and field exercises. In the first session, the IPB lecturer explained specific technical points such as: i) pruning of branches; ii) thinning of fruits; iii) fertilization; iv) pest and disease control; and v) bagging methods, followed by active discussions among the lecturer and farmers. Then, the participants practiced these techniques in the field exercises.

Table 47 Number of Participants in Technical Workshops on Crystal Guava

	Date	FG	Farmers	DGH	DINAS	POPT[34]	Total
First Workshop	14 February 2017	4	31				31[35]
Second Workshop	13 October 2017	5	32	6	2		40
Third Workshop	25 April 2018	2	16	4	2		22
Fourth Workshop	5 December 2018	2	12	7	6		25
Fifth Workshop	30 May 2019	2	11	4	1	2	18
Sixth Workshop	20 November 2019	2	17	3	1		21

1-1-2 Implementation of the Short-term Training for Level C Farmers' Groups

While level A and B FGs participated in the trial project, the Project provided level C FGs with short-term training, in which farmers learned: i) appropriate nursery management methods for producing quality seedlings of selected vegetables; ii) proper pest and disease control methods for selected vegetables; and iii) planting planning that includes proper timing of planting considering market demand and appropriate crop rotation methods. The training was conducted in collaboration with OISCA, which has experience in providing similar training to local farmers. During the Project period, the training sessions were held at the OISCA training center in Sukabumi twice, in May 2017 and July 2018, for FGs in four districts: Sukabumi, Bogor, Cianjur, and Garut. Three farmers from each group as well as selected extension staff and/or technical officers of DINAS in the respective districts participated in the training. The training reports are attached as Annex 8.6.

Table 48 Participants of the Short-term Training for Level C Farmers' Groups

District	Date	FG	Farmers	DINAS	Total
2017					
Sukabumi	8-10 May	5	18	4	22
Bogor	11-13 May	7	16	3	19
Cianjur	14-16 May	8	19	2	21
Garut	17-19 May	8	24	2	26
Total		28	77	11	88
2018					
Sukabumi	1-3 July	6	16	4	20
Bogor	4-6 July	4	10	4	14
Cianjur	7-9 July	7	17	3	20
Garut	10-12 July	7	16	1	17
Total		24	59	12	71

1-1-3 Seed Import and Variety Registration of Japanese Vegetables

With a view to supporting farmers who intended to cultivate new marketable varieties, the Project worked on the importing of Japanese seed as well as the registration of four Japanese varieties with the government.

Table 49 Main Activities for the Seed Import and Variety Registration for Japanese Vegetables

Activities	Date
Import of sample seed of eight Japanese vegetables from Takii.	24 August 2017
Trial cultivation of the eight Japanese vegetables at Saribhakti in Bandung.	September 2017 - January 2018
Technical workshop for the adaptation/observation test for the variety registration of four Japanese vegetables.	14 August 2018
Adaptation/observation test for the variety registration.	September 2018 - July 2019
Completion of the variety registration of mizuna, nasu, and Momotaro tomato.	April 2019
Completion of the variety registration of piman.	September 2019

[34] Pengendali Organisme Pengganggu Tanaman (Controller of Plant Infectious Organisms)
[35] The number of participants other than farmers was not recorded.

Based on recommendations from the Director of the Directorate of Horticulture Seeds, the Project decided to work with PT. Tani Murni, an Indonesian seed dealer/importer, for the seed imports as PT. Tani Murni had worked with Takii Co., Ltd., a Japanese seed company, for many years as an agent and had sufficient experience in importing Japanese and Korean vegetable seed. It was agreed among Tani Murni, Takii and the Project that Takii would send to the Project sample seed of eight Japanese varieties through Tani Murni as shown below.

Table 50 List of Japanese Vegetables Provided by Takii

Commodities	Scientific Name	Proposed Varieties
Mizuna	Brassica rapa var. laciniifolia	TI-120
Mustard Spinach (Komatsuna)	Brassica rapa var. perviridis	SUMMER FEST
Piman	Capsicum annuum L. 'grossum'	TI-096
Nasu	Solanum melongena	MONEY MAKER NO.2
Kyuri	Cucumis sativus L.	SOARER
Kabocha	Cucurbita moschata	DELICA
Momotaro Tomato	Solanum lycopersicum	TI-08W
Carrot	Daucus carota subsp. sativus	TERRACOTTA

In April 2017, Tani Murni submitted the application documents for the import of the eight Japanese seed varieties, for which the import permit was issued on the 30th of May by the Ministry of Agriculture. Takii sent the seed (around 1,000 for each variety) on the 26th of June, and the Project received them on the 24th of August.[36] Once the Project provided the technical guide for planting Japanese vegetable seed, the Saribhakti FG in Bandung began cultivation in late September according to the planting schedule the Project proposed. With periodic monitoring conducted by the Project during the cultivation period, farmers started harvesting vegetables from late November 2017. The Project supported the marketing of the Japanese vegetables to modern markets in Jakarta (details described in 1-3).

With the sowing of the sample seed provided by Takii completed, Saribhakti requested new seed for further cultivation. However, Tani Murni stated that a seed importer was required to complete the imported seed variety registration with the government in order to commercially sell the imported seed. Among the eight vegetables, only one variety (Delica, Japanese pumpkin) was able to complete the variety registration at that time. Following consultation with the Section of Variety Assessment and Release of the DGH, Tani Murni and the Project decided to conduct the Japanese vegetable seed variety registration including mizuna, nasu, piman and Momotaro tomato.[37]

For the variety registration, either an adaptation or observation test needs to be conducted, depending on the applied variety (refer to Annex 8.7 for details on the tests as well as the application procedure). Since the adaptation test must be conducted within three different districts, the Project selected as test sites three FGs (Saribhakti in Bandung, Mujagi in Cianjur, and Gerbang Emas in West Bandung) that were involved in the 2017 trial project.

Since the adaptation/observation test had many parameters to be checked and required a specific documentation method, the Project invited Padjadjaran University (UNPAD) for the data collection and preparation of the technical reports to be submitted. A technical workshop for the seed adaptation test was held on the 14th of August 2018 in Bandung to explain to participating FGs the details of the arrangements, such as field preparation, fertilizer application, pest management, and monitoring and record-keeping methods. The test commenced in late September when the seed for four Japanese vegetables were sown over the fields.

[36] It took 1.5 month to pass the Bandung Quarantine Office as they were reluctant to release the seed without conducting a clearance test, which requires around 1,000 seed each. The quarantine office releases the seed without the clearance test under the following conditions: i) The Project must periodically report to the quarantine office the conditions of plant growth such as the status of pest and disease; ii) Should any cases of pest or disease be identified, the quarantine office will conduct a field survey to take samples from infected plants so as to carry out a laboratory test; and iii) Should specific cases of pest or disease be identified, all plants and remaining seed will be incinerated.

[37] Out of the eight vegetables, these four vegetables were in high demand on the markets.

With the data of mizuna, nasu, and Momotaro tomato collected by UNPAD, Tani Murni prepared a set of application documents for the three vegetables and submitted it to the Ministry of Agriculture on the 8th of March 2019. The registration was completed on the 18th of April, and Tani Murni received the registration numbers of the three varieties on the 13th of June, with which Tani Murni became able to import the seed varieties from Japan and sell them on the Indonesian market.

The registration of piman required an observation test, which was conducted during two seasons. The second observation test was completed in mid-July. Tani Murni submitted the application documents on the 26th of July, followed by an evaluation committee review held in late August. The revised application reflecting the comments made in the evaluation committee was approved in mid-September, and the registration number was issued by the Ministry of Agriculture on the 14th of October 2019.

1-1-4 Collaboration with PT. Calbee Wings Food for Potato Production

PT. Calbee Wings Food (CWF), a joint venture in Indonesia of Calbee Inc. in Japan, planned to locally procure potatoes for processing since the Ministry of Agriculture promoted the use of domestic vegetables in place of imports. In line with the company's plan as well as farmers' interest in the contract farming of potatoes for a large industry, the Project collaborated with CWF through five rounds of trial projects and one round of contract farming. Technical instruction was provided by CWF so that farmers could learn the cultivation methods appropriate for industrial potatoes. The Project contributed to the monitoring of the fields as well as the preparation of the materials needed.

Table 51 Five Rounds of the Trial Project and Contract Farming on Industrial Potato with CWF

Round	Location	Number of Farmers	Area (m^2)	Variety	Cultivation Period
1	Garut	3	1,340	Median (local)	Apr – Aug 2017
2	Garut, Bandung	15	7,859	Median (local)	Dec 2017 – Apr 2018
Contract Farming	Garut, Bandung	9	12,958	Median (local)	Aug 2018 – Jan 2019
3	Bandung	10	5,173	Median (local)	Sep 2018 – Jan 2019
4	Garut, Bandung	4	3,000	Median (local)	Mar – Jul 2019
			190	Atlantic (import)	
5	Garut, Bandung	5	6,000	Bliss (import)	Nov 2019 – Mar 2020

After several visits in the first quarter of 2017 to the fields of farmers who were interested in working with CWF, it was agreed that the first trial project would be conducted on potato with three farmers of Cikandang Agro in Garut. The planting area for the CWF project totaled 1,340 m^2, including two additional plots (120 m^2 each) for examining the effects of two different applications of basal fertilizers so that CWF could identify the suitable mixture of fertilizers for promoting better plant growth. The Project supported three farmers in planting seed potatoes on the 18th, 19th and 24th of April 2017 according to the technical specifications provided by Calbee Wings.

Representatives of Calbee Inc. in Japan and CWF visited the trial project site in Garut from the 17th to the 20th of July 2017 and conducted detailed field surveys to observe the condition of plants, estimate the amount of production, collect sample soil, and check locally available agro-inputs.

Harvesting was conducted in August the yield for which is shown in Table 52. CWF acknowledged that the productivity of 20-25 tons/ha in most fields was fairly good though quality should be further improved since the acceptance rate (sorted by size and defects) at the field was relatively low, ranging from 48% to 72% of total production depending on the plot.

Table 52 Results of the First Trial Project on Industrial Potato with CWF

Farmer	Area (m^2)	Total Yield (kg)	Within Spec (kg)	%	Total Yield (ton/ha)	Marketable[38] (ton/ha)
Teten	400	834	466	56%	20.85	18.63
Hergandi	300	736	425	58%	24.53	20.97
Jaja	400	500	240	48%	12.50	8.80
Teten (2)	120	293	195	67%	24.38	22.00
Teten (3)	120	329	237	72%	27.38	25.17

The results of a detailed analysis conducted at a CWF's laboratory were acceptable with the defect rate ranging from 1.37% to 5.2%. The main issues found by the test involved the mixing of other varieties such as table potatoes, *granola*, as well as the low gravity of potatoes which resulted in higher oil content after frying.

After completion of the first round of the industrial potato trial project, the Project and CWF agreed to conduct a second round trial project involving more farmers in order to validate the appropriate cultivation technique and management methods. Eleven farmers of Cikandang Agro in Garut and four farmers of Mekar Tani in Bandung participated in the second round.

Seed potatoes for the second trial project were planted in late December 2017. Calbee Japan's mission team, together with the Project, conducted field surveys at all sites in January and March 2018 to monitor the field. Harvest was in late April, the results of which are shown below. The average yield in Bandung was high while some fields in Garut experienced disease outbreaks. The quality still needed to be improved.

Table 53 Results of the Second Trial Project on Industrial Potato with CWF

Farmer	Area (m^2)	Total Yield (kg)	Within Spec (kg)	%	Total Yield (ton/ha)	Marketable (ton/ha)
Cikandang Agro, Garut						
Anang	512	756	562	74%	14.77	12.75
Aip	510	791	557	70%	15.51	12.27
Wasriman	368	257	116	45%	6.98	5.82
Hergandi	500				11.42	10.36
(without manure)		269	200	74%		
(with manure)		302	228	75%		
Dadang	420	363	246	68%	8.64	7.38
Lia	420	445	331	74%	10.60	8.95
Aceng	494	1,383	866	63%	28.00	19.01
Aris	513	532	270	51%	10.37	7.80
Undang	500	1,242	1,058	85%	24.84	23.66
Dede	349	809	647	80%	23.18	21.86
Teten	800				22.29	18.88
(without manure)		614	429	70%		
(with manure)		1,169	850	73%		
Mekar Tani, Bandung						
Amang	400	1,100	783	71.2%	27.50	24.95
Acep	589	1505	1082	71.9%	25.56	24.14
Ujang Tatan	984	2,932	1,925	65.7%	29.80	27.06
Ujang Dedi	500	636	404	63.5%	12.72	10.68

After the second trial project, CWF and the Project agreed to conduct two activities: contract farming with farmers who participated in the past trial project, and a third trial project.

[38] The amount of marketable potatoes includes those meeting CWF's specifications and also outside those specifications but still able to be sold to other markets.

In August 2018, CWF signed a contract with five members of Cikandang Agro and four of Mekar Tani for conducting contract farming. Ten new members from Mekar Tani joined the third trial project.

During the field visit, the Project found that most seed potatoes of some farmers were rotten because of improper drying conditions. The Project with an expert from CWF provided the farmers with technical support to ensure the proper preparation of seed potatoes. After the transplanting of the seed potatoes, the Project found in some members' fields differences in the growth of potato plants between beds, which were caused by differing qualities of seed potatoes. Although the growth of sprouts was rather slow for most of the sites due to the dry conditions in the dry season, the plants mostly grew well once the rains started.

While the yield itself in the third round was high with many members in Garut and Bandung harvesting more than 20 tons per ha as shown in Table 54, many of the potatoes shipped to CWF were rejected due to the mixing of other varieties (potatoes for cooking purposes), as a result of which chips became brownish after frying since the glucose content of cooking potatoes is higher than that for processing potatoes. Some Median potatoes, which are fit for processing, also turned brown after frying, which could be caused by low specific gravity. According to CWF, the low specific gravity suggests that potatoes contain too much water. The water is quickly fried off, then chips are burned and become brown.

Table 54 Results of Contract Farming and the Third Trial Project on Industrial Potato with CWF

Farmer	Area (m^2)	Total Yield (kg)	Within Spec (kg)	%	Total Yield (ton/ha)	Marketable (ton/ha)
Cikandang Agro, Garut (contract farming)						
Aceng	1,400	4,140	2,830	68%	29.57	25.71
Undang	816	2,532	1,734	68%	31.03	30.48
Aris	500	953	768	81%	19.06	17.96
Hergandi (1)	1,316	3,322	2,265	68%	25.24	24.94
Hergandi (2)	1,800	1,828	1,431	78%	10.16	9.88
Teten	2,562	4,315	3,250	75%	16.84	16.26
Mekarr Tani, Bandung (contract farming)						
Ujang Tatang	1,218	3,635	2,810	77.3%	29.84	26.56
Ujang Dedi	1,452	2,800	1,550	55.4%	19.28	14.81
Amang Tarya	871	1,702	1,431	84.1%	19.54	18.91
Yadi	1,023	2,003	1,392	69.5%	19.58	19.06
Mekarr Tani, Bandung (third trial project)						
Endang	530	1,506	1,123	74.6%	28.42	25.96
Asep Sucipto	284	800	565	70.6%	28.17	25.53
Agus	500	1,332	1,042	78.2%	26.64	24.64
Dadang	525	1,101	738	67.0%	20.97	20.25
Adi Tatang	546	1,555	1,305	83.9%	28.48	25.92
Amang Wahyudin	500	1,138	803	70.6%	22.76	21.76
Dedi	498	1,771	1,444	81.5%	35.56	35.22
Ujang Yayat	790	2,284	1,713	75.0%	28.91	28.75
Aatang/Rudi	1,000	2,522	1,792	71.1%	25.22	24.67

Against this backdrop, the Project and CWF agreed that the fourth trial project should be conducted to identify the causes of the low specific gravity values: the variety of the potatoes or cultivation methods/environment. For the sake of comparison, both Median and an imported variety (Atlantic from Australia) were cultivated in the same conditions in fields adjacent to each other. Since many of the imported seed potatoes provided by CWF in April 2019 turned out to be rotten, only around 30 kg could be transplanted in Cikandang Agro and Mekar Tani, respectively.

Median potatoes were harvested on the 18th of June 2019, where three out of four farmers successfully harvested at least 20 tons per ha. Among the two farmers who cultivated Atlantic potatoes, one recorded a yield of 25 tons per ha while the other could harvest only 12 tons per ha due to a disease outbreak.

Table 55 Results of the Fourth Trial Project on Industrial Potato with CWF

Farmer	District	Area (m^2)	Total Yield (kg)	Within Spec (kg)	%	Total Yield (ton/ha)	Marketable (ton/ha)	Average Specific Gravity
Median								
Hergandi	Garut	750	1,532	1,046	68.3%	20.43	19.76	1.075
Lia	Garut	750	1,167	515	44.1%	15.56	15.27	1.079
Amang	Bandung	750	2,544	1,984	78.0%	33.92	33.45	1.075
Ujan Yayat	Bandung	750	1,654	1,139	68.9%	22.05	21.72	1.075
Atlantic								
Hergandi	Garut	120	152	100	65.8%	12.67	12.67	1.081
Amang	Bandung	70	201	150	74.6%	28.71	25.71	1.077

The right-end column in Table 55 shows the average specific gravity value. Although Median's values were slightly lower than those of Atlantic, CWF explained that Median's score would still be an acceptable level for commercial production.

Having the results of the fourth trial project, CWF and the Project agreed to conduct a fifth trial project from November 2019. Since the cultivation area for the Atlantic variety was small in the fourth trial due to the limited availability of the seed potatoes, the Project could not obtain sufficient data for the imported variety. As such, the fifth trial project cultivated another imported variety (Bliss from Australia) in a larger area to compare it with Median grown in the preceding trials. The total area planted was 6,000 m^2 (2,000 m^2 in Garut and 4,000 m^2 in Bandung). The seed potatoes were imported on the 21st of October and then quarantined. The fifth trial project commenced with the seed potatoes transplanted to each field between the 21st and the 25th of November 2019, and the harvest was conducted in late February in Garut and early March in Bandung.

Table 56 Results of the Fifth Trial Project on Industrial Potato with CWF

Farmer	Area (m^2)	Total Yield (kg)	Within Spec (kg)	%	Total Yield (ton/ha)	Marketable (ton/ha)	Average Specific Gravity
Cikandang Agro, Garut							
Teten	1,000	1,298	987	76.0%	12.98	12.68	
Hergandi	1,000	1,259	1,033	82.0%	12.59	12.34	
Mekar Tani, Bandung							
Amang	1,000	3,225	2,880	89.3%	32.25	32.00	1.081
Ujang Yayat	1,000	3,171	2,440	76.9%	31.71	28.31	1.082
Hikmah Farm, Bandung							
Gandi	2,000	5,867	3,800	64.8%	29.34	25.54	1.088

Due to disease, most plants wilted 70 to 80 days after transplanting with potatoes being harvested about 10 days earlier than scheduled in Garut. Thus, the yield was sub-optimal. In contrast, the two FGs in Bandung maintained good field conditions and had a yield of around 30 tons per ha.

The Project proposed collaboration between Hikmah Farm in Bandung and CWF in the production of seed potatoes as well as contract farming following the end of the Project. The following schedule was agreed upon between two parties.

Table 57 Plan of Collaboration between Hikmah Farm and CWF after the Project

Activity	Time
Production of G0 Median seed potatoes at Hikmah Farm	- April 2020
Production of G2 Median seed potatoes from G0 seed at Hikmah Farm	Late April -
Contract farming with CWF at Hikmah Farm by using the G2 Median seed potatoes	December 2020 -
Production of G3 Median seed potatoes	In 2021
Expansion of contract farming at around 50~100 Ha	In 2021

According to the plan, Hikmah Farm in Bandung had worked from April to November 2020 in the production of G2 Median (local variety) seed potatoes. G1 seed and cuttings propagated from G0 seed at the Hikmah Farm's nursery were transplanted to the field (around 1.5 Ha in total) from May to August according to the growth of cuttings. Harvest at all fields completed in November. The total amount of harvest was 19 tons, though around 6.5 tons of G2 seed were sold to the vegetable research institute of Ministry of Agriculture for the use of the Government's program on industrial potato production.

Hikmah Farm and CWF agreed to implement contract farming by using the remaining 12.5 tons of G2 Median seed potatoes. Hikmah Farm conducted planting of seed potatoes at the three fields (6.3 Ha in total) from December 2020 to March 2021. The first harvest will be conducted in April 2021.

1-1-5 Collaboration with UNITIKA LTD. in Japan

UNITIKA LTD. in Japan wanted to explore markets in Indonesia for its product called *Pass Lite*, fiber fabric sheets to cover the plants and protect them against pests. The Project collaborated with UNITIKA through four rounds of experimental cultivation with *Pass Lite* to verify its effectiveness, where cultivation with and without *Pass Lite* were compared.

Table 58 Four Rounds of the Trial Project on *Pass Lite*

Round	Location	Commodity	Cultivation Period
1	Bandung, West Bandung	Broccoli, horenso, choy sum, romaine lettuce, mizuna	Jul - Dec 2018
2	Bandung, West Bandung	Romain lettuce, mizuna	Dec 2018 - Apr 2019
3	Bandung	Mizuna, pakchoi, and green curly lettuce	Mar - Jun 2019
4	Bandung	Mizuna	Jun - Aug 2019

It was agreed between UNITIKA and the Project in July 2018 that experimental cultivation would be conducted with broccoli, horenso, choy sum,[39] romaine lettuce, and mizuna in the fields of Gerbang Emas in West Bandung and Saribhakti in Bandung. The Project together with the mission team from UNITIKA visited two FGs in September and specific arrangements for each commodity were made for the sake of comparison. For example, mizuna and choy sum seedlings were transplanted in beds with five different treatments: i) control; ii) *Pass Lite* set directly on beds and pesticide application reduced by 50%; iii) *Pass Lite* set directly on beds and non-pesticide application; iv) *Pass Lite* set with a tunnel and pesticide application reduced by 50%; and v) *Pass Lite* set with a tunnel and non-pesticide application. The bed size for each was set at 1 m in width and 15 m in length.

Cultivation started in mid to late September 2018, and the harvest was conducted from the end of October. The results of the experimental project for choy sum conducted at Saribhakti are shown in the following table. Though there were no remarkable differences in terms of yield and quality, the table shows that the quality of harvest (ratio of Grade A) can be improved through the use of *Pass Lite*. Saribhakti sold produce to a supplier of Shaburi restaurant. Other commodity data could not be obtained at Saribhakti since all the produce was disposed of due to the delayed harvest. The Project could not collect the data at Gerbang Emas either due to the farmers' poor management.

[39] Choy sum is a leafy vegetable commonly used in Chinese cuisine. It is similar to Japanese Komatsuna.

Table 59 Results of the First Trial Project for *Pass Lite* (Choy Sum at Saribhakti)

	Without Pass Lite 100% Pesticide	Direct Covered No-Pesticide	Direct Covered 50% Pesticide	Tunnel No-Pesticide	Tunnel 50% Pesticide
Total Yield (kg)	21.30	18.20	20.80	19.60	18.40
Grade A (kg)	17.58	16.48	18.70	18.06	17.02
Off-Grade (kg)	3.72	1.72	2.10	1.54	1.38
Ratio of Grade A	82.5%	90.5%	89.9%	92.1%	92.5%
Sales Unit Price (IDR)	32,000	32,000	32,000	32,000	32,000
Total Sales (IDR)	562,560	527,360	598,400	577,920	544,640
Pesticide Cost (IDR)	56,250	0	28,125	0	28,125
Fertilizer (IDR)	26,800	26,800	26,800	26,800	26,800
Pole for Tunnel (IDR)				5,000	5,000
Profitability (IDR)	479,510	500,560	543,475	546,120	484,715

UNITIKA and the Project agreed to implement the second experiment at Sukarasa Tani in West Bandung (romaine lettuce) and Saribhakti (mizuna) to examine the effectiveness of Pass Lite for: i) improved quality of produce; ii) better plant growth; and iii) reduced pesticide application, as compared to the usual cultivation methods. The trial cultivation of romaine lettuce at Sukarasa Tani was not successful because of the farmers' poor management of the trial field. As a result, no useful data for the analysis of Pass Lite, such as comparative data on production and quality of the harvest, could be obtained.

In the fields of Saribhakti, the trial project of mizuna was conducted in three batches with the aim of comparing the amount and quality of harvest from beds with and without Pass Lite (15 m2 for each bed). The first batch was harvested in January 2019, and the last batch in March to April.

Table 60 Results of the Second Trial Project for *Pass Lite* (Mizuna)

	First Batch		Second Batch		Third Batch	
	Using *Pass Lite*	Conventional Cultivation	Using *Pass Lite*	Conventional Cultivation	Using *Pass Lite*	Conventional Cultivation
Total Harvest (kg)	16.21	16.20	25.32	26.85	15.49	7.69
Grade A (kg)	11.78	10.80	16.53	15.21	9.40	5.29
Rate	72.7%	66.7%	65.3%	56.6%	60.7%	68.8%

The quality of mizuna grown under *Pass Lite* was quite good even though no chemicals were applied. The amount of grade A (shipped to Papaya) was larger than that of the conventional method that used chemicals in all three batches. *Pass Lite* was also found to promote the growth of mizuna; mizuna under *Pass Lite* became bigger by 5-10 cm than that from the conventional bed (without *Pass Lite*), even though the plants had been transplanted on the same day.

After the second trial project, UNITIKA and the Project again agreed to conduct a third trial cultivation using *Pass Lite* at Saribhakti for three commodities: mizuna, pakchoi and green curly lettuce, since these vegetables were suffering serious damages from insects. The seed was sown in late March 2019, and the plants were harvested two months later.

Table 61 Results of the Third Trial Project for *Pass Lite*

	Mizuna		Pakchoi		Green Curly Lettuce	
	Using *Pass Lite*	Conventional Cultivation	Using *Pass Lite*	Conventional Cultivation	Using *Pass Lite*	Conventional Cultivation
Total Harvest (kg)	23.64	34.84	22.30	28.66	31.02	22.45
Grade A (kg)	13.95	16.27	18.54	21.94	22.28	17.69
Rate	59.0%	46.7%	83.1%	76.6%	71.8%	78.8%

The results, shown above, suggest that in the trial with mizuna and pakchoi the share of grade A was higher when *Pass Lite* was used with no pesticides applied while the total amount of harvest was larger in conventional cultivation. The harvest date of mizuna from the *Pass Lite* bed was three days earlier than that of the conventional cultivation, which may have caused the difference in the amounts of harvest. The results

of green curly lettuce were the other way around; the use of *Pass Lite* resulted in more harvests with a lower rate of grade A. The larger amount of harvests from the *Pass Lite* bed was attributed to *Pass Lite*'s growth-promoting effect. The average size of five samples from beds with *Pass Lite* was larger than that from the control bed as shown in Table 62.

Table 62 Size Comparison in the Third Trial Project for *Pass Lite* (Green Curly Lettuce)

Sample	*Pass Lite*		Conventional Cultivation	
	Weight (g)	Height (cm)	Weight (g)	Height (cm)
1	125	23	115	20
2	139	23	77	18
3	121	23	128	20
4	110	20	160	20
5	152	24	69	16
Average	129.4	22.6	109.8	18.8

The fourth trial started in the fields of Saribhakti on the 24th of June 2019, where mizuna was grown in a bed covered with *Pass Lite* and in another bed without *Pass Lite*. Mizuna was harvested on the 14th and the 21st of August. In the dry season, the damage caused by pests was severe in the bed without *Pass Lite,* resulting in only 40% of the harvests meeting the required specifications, while 82% of mizuna from *Pass Lite* bed met the required specifications as shown below.

Table 63 Results of the Fourth Trial Project for *Pass Lite* (Mizuna)

	Pass Lite	Conventional Cultivation
Total Harvest (kg)	30.33	14.83
Average Weight per Plant (g)	173.3	95.1
Total Amount of Grade A (kg)	25.0	6.0
Ratio of Grade A (%)	82.4	40.2

Thirty days after sowing, the average weight of mizuna from the control bed was 95g while that from the *Pass Lite* bed was 173g. As such, it is evidenced that *Pass Lite* improves quality and also promotes the growth of plants, resulting in higher yields.

1-1-6 Collaboration with Asahi Biocycle Co., Ltd.

From mid-January 2019, the Project collaborated with Asahi Biocycle Co., Ltd., a Japanese producer of agricultural materials under Asahi Group Holdings, Ltd., to experiment with its organic material made from beer yeast. The material was used for piman in the second observation test for the variety registration at Saribhakti (Bandung) and Gerbang Emas (West Bandung) from March 2019, as well as for Momotaro tomato in Cianjur in the 2019 dry season trial project. The material was continuously applied in the planting holes and its effects (condition of growth as wells as resistance to pest and disease) were examined

In the second observation test for piman in the fields of Gerbang Emas, the occurrence of disease, which had been largely observed in the first observation test, was limited.[40] The harvest in the second observation test was stretched over four months, in contrast to three months in the previous observation test. Some plants were infected with powdery mildew; those with the beer yeast material recovered quickly after the use of fungicide while the other plants without the beer yeast material did not sprout well.

The effectiveness of the material was tested on two sites in the trial project with Momotaro tomato. At Trial Field 1, two beds had beer yeast material applied and three other beds without it in the same screenhouse. Here, the excessive use of liquid fertilizer as well as the application of the beer yeast material in liquid form resulted in the over-watering of the plants, leading to problems with the produce. The application of the beer yeast material, therefore, was halted in mid-July. The application was resumed from the 29th of August, but no significant differences were observed between the beds with and without the material in terms of

[40] Besides the application of the beer yeast material, the FG sterilized the soil before transplanting, which also seemed to contribute to disease control.

growth and yield with the suboptimal context caused by the excessive use of liquid fertilizer remaining prominent.

Trial Field 2 used two screenhouses adjacent to each other, one of which used the beer yeast material. The beer yeast material controlled viral disease in the plants while in the field without the material many plants were damaged by disease brought by whiteflies. In the screenhouse with the material, yield per plant was twice as much as that in the field with no beer yeast material applied. Overall, however, the yield of the Trial Field 2 was low because of the whiteflies and the subsequent disease. Since a successful farmer in the trial project on Momotaro tomato harvested 4.36 kg per plant, the Project expected at least 3 kg per plant; this was not achieved in any of the fields. Pest and disease control, besides the application of the material, was critical.

Table 64 Results of the Trial Use of Asahi's Beer Yeast Material on Momotaro Tomato

	Area (m^2)	No. of Plants	Total Harvest (kg)	Harvest per Plant (kg)	Harvest per 1,000 m^2 (kg)	Amount for Shipment (kg)	Rate (%)
Trial Field 1							
With material	140	212	550	2.59	3,929	-	-
Without material	210	318	758	2.38	3,610	-	-
Trial Field 2							
With material	180	300	583	1.94	3,239	492	84.4%
Without material	130	277	265	0.96	2,038	217	81.9%
Reference (A Successful farmer in the Trial Project without the Beer Yeast Material)							
Without material	130	216	942	4.36	7,246	919	97.6%

1-1-7 Collaboration with PT. Takiron Indonesia

From the first year of the trial project, the Project collaborated with PT. Takiron Indonesia, a subsidiary of C.I. TAKIRON Corporation in Japan, which produces plastic agricultural materials. The rain shelter for tomatoes and broccoli in the trial projects adopted Takiron's arched poles since they were stronger than the bamboo farmers usually used; farmers could continue utilizing the same poles even after the project completion. In 2018, Takiron provided the Project with samples of highly-functional plastic films for screen houses, which were then used at Mujagi's screenhouse in Cianjur. Furthermore, in the 2019 rainy season, the Project received three different sizes of sample arched poles with long legs for temporary rain shelters. The materials were installed at chili and tomato fields in Cianjur. In return for those provisions, the Project delivered to Takiron the feedback from farmers on their products.

1-1-8 Collaboration with Shimota Nougei Co., Ltd.

The Project collaborated with Shimota Nougei Co., Ltd., conducting a feasibility survey, "The Establishment of Production and Marketing System for Scientifically-assured High Quality Vegetables through Introducing the Soil Improvement Method by Ripened Compost in Indonesia", which has been supported by JICA's scheme, SDGs Business Model Formulation Survey with the Private Sector. The Project monitored Shimota's compost production using chicken manure and trial cultivation, where cultivation with Shimota's compost was compared with farmers' conventional cultivation methods in the fields of Al Ittifaq and Saribhakti in Bandung District.

Table 65 Fields for Shimota's Trial Cultivation

Site	Field (m^2)	Commodity
Al Ittifaq	28	Pakchoi
	66	Nasu,
	50	Kuroda carrot
Saribhakti	33	Pakchoi,
	33	Mizuna
	66	Kyuri,
	66	Kuroda carrot

Disease infection was less severe to kyuri grown with Shimota's compost than that in conventional cultivation at Saribhakti. On the other hand, carrot germination for both sites was faster and more uniform with conventional cultivation. No significant difference was observed in the mizuna and pakchoi fields. The results of the component analysis of the soil and harvested vegetables did not show either a significant difference between Shimota's and conventional cultivation.

With no significant impact from fully mature compost observed in the survey, Shimota made another fully mature compost from cow manure instead of chicken manure in collaboration with a stock farming company in Cianjur. The Project proposed to try the compost in the G2 seed potato production at Hikmah Farm from April 2020 with a view to seeing the compost's effects on the growth and disease tolerance of the plants. The Project provided the compost to Hikmah Farm in late March, which then was applied to 400 m^2 of land in April.

1-2 Activities for Output 1-2

Output 1-2. Capacity to plan and carry out cultivation according to market needs is attained by the target farmers.

In the first year of the Project, prior to the implementation of the trial project, the Project and UNPAD jointly conducted a market survey in Jakarta and Bandung from the 30th of May to the 22nd of July 2016. The survey team interviewed 19 companies, including nine supermarket chains, three food service industries, four suppliers/exporters and three agricultural inputs suppliers, in order to understand their need for quality vegetables and fruits as well as their current supply channels, while also exploring the possibility of collaboration in the production and marketing of high-quality horticulture products through trial projects.

During the interviews, market actors expressed the following concerns related to the procurement of horticulture products:

- Unstable supply of vegetables, especially during rainy season and long holidays;
- High rejection rate of delivered horticultural produce;
- Low traceability of delivered horticultural produce; and
- High inspection costs due to a large number of middlemen.

The demand for fresh vegetables was generally high in modern markets, especially during the holiday season; however, most local produce could not meet this high demand in quality and quantity. Some vegetables, such as broccoli, lettuce and tomatoes, had a wide gap between their demand and supply during rainy season when the supply is largely limited due to damage caused by pest and disease. In order to avoid the high rejection rate upon receiving the products from local traders or FGs in such seasons, most supermarket chains tended to purchase horticultural products from a limited number of reliable suppliers, aiming at establishing a stable procurement system.

Most modern market actors were encountering common difficulties procuring a sufficient amount of quality horticultural products to meet the demand of their customers. In other words, farmers had considerable market opportunities if they could increase the productivity of vegetables at the grade required by those specific markets through improvements in cultivation techniques and establishing effective distribution networks for the products.

A supply chain survey was also conducted from late May until August 2016 across the six target districts. The survey team interviewed supply chain actors including farmers, FGs, suppliers, traders, agro-input shops, government bodies and modern markets. Some of the findings are as follows:

- The horticultural products supply chain in West Java Province consists of farmers, middlemen, and markets (traditional and modern). Most of the middlemen (traders) sell products to traditional markets, while some of them (suppliers) sell products to the modern market such as supermarkets, hotels, restaurants, catering companies and food processing industries. Only a small number of farmers directly sell products to the modern markets, because of: i) farmers' unwillingness to sort and grade their products on their own; ii) the delayed payment systems of modern markets; and iii) limited economic scale.

- Partnerships in the form of signed contract (purchase orders/MoU) only happen when middlemen (suppliers) deal with modern markets, while the deals between farmers and middlemen usually take place on an oral basis without paper records. This sometimes leads to breaching of the agreements, resulting in a failure to meet market demand.
- Middlemen (suppliers) undertake post-harvest processing activities such as cleaning, sorting, grading, packing, labeling, and delivery. Most middlemen (suppliers) do not have cold storage, except those in Bogor who supply fresh cut vegetables to hotels, restaurants and cafés.
- Buyers for modern markets usually make payments within two to four weeks to middlemen (suppliers) following delivery, while middlemen (suppliers) usually pay farmers within two to seven days of delivery. This condition requires traders to have some savings for the payments.

Taking the information above into account, the Project designed and implemented trial projects in which farmers learned methods for working with modern markets. In 2019 particularly, the Project supported farmers in preparing planting and shipping calendars to plan harvest times as required by modern markets. Refer to 1-1-1 for more details.

A value chain survey was conducted between October and December 2020 to investigate the impacts of the Covid-19 outbreak and to identify a bottleneck brought about in the horticultural value chain in the target areas. It became clear that no parts of the horticultural value chain were cut or became bottlenecks. The biggest change was rather found in the end markets; a sharp decrease in demand and prices in local as well as wholesale markets resulted in a drop in sales of local traders and farmers selling to these markets. In contrast, since supermarkets and online markets enjoyed a higher demand from customers, a handful of farmers and some suppliers shipping to these markets increased their sales (refer to Annex 8.17 for more details).

1-3 Activities for Output 1-3

Output 1-3. Target farmers' groups' marketing channels are developed.

1-3-1 Business Forum

1-3-1-1 Business Forum

Prior organizing a series of business forums to link FGs with modern markets, the Project organized a consultative meeting on the 4th of August 2016 with private companies (including supermarket chains, major exporters and suppliers) to: i) explain the basic concept and purpose of the trial project, share profiles of target FGs in each area and discuss ideas/plans of the trial project; ii) clarify the mechanism for the Project's collaboration with private companies in the trial project as well as reach a consensus on the arrangements for the cooperation; and iii) identify specific interests of each company in the Project. The requests and comments of participants, particularly those from the market side, as summarized in Table 66, were reflected in the trial project planning.

Table 66 Specific Needs of the Market and Challenges for Farmers

Commodities	Needs of Markets	Challenges for Farmers
Chili	• Stable quality and quantity during rainy season and Ramadan holidays.	• Seasonal price fluctuation. • Low productivity and produce amounts during rainy season.
Shallot	Ditto	Ditto
Beef Tomato	• Stable supply of "Grade A" products (above 200g) (demand is high).	• Lack of proper cultivation techniques (training, pruning and thinning). • Lack of grafted seedlings.
Tomato (Rainy Season)	• Improvement of quality during rainy season and stable supply.	• Cracking tomato during rainy season.

Tomato (Dry Season)	• Stable supply of products at the grade demanded by the market.	• Poor plant growth. • Pest and disease control.
Potato	• Stable supply of potatoes for processing meeting market specifications.	• Unstable quality (size), difficult access to good potato seed.
Paprika	• Deterioration of quality due to pests (lack of products meeting market specifications for export).	• Pest (thrips) control.
Carrot	• Stable supply of high-quality carrots (Nantes Type).	• Lack of seed (Nantes Type). • Lack of proper cultivation techniques.
Bean	• Stable quality.	• Improvement in cultivation techniques (training, pruning, fertilization etc.).
Lettuce	• Stable supply of products meeting market specifications. • Ensuring quality during rainy season.	• Lack of proper cultivation techniques (nursery, fertilization, pest control).
Broccoli	• Stable supply throughout the year (high demand). • Ensuring quality (size) during rainy season.	• Lack of proper cultivation techniques especially for rainy season (pest control).
Crystal guava	• Deterioration of quality due to pest damage. • Stable quality throughout the year (taste and size).	• Lack of proper pest control (Integrated Pest Management: IPM) and cultivation techniques.
Strawberry	• Stable supply of high quality of products (sweet strawberry).	• Disruption of strawberry production areas due to the outbreak of soil-borne diseases (Bandung and Garut Districts).

After the consultative meeting, the Project together with the DGH held four business forum meetings with private companies, including supermarket chains, food service industries, major exporters and suppliers, representatives of FGs and financial institutions, with a view to promoting dialogue and information exchange among participants. The number of participants and institutions in each business forum is shown in the table below.

Table 67 Number of Participants in the Business Forum

		Modern Market	Other company	FGs	DGH	DINAS /STA	Others	Total
First Forum (Apr 2017)	Institution	10	2	20	-	-		
	Participants	18	6	22	6	16	0	62
Second Forum (Jan 2018)	Institution	14	2	29	-	-		
	Participants	19	9	29	12	12	1	82
Third Forum (Aug 2018)	Institution	12	2	39		7	3	
	Participants	17	2	49	10	21	6	105
Fourth Forum (Feb 2019)	Institution	8	3	38	-	-	-	
	Participants	12	6	38	8	13	16	93

During the business forums, representatives of FGs had active discussions with participants from modern markets, exchanging information on market demand and quality standards for specific commodities, with many of them starting business negotiations. In the first business forum, a plenary session for business negotiation was held. Some representatives of suppliers and supermarkets raised the issue of continuous supply of vegetables throughout the year since most FGs did not have the capacity to deliver the sufficient amounts of produce that modern markets required. The Project tried, through the business forum, to link suppliers or supermarkets with multiple FGs in different districts so that modern market buyers could make necessary arrangements with several FGs in order to procure the required amounts. Major achievements

and findings noted in each business forum are set out below:

Table 68 Major Achievements and Findings from the Business Forums

	Major Achievements and Findings
First Business Forum	• The vegetables with the highest demand from modern markets were identified, such as beef tomato, tomato, carrot, lettuce and Japanese vegetables. • A bank, BTPN, presented agriculture financial schemes such as supply chain finance and received feedback from modern markets, FGs, and government officials. • Modern markets may deal directly with FGs if FGs can produce and supply vegetables continuously according to the quality standards set by the modern markets.
Second Business Forum	• More local suppliers who were capable of delivering products to modern markets attended the business forum to partner with multiple FGs to ship products to modern markets. • Local suppliers and supermarkets were linked with multiple FGs, which will enable them to procure the amount of vegetables needed for their customers. • An FG profile sheet containing FG's information such as the products and the volume of production were distributed to participants in the business forum to facilitate further business negotiations between supermarkets/suppliers and FGs.
Third Business Forum	• Suppliers and supermarket representatives showed an interest in Kuroda carrots. • Representatives from fintech companies made short presentations on what services were being offered to the farmers.
Fourth Business Forum	• PT. Sayuran Siap Saji, a major vegetable supplier to restaurant chains and food industries, showed an interest in conducting contract farming for specific commodities with FGs supported by the Project. • After the business forum, the Project and the company agreed to jointly implement, in the 2019 trial project, a trial contract farming of broccoli, cauliflower, and Kuroda carrot with four FGs in Cianjur.

During the business forums, business negations between FGs and modern markets, such as suppliers, supermarkets, restaurant chains were conducted (for examples of business negotiations during the business forums, see Annex 8.8).

1-3-1-2 JETRO Consultative Meeting

In addition to the business forums, the Project attended two JETRO consultative meetings which specifically targeted Japanese food service companies. During the first JETRO consultative meeting held on the 26th of January 2017, the Project presented the outline and activity plan of the Project and exchanged views with participating Japanese companies. The second JETRO consultative meeting was organized jointly by the JETRO Jakarta Office, the Embassy of Japan, the JICA Indonesia office and the Project on the 25th of July 2017 at the JETRO office. The Project briefed the attendees on the progress of the trial project and presented vegetables produced by target FGs in the trial project during the 2017 dry season to Japanese supermarkets and restaurant chains in order to obtain feedback via taste testing.

Participants provided scores for each cooked and raw commodity on a taste testing questionnaire, scoring in terms of appearance (color, shape, size), and taste (sweetness, aroma, texture etc.). As an example, the radar chart below shows the result of the evaluation of Kuroda carrots. While Kuroda carrots received good scores on appearance generally, some participants addressed the needs of improvement in sweetness and aroma. Annex 8.9 shows the results of taste testing for all commodities.

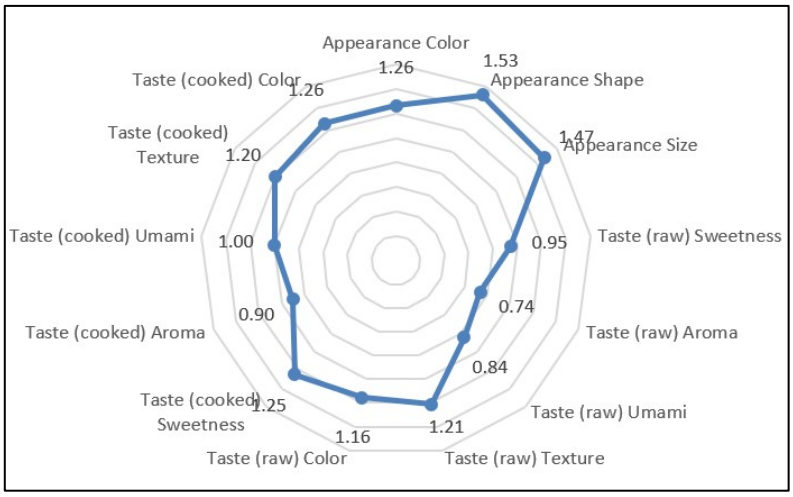


Figure 3 Result of Taste Testing of Kuroda Carrot

Participants also provided narrative comments on each commodity from both positive and negative perspectives, which are summarized in the table below.

Table 69 Summarized Narrative Comments for Taste Testing for each Commodity

Commodity	Positives	Negatives
Kuroda Carrot	• The size is even, the color is good, and the surface texture is smooth. • The product will surely meet the customer's needs.	• The cooked ones have a slightly bitter taste. • The shape is excellent, but it lacks sweetness.
Beans	• It is crunchy, sweet and very good. • Very similar to Japanese standards. • Not stringy and high in sweetness.	• The color needs improvement.
Broccoli	• It's hard to believe that it is locally produced. • Buds are solid and heavy. • Good color and sweetness. • Good with rich and thick taste.	• Good quality but no significant difference from other brands.
Beef Tomato	• Good texture and appearance. • Skin was soft. Very juicy. • Sweet and rich flavor. Texture of meat is good.	• A little sweeter would be better. • Better if it has more flavor.
Tomato	• Fresh and sweet. • Good uniform size and shape. • No damage on the skin.	• Good quality but no difference from those available on the market.
Paprika	• Good appearance and good taste. • Good size and thickness. • Since we have been depending on imported paprika, we are delighted if paprika at this level of quality is available at a fair price.	• Good texture but a little stringy.
Kyuri	• Juicy and rich texture. • Good shape. Fruits are straight and even. • Seed are not so big.	• Customers prefer thinner Kyuri. • It tastes slightly bitter. • Better if the skin is softer.
Chili	• Good quality. • Good taste with sufficient sweetness. • Good that they are hot and sweet at the same time.	• No difference from other local brands. • Green ones are slightly stringy.

Most participants made positive comments on the taste and texture of vegetables, especially carrot, bean, beef tomato and paprika. Some participants expressed their wish to buy these vegetables. However, they also raised concerns that need to be resolved before procuring vegetables. Even though the quality of vegetables in taste testing was good, they were concerned about how to maintain the quality of vegetables

and how to exclude products that do not meet the company's required standard. A stable and continuous supply was another major concern from the participants. The supply of vegetables becomes unstable particularly during rainy season and the long vacation period. In order to sell vegetables to supermarket chains and restaurants, FGs need to ensure stable supply of those vegetables. Participants also raised the issue of delivery condition, such as packaging and the mode of transport, needed to keep vegetables in good condition from the production area to Jakarta. Some participants were concerned about how FGs could manage their business after the completion of the Project.

1-3-2 Promotion of Kuroda Carrot

The baseline survey during the first phase of the Project identified the products needed by modern markets. The Project recommended Kuroda carrot (a kind of cylinder-type variety) for target FGs, observing the high demand for cylinder-type carrots in modern markets.

Although cylinder type carrots captured the market, Kuroda carrot itself was new to modern markets, and target FGs did not have a market channel for Kuroda carrots; therefore, the Project conducted promotion activities for the FGs to be able to find markets for Kuroda carrots.

1-3-2-1 Collaboration with PT. Greenlife Indonesia

The Project collaborated with a local supplier, PT. Greenlife Indonesia (its brand name called "Healthy Veggie") that delivers vegetables to supermarkets in Jakarta, to explore the possibility of the supplier delivering Kuroda carrots produced in Cianjur and Garut to modern markets. Table 70 shows chronological events of the Project's collaboration with PT. Greenlife Indonesia.

Table 70 Chronological Events of the Collaboration with PT. Greenlife Indonesia for Kuroda Carrot

Events	Date
The Project and PT. Greenlife Indonesia discussed several times and agreed on weekly Kuroda carrot shipments (400-500 kg) from the target FG (Utama) to PT. Greenlife Indonesia.	August 2017
PT. Greenlife Indonesia brought sample Kuroda carrots to Giant Supermarket for promotion and received some comments about the specifications of Giant Supermarket.	December
The Utama FG harvested carrots, but most of them did not meet the specifications of Giant Supermarket. The Utama FG and the Project decided not to deliver the carrots to PT. Greenlife Indonesia.	December 2017-January 2018
The Project discussed with Cikandang Agro in Garut the planting plan for the cultivation of Kuroda carrots on a larger scale for PT. Greenlife Indonesia.	2 March
The Project, together with Garut DINAS, had a meeting with the leader of Cikandang Agro to discuss progress in the planting of Kuroda carrots on a large scale.	12 April
PT. Greenlife Indonesia, Alfamidi and the Project discussed sales of Kuroda carrots.	27 April, 14 May
Cikandang Agro sold 1.5 tons of Kuroda carrots to Alfamidi through PT. Greenlife Indonesia.	7 July
Subsequent orders for Kuroda carrots were canceled by Alfamidi.	July

Although the Project and PT. Greenlife Indonesia agreed on the weekly shipment of Kuroda carrots from the Utama FG in Cianjur to PT. Greenlife Indonesia from December 2017, most carrots harvested by the FG did not meet the specifications given by a modern market, Giant Supermarket.[41]

- Expansion of Kuroda carrot production at Cikandang Agro in Garut and other areas

The Project consulted with other FGs that were interested in growing Kuroda carrots. In early March 2018, the Project discussed with Cikandang Agro in Garut the planting plan for the cultivation of Kuroda carrots on a larger scale based on demand from modern markets. The Project requested PT. Greenlife Indonesia to promote Kuroda carrots to their customer, Alfamidi (a convenience store chain that sells fresh products), and then some sample Kuroda carrots were sent to Alfamidi through PT. Greenlife Indonesia. The Project

[41] i) length: not less than 15 cm. diameter: not more than 5 cm; ii) appearance: not too sharp at the bottom; iii) skin: should be smooth and bright colored.

and PT. Greenlife Indonesia had a series of meetings with Alfamidi in April and May 2018 to discuss the mechanism for collaboration on the continuous delivery of Kuroda carrots.

The Project together with Garut DINAS had a meeting with the leader of Cikandang Agro on the 12th of April 2018 to discuss the progress of the planting of Kuroda carrots at a large scale. Because of the expected large amount of harvests (more than a few tons), the Project provided a carrot washing machine to TTP (Agriculture Research Park, owned and managed by Garut DINAS) at Cikajang in Garut.

Cikandang Agro provided sample Kuroda carrots to PT. Greenlife Indonesia on the 3rd of July 2018 and discussed the conditions for the delivery of carrots, such as price, amount and mode of delivery. Cikandang Agro sold 1.5 tons of Kuroda carrots to Alfamidi through PT. Greenlife Indonesia on the 7th of July, for which the price was IDR 7,500 per kg including the shipment costs. However, the subsequent shipment was canceled due to an internal issue on Alfamidi's side.

- Challenge of Marketing Kuroda Carrots

Since Kuroda carrot should be regarded as a special carrot, the Project and PT. Greenlife Indonesia requested Alfamidi to give it an appropriate price, such as IDR 12,000/kg. Alfamidi explained that suppliers of Brastagi carrots from Sumatra,[42] the most well-known variety as high-quality, offered a cheaper price, less than IDR 10,000 per kg. Therefore, Alfamidi could not offer a higher price only to Kuroda carrot since the quality of Kuroda was regarded as the same as that of Brastagi. Alfamidi also wanted to provide customers with good quality carrots at an affordable price. In the end, the buying price of Alfamidi was IDR 7,500/kg.

1-3-2-2 Collaboration with PT. AEON Indonesia

Apart from the Brastagi variety commonly sold in modern markets, AEON wanted to introduce a new carrot as a special product that could attract high-end customers. In October 2018, the Project arranged business meetings between the Al Ittifaq Cooperative and PT. AEON Indonesia in order to discuss potential products that AEON would procure from Al Ittifaq. AEON was interested in Kuroda carrot that could be shipped in late January 2019. AEON decided to promote Kuroda carrot procured from Al Ittifaq as a special product targeting high-end customers. Responding to the request from AEON, the Project supported Al Ittifaq in:

1) Developing proper specifications for the produce (size and quality) to be delivered to AEON;
2) Preparing catchy packaging;
3) Examining nutrient contents to figure out the specialty of Kuroda carrot such as Brix level, vitamin and carotene content; and
4) Installing a carrot washing machine.

Al Ittifaq started shipping Kuroda carrots to AEON on the 11th of March 2019. Table 71 shows the chronological events of the Project's collaboration with AEON.

[42] Brastagi variety originates from Sumatra. The length of Brastagi is from 16 to 18 cm which is bigger than a Kuroda carrot (14-15 cm). Those carrots that have the features of Brastagi variety are considered to be high-quality in supermarket chains. Kuroda carrot quality is better than that of a Brastagi carrot in terms of sweetness and brightness in color.

Table 71 Chronological Events of the Collaboration with AEON for Kuroda Carrot

Events	Date
The Project introduced Al Ittifaq to a AEON buyer. The leader of Al Ittifaq and the AEON buyer had a meeting to discuss vegetable shipment details.	Mid October - Early November 2018
AEON agreed to promote Kuroda carrot from Al Ittifaq as a special carrot.	17 January 2019
AEON and the Project discussed the procurement conditions for Kuroda carrot supplied by Al Ittifaq, the details on support from the Project, etc.	25 January
Kuroda carrots from Al Ittifaq were brought to the laboratory for the analysis of its nutrient value.	1 February
The carrot washing machine was installed at Al Ittifaq.	22 February
The Project supported the designing of packaging.	Mid-February - early March
Al Ittifaq began shipping Kuroda carrots to AEON.	11 March
A launching ceremony of Kuroda carrot was held at AEON BSD.	23 March
The Project discussed with AEON the problem of the carrots rotting fast.	17 May
The Project discussed the use of anti-fog bags with AEON and Al Ittifaq	Late June - early July
Al Ittifaq shipped the first Kuroda carrots packed in the anti-fog bags.	1 August
Kuroda carrot promotional campaign.	2, 4 August
Sales of Kuroda carrot decrease due to severe competition with competitors.	After August

- Examination of Nutrient Contents to Figure Out the Specialty of Kuroda Carrot

Sample Kuroda carrots as well as local and Brastagi carrots were brought to the laboratory on the 1st of February 2019 for analysis of its nutrient value in order to determine the differentiation of Kuroda carrot as compared with local and Brastagi carrots. The results below illustrate that Kuroda carrot has a higher content of β-Carotene, which has antioxidant functions. Kuroda carrots were promoted to high-end customers as healthy carrots with high β-Carotene and Vitamin C content.

Table 72 Results of the Analysis of the Nutrient Value

Nutrient Factors	Kuroda	Local Carrot	Brastagi	Average of Jpn. carrot
β-Carotene (mg/kg)	82	31	37	69
Vitamin C (mg/kg)	159	199	78	60
Calories (kcal/100g)	42	36	36	39
Carbohydrate (g/100g)	9.0	7.3	7.3	9.3
Protein (g/100g)	0.9	1.1	1.1	0.7

- Promotional Event of Kuroda Carrot

In order to promote Kuroda carrots, a promotional event was held on the 23rd of March 2019 at the AEON BSD outlet with the participation of the Director of the Directorate of Cooperative Promotion of West Java Province, representatives of the DGH, President Director of AEON Indonesia, the leader of Al Ittifaq, and officials of the Embassy of Japan and JICA Indonesia. At the opening ceremony, AEON and Al Ittifaq signed an agreement on the procurement of different kinds of vegetables including Kuroda carrots, of which the total sales were expected to be IDR 1.8 billion per year. Following the ceremony, Kewpie Indonesia held a cooking demonstration at the special booth set in the AEON supermarket for the promotion of Kuroda carrots.

- Appealing and Functional Package

Based on a request from AEON, with the Project's support, packaging with an appealing Kuroda carrot icon was designed. A tag attached to the package highlighted the above-mentioned nutritional benefits, and provided an introduction to Kuroda carrots as well as the sustainable agricultural practice of Al Ittifaq.

In May 2019, AEON reported to the Project that many Kuroda carrots started to rot within only two days of delivery. The Project found dew inside the packaging, especially at the bottom of the pack, which could easily cause deterioration of the carrots. The Project communicated with several packaging suppliers in search of an alternative packaging with anti-fog functions. Following consultations with AEON, the anti-

fog stand-bag was adopted since AEON felt it was appealing to customers. Although the stand-bag was more expensive than the conventional one, AEON offered a higher purchase price to Al Ittifaq.

Table 73 Prices of the Anti-fog Bag (IDR)

	Unit Price of Anti-fog Stand bag	Unit Price of Conventional Bag	Price Difference
400g pack	1,926	600	1,326
800g pack	2,087	1,000	1,087

When the new anti-fog package was adopted by AEON, a promotional campaign was held at AEON BSD on the 2nd and 4th of August 2019, for which the Project prepared an advertisement introducing the advantages of the new bag. During the event, customers enjoyed free samples of cut carrots and carrot juice with successful recorded sales of 125 packs and 87 packs (sold out) on the 2nd and 4th of August respectively.

Even though the promotional events were conducted and the appealing package was adopted, Kuroda carrot sales became sluggish due to: i) the difference (especially taste) between Kuroda carrot and Brastagi carrot having not been appealing to customers; and ii) a number of large suppliers starting selling Brastagi carrots. After the event in August 2019, suppliers of Brastagi carrot also conducted sales promotions ("buy 1 get 1 free" campaigns, etc.) at AEON. Under these conditions, Kuroda carrot sales fell to as low as 80 kg per week even though 500 kg per week was targeted in the initial contract between AEON and Al Ittifaq.

1-3-2-3 Collaboration with Super Indo

Seeing the falling sales to AEON, Al Ittifaq started selling around 500 kg Kuroda carrots per week to Super Indo, a major middle-class supermarket in Indonesia in August 2019.[43] Al Ittifaq was requested to supply a large amount of Kuroda carrots by Super Indo; 12,000 packs (400g each) per shipment at three shipments per week (a total of 14.4 tons per week.). However, considering its limited supply capacity, Al Ittifaq aimed, as of December 2019, at fulfilling half that order, 6,000 packs per shipment (18,000 packs, 7.2 tons per week) as a future supply target. In order to meet such large demand, Al Ittifaq needed to find more producers of Kuroda carrots in addition to its current partner farmers in Bandung district. The Project facilitated discussions among Al Ittifaq, Mujagi in Cianjur and Hikmah Farm in Bandung in order to establish an effective supply chain for Kuroda carrots to Super Indo. Three FGs were to make a joint cultivation plan and produce Kuroda carrots according to the plan with Al Ittifaq collecting and packaging Kuroda carrots for all the FGs to ship to Super Indo.

Due to the Covid-19 outbreak, however, demand for Kuroda carrots from Super Indo sharply decreased, for which the collective production and shipping by the three FGs were not realized.

1-3-3 Promotion of Japanese Vegetables

1-3-3-1 Collaboration with Papaya Fresh Gallery

Considering modern markets' high demand for Japanese vegetables, the Project supported several FGs in cultivating Japanese vegetables through various activities such as: i) cultivation from sample seed provided by Takii; ii) cultivation through the adaptation test for variety registration; iii) cultivation through the 2019 trial project using the remaining seed from the variety registration; and iv) cultivation with imported seed after the variety registration. Japanese vegetables include newly registered varieties: mizuna, Momotaro tomato, nasu, and piman. The Project linked FGs with Papaya Fresh Gallery and supported their collaboration, as shown in Table 74.

[43] Super Indo preferred a smaller size (around 10 cm in length in 400g pack) while the market for regular-sized Kuroda carrots (around 15 cm) was limited.

Table 74 Chronological Events of the Collaboration with Papaya Fresh Gallery

Events	Date
The Project received the representatives of Papaya at Saribhakti and made arrangements for the delivery of Japanese vegetables harvested by Saribhakti.	22nd December 2017
Saribhakti began shipping Japanese vegetables to Papaya.	Early January 2018
The Project, together with Saribhakti, had a meeting with representatives of Papaya to discuss the delivery of mizuna.	15th October
The Project agreed with Papaya on the specifications of each item, for which the Project held a workshop to share the specifications with three FGs (Saribhakti, Mujagi and Gerbang Emas).	9th December
All three FGs started delivery to Papaya of grade B Momotaro tomato and nasu for economic packs.	Mid-January 2019
The Project and Mujagi discussed with Papaya the arrangements for the shipment of Japanese vegetables cultivated by Mujagi and other FGs in Cianjur.	27th August

- Harvests from Sample Seed from Takii

In early January 2018, Saribhakti began shipping Japanese vegetables, which were harvests from sample seed of the eight Japanese varieties sent by Takii in Japan, to the Block M outlet, which is Papaya's main outlet in Jakarta (details are described in 1-1-3). Among other characteristics, Papaya acknowledged the good quality of mizuna and komatsuna. With the amounts of seed, except for mizuna, komatsuna and carrot, being limited, the amounts of vegetables that could be shipped to Papaya were insufficient to meet customer demand. Although Papaya wanted to receive more produce, they needed to wait until more seed was imported from Japan.

- Harvests from the Adaptation Test for the Seed Registration

Four Japanese varieties out of the eight samples were selected for the adaptation/observation test due to their high demand from modern markets. FGs cultivated Momotaro tomato, nasu, piman, and mizuna for the adaptation/observation test for variety registration (details are described in 1-1-3). When harvests from the adaptation test began, dealing with multiple individual FGs (Saribhakti, Mujagi, and Gerbang Emas) for the supplying of vegetables turned out to be cumbersome for the supermarket. Papaya requested the FGs to assign a representative FG for the transaction with Papaya. Saribhakti became the representative FG, which coordinated with the other two FGs for the delivery of produce to Papaya. On the 15th of October 2018, the Project and Saribhakti discussed with representatives of Papaya the delivery of mizuna harvested through the adaptation test. At the meeting, the two parties agreed to:

1) The quality standards[44] and the amount of delivery per shipment;
2) The arrangements of delivery to Papaya by three FGs; and
3) The rough schedule for delivery of commodities such as Momotaro tomato, nasu, and piman produced from the seed adaptation/observation test.

In order to make sure that the three FGs meet the quality standards required by Papaya and deliver products smoothly to Papaya, the Project discussed on the 26th of October 2018 with the leader of Saribhakti, Mujagi and Gerbang Emas: i) quality control methods; ii) specifications for the shipments; and iii) shipping arrangements among the three FGs for the delivery of mizuna to Papaya. Harvested commodities from the three FGs were regularly delivered through Saribhakti to Papaya until completion of the seed adaptation/observation test.

- Harvests from the 2019 Trial Project

Since more FGs in Cianjur joined the cultivation of Japanese vegetables (nasu, Momotaro tomato, and Kuroda carrot) with the 2019 trial project using the remaining seed from the adaptation/observation test,

[44] The size of mizuna should be 25~30 cm without many wormholes in the leaves. The Project and Saribhakti provide proper instruction on sorting and packing to Mujagi and Gerbang Emas before starting shipments.

the harvest amount for Japanese vegetables increased. On the 27th of August 2019, the Project and Mujagi[45] discussed with Papaya the arrangements for the shipment of Japanese vegetables cultivated by Mujagi and other FGs in Cianjur. Both parties agreed to the specifications for each commodity, based on which Mujagi has continuously shipped the Japanese vegetables since the end of August. Along with an increase in the harvested amount of these Japanese vegetables, the frequency of shipments increased from twice to three times a week for all five of Papaya's outlets in Jakarta. These Japanese vegetables seem to be highly appreciated by many Japanese customers, who found their quality to be as good as vegetables produced in Japan.

- Harvests from imported seed after the variety registration

Japanese vegetables such as Momotaro tomato and nasu were cultivated only from the seed provided through the Project since there were no seed available at any shop. After completion of the variety registration, PT. Tani Murni started selling newly registered seed of Momotaro tomato and nasu in mid-November 2019. Mujagi bought seed of Momotaro tomato and nasu from PT. Tani Murni, and then planted them at their fields. Mujagi has been shipping Momotaro tomato and nasu regularly to Papaya since September 2019. Commercial-based cultivation and sales of Japanese vegetables including importing seed, selling seed to farmers, cultivating Japanese vegetables by farmers and selling Japanese vegetables to supermarket chains are being put in place.

1-3-3-2 Marketing to Other Companies

(1) Jakarta Ichiba

Jakarta Ichiba is a retail market dealing especially in fresh foods such as vegetables, fish, and meat. The Project discussed with Jakarta Ichiba on the 1st of October 2019 the shipment of Japanese vegetables from Mujagi in order to explore a new market channel for Japanese vegetables. On the 4th of October Mujagi sent samples of Momotaro tomato, nasu and mizuna, which were well appreciated by Jakarta Ichiba. Mujagi started regular shipment on the 15th of October 2019 though the amount of the order was small.

(2) PT. MC Living Essentials Indonesia

PT. MC Living Essentials Indonesia, a subsidiary firm of Indonesia Mitsubishi Corporation, owns a food processing factory in east Jakarta, named PT. Fresh Food Indonesia, for delivering processed foods to restaurant chains. Since the company was especially interested in Momotaro tomato, Kuroda carrot and mizuna for a fresh salad, the Project introduced Mujagi and Al Ittifaq, who could meet their needs. Samples from the two FGs were delivered to PT. Fresh Food Indonesia on the 21st of October 2019. According to the company, the quality was good with several issues to be further examined for making a salad, including safety and traceability in terms of agro-chemical use, production costs, and other matters.

(3) Ootoya

The Project brought samples of Momotaro tomato, nasu, mizuna, piman, and Kuroda carrot from Mujagi to Ootoya (a Japanese restaurant chain) on the 29th of October 2019. The Project also explained that Mujagi grew Delica (Japanese pumpkin). The feedback on each commodity is shown in the following table, suggesting that there were still some hurdles for the Japanese vegetables.

[45] Due to the internal issues, Saribhakti stopped shipping Japanese vegetables to Papaya, then Mujagi became the contact FG for Papaya.

Table 75 Feedback on Japanese Vegetables from Ootoya

Commodity	Comments	Points to be improved
Mizuna	Softer texture and easier to eat compared to other suppliers' mizuna.	Small insects were found, which could not be removed easily.
Nasu	Sweet when deep-fried and grilled. The texture of the seed was smoother than the local ones.	Some Indonesian staff felt that the skin was too hard, which could be due to contrast with very soft fruits inside the skin.
Momotaro Tomato	Good color and sweetness.	Some Indonesian staff felt that it was too sweet for tomato, tasting like fruit (i.e. not pleasant since it was unusual as tomato).
Piman	Good taste and texture.	The size of fruits was too small to be stuffed with meat or skewer-grilled (kushiyaki).
Kuroda	Sweet. Unlike local ones, not too hard.	None.

(4) Sayurbox

Sayurbox is an e-commerce company that has their partner farmers from three FGs[46] in Bogor, Cianjur and West Bandung. In order to explore a new market channel, the Project discussed with Sayurbox (e-commerce company) on the 27th of November 2019 to obtain detailed information on their services. The Project delivered samples of Japanese vegetables, Kuroda carrot, Momotaro tomato, nasu and mizuna cultivated by Mujagi, to Sayurbox on the 4th of December and all sample vegetables passed Sayurbox's quality check. The Project and representatives of Mujagi discussed with Sayurbox on the 23rd of December detailed arrangements for the shipping of Japanese vegetables. Sayurbox explained procedures for the issuing of a purchase order, timing of product delivery, payment terms, and other necessary arrangements for conducting business, while Mujagi explained the current shipping schedule to Jakarta for other customers since Mujagi wanted to adjust the shipment to Sayurbox together with products for other customers such as Papaya (a main market for Japanese vegetables). It was agreed that Mujagi would ship Japanese vegetables to Sayurbox after fulfilling orders from Papaya.

Responding to the fluctuation of the amount of orders from Papaya after the Covid-19 pandemic, however, Mujagi was not able to have enough harvests for Sayurbox, for which the business between the two parties has not been started.

1-3-4 Collaboration with Other Private Enterprises

The Project had a meeting on the 19th of December 2019 with Qiara Fresh, a supplier, to discuss detailed arrangements for a shipment of Kuroda carrots and other vegetables to Shabuhachi (a Japanese restaurant chain).

Qiara Fresh, established in 2018, has been engaged since 2019 in a horticulture project implemented by IPB together with Ralali.com (e-commerce) in six districts, including Bogor, Sukabumi, Cianjur, Bandung, Garut, and Subang. This horticulture project intends to strengthen supply chains for horticulture products at six sites by involving producers (individual farmers) and market actors, such as Qiara Fresh, as a supplier and Ralali.com as a marketing channel to businesses (hotels, restaurants and catering services).

Since the capacity for vegetable production by target farmers was still limited, Qiara Fresh wanted to partner with other FGs to maintain a continuous shipment of products to customers. Qiara Fresh identified Sinar Mukti in West Bandung (one of the Project's target FGs) as one of the potential groups. On the 8th of January 2020, Shabuhachi together with Qiara Fresh visited and checked the fields of Sinar Mukti.

However, although Sinar Mukti had been waiting for an official purchase order from Shabuhachi, it did not come due to the large-scale social restrictions for Covid-19 introduced in April 2020 that closed the restaurant.

[46] These three FGs are not target FGs of the Project.

1-3-5 Other Promotional Events

AEON Mall BSD City held a 10 day "Farm to Table" event from the 19th of October 2017, at which one booth was allocated to the Project's target FGs for the display and sale of vegetables. A total of 11 FGs joined the event and sold their vegetables. On the 23rd of October, a reception event was held at AEON Mall BSD with the attendance of representatives of the DGH and senior officials of PT. AEON Mall Indonesia. Japanese media (NNA Asia, Jakarta Shimbun and NHK) interviewed the Project's target farmers who participated in the event. The total amount of sales achieved was IDR 35,578,800

"Farm to Table" at AEON BSD Mall was again held from the 24th of October to the 4th of November in 2018. A total of 12 target FGs participated in the event. The opening ceremony of the event was held on the 25th of October with the participation of the representative of the JICA Indonesia office, while Japanese media (Jakarta Shimbun and NNA) had separate interview sessions with the Project (these media organizations published articles on the 26th of October). The total amount of sales achieved was IDR 56,677,950. Compared to the 2017 Farm to Table event, total sales were around 59% higher.

1-3-6 Utilization of STA

The Project has worked on improvement and utilization of Sub Terminal Agribusiness (STA), which should be strengthened as a means to support the establishment of modern agricultural product supply chains.

In order to obtain ideas on the effective use of STA facilities as one of the agricultural products distribution channels, the Project and representatives of the Directorate of Processing and Marketing of Horticulture Product visited STAs in Pemalang District and Brebes District, Central Java Province on the 3rd of October 2016 to learn the STAs' management systems and details on their operational procedures including marketing strategies.

Table 76 Example Cases of Effective Use of STA

Model STA	Commodity	Features
Pemalang STA	Chili	• A model case of a collection point that is used to maintain the supply of chili throughout the year. • An integrated management body (STA management committee) composed of FGs and traders can satisfy both sides' interests.
Brebes STA	Shallot	• Brebes STA has simple but suitable facilities (storage and drying space) to handle shallots. • The STA is well known to both farmers and traders as "a center for shallots" where the produce is collected at the STA throughout a year. • Securing a sufficient volume of produce of adequate quality is essential to link the producers and markets.

The Project examined the possibility of effectively utilizing existing STAs through the implementation of a trial project.

(1) Sukabumi STA

The Project had a series of meetings in 2017 with the representatives of Sukabumi City DINAS and the STA management committee to discuss details on the STA's management structure and operations for collecting and shipping horticulture products. Sukabumi City DINAS decided to use existing facilities at Sukabumi STA to collect horticulture products and ship them to modern markets. Following consultation with Sukabumi DINAS, the Project provided Sukabumi DINAS in April 2017 with the necessary equipment for washing, weighing, packaging and labeling of products to be shipped to modern markets.

After the head of the horticulture section in the STA management committee, who was mandated to operate horticulture business for the STA, left the position in May 2017, Sukabumi City DINAS and the Project needed to involve a capable local trader in STA management so as to strengthen the STA's operational functions. In August 2017, the Project proposed to Sukabumi City DINAS three management options: i) sublease to a third party; ii) operate under the current management system via committee; or iii) operate via an association for farmers' market (see Annex 8.10). Sukabumi City DINAS decided to sublease the STA's

post-harvest unit to a local company/trader, a businessperson, or a capable FG. The Project also presented draft lease terms for the STA's post-harvest unit in September 2017.

Sukabumi City DINAS and the Project tried to find a capable local trader who would be willing to operate the Sukabumi STA, but were not successful. Thus up until now, Sukabumi City DINAS has been directly managing the Sukabumi STA and holding a farmers' market every Sunday.

(2) Cianjur STA

When the Project and Cianjur DINAS discussed the utilization of Cianjur STA as a collection and shipping center for carrots promoted by the trial project, the STA had a serious problem controlling garbage disposal that deteriorated the STA's sanitary condition. Cianjur DINAS restructured and revitalized the Cianjur STA with STA's management responsibility being transferred from the STA management committee to DINAS' UPTD (Regional Technical Implementation Unit). The renovation of the Cianjur STA was conducted from 2018 to early 2019. Cianjur STA is now operated as a collection, selection and distribution center for local traders and collectors. In relation to the problem with the disposal of vegetable wastes, the waste was cleaned up by Cianjur DINAS and it was decided that users must dispose of their waste on their own.

(3) Bogor STA

Bogor STA was closed in 2016. The Project subsequently discussed with Bogor City DINAS the utilization and management of the Bogor STA. New management is needed in order to resume the operations. While the Project proposed that Bogor City DINAS work with a capable local trader, DINAS wanted to have the STA operated by the DINAS Cooperative, a savings and credit cooperative formed by DINAS staff members in charge of agriculture. The new management has not been in place as of yet due to: i) additional capital (around IDR 20 million) needing to be collected from the DINAS Cooperative's members to start horticulture marketing operations at the Bogor STA; and ii) DINAS not reaching a consensus on how the DINAS Cooperative should manage the Bogor STA.

(4) Garut STA

Garut STA has been utilized by a ginger exporter[47] from May to September every year as a collection, selection and distribution center.

1-4 Activities for Output 1-4

Output 1-4. Target farmers' groups' access to finance is improved.

1-4-1 KUR

To improve farmers' access to finance, the Project collaborated with Bank BTPN for the disbursement of microcredit called Kredit Usaha Rakyat (KUR), a financing scheme subsidized by the government of Indonesia. Through two batches of KUR, 50 farmers have received loans, amounting to IDR 853 million in total.

Table 77 Summary of the Two Batches of KUR

	First Batch	Second Batch
Disbursement	October 2017	September 2018
Number of farmers	24	26
District	Cianjur	Cianjur, Sukabumi, Bogor
Commodities	Curly chili, beef tomato, carrot, broccoli	Curly chili, bird eye chili, beef tomato
Total Loan Amount (IDR)	413 Million	440 Million

Initially, the Project together with BTPN explored a supply chain financing scheme. After discussions with suppliers, however, BTPN decided not to provide the supply chain financing due to potential credit risks. The Project and BTPN instead agreed to work together for KUR loans to horticultural farmers, many of whom expressed the need for financing agricultural inputs. The Project investigated all target areas and

[47] It was Agro Lestari that used the STA in 2019.

determined Cianjur to be the area where KUR loans would be most required. Three FGs (Mujagi, Utama and Mandiri) were selected as applicants for the first batch.

As per request from BTPN, the Project prepared the necessary information, such as unit production costs and expected benefits, from which BTPN examined the feasibility of the KUR loan scheme. The Project and BTPN then had a meeting with the three FGs in September 2017 to examine the business plans the farmers prepared, explain the necessary documents for the application of a KUR loan, discuss options for repayment methods, and inform them of the next steps for applying for a KUR loan.

BTPN visited Cianjur in early October 2017 to hold intensive discussions with the applicants, conduct individual interviews and field observations, and facilitate the preparation of the KUR loan applications.[48] At the meeting, a total of 35 farmers from the three FGs (Mujagi: 14 farmers, Utama: 9 farmers, and Mandiri: 12 farmers) submitted applications for KUR to BTPN.

Out of the 35 farmers, 24 were approved and concluded the KUR contract with BTPN on the 19th of October 2017 with loans being disbursed to each borrower's personal Wow account on the 20th of October. The total amount of the loans was IDR 413 million. The agreed conditions of KUR loan for the first batch farmers are shown below.

Table 78 Conditions for the First Batch KUR

Conditions	Description
The amount of loan	IDR 5 million to 25 million depending on the demand and capacity of borrowers. The total amount of loans provided to 24 farmers: 413 million IDR.
Collateral	Not required
Repayment period	From 12 to 36 months
Annual interest rate	9% (effective interest rate)
Repayment	Monthly repayment.
Commodity	Curly chili, beef tomato, carrot, broccoli

Several months after the disbursement, the Project interviewed the KUR recipients on how they had benefitted from KUR and how they had managed to repay the loan. The Project summarized the findings in an article and shared the article with stakeholders, including BTPN, the Ministry of Agriculture, the JICA, and new KUR applicants (refer to Annex 8.11). The article was prepared: i) for BTPN to use as proof to BTPN's management that its service to KUR recipients had been meaningful and that the farmers were capable of managing their repayments; as well as ii) to encourage new KUR applicants to apply for KUR loans.

The Project held introductory sessions for the second batch KUR, one in Sukabumi and one in Bogor from mid to late November 2017 and Cianjur in February 2018, where the details of the application for KUR and its prerequisites were explained. After several discussions between BTPN and the Project, BTPN requested, for a loan, a land certificate or receipt that proves the leasing of land, but the Project realized that taking the certificate or receipt would take a great amount of time and effort. Knowing the difficulty, BTPN instead requested that the recipients collectively sign a statement promising that they would take over the repayment of the members who had difficulty in meeting the repayment.

[48] Since it was mandatory for all KUR loan recipients to open an account in BTPN's mobile banking service called "Wow" (the loan must be repaid through the Wow account), BTPN also helped farmers with the process and held sessions to explain how to manage various transactions using the Wow service.

Table 79 Conditions for the Second Batch KUR

Conditions	Description
The amount of loan	IDR 5 million to 25 million depending on the demand and capacity of borrowers. The total amount of loans provided to 26 farmers: 440 million IDR.
Collateral	Not required
Repayment period	24 months
Annual interest rate	7% (effective interest rate)
Repayment	Every 3 or 6 months according to the commodity
Commodity	Curly chili, bird eye chili, beef tomato

The Project visited farmers to facilitate the preparation of their applications, which were submitted to BTPN in late May 2018. The total number of applicants for the second batch of KUR loans was 63 (22 applicants from four FGs in Cianjur, 10 applicants from two FGs in Bogor, and 31 applicants from five FGs in Sukabumi); 26 of which were approved.[49] Loans totaling IDR 440 million were disbursed on the 17th of September 2018. The cycle of the repayment was harmonized with the farmers' cash flow status, set to be either every three or six months corresponding to the commodity's harvest period.

In the subsequent third batch, a fintech company was planned to be included for streamlining BTPN's KUR operation, especially in terms of administrative work, such as collecting necessary data from applicants, evaluating financial credibility and arranging loan contracts. As a potential partner to outsource the administrative work for the third batch, BTPN and the Project found two companies; HARA and Tani Group. These companies explained their services, as described in Table 80, to farmers during the introductory meeting on the third batch KUR in early August 2018.

Table 80 Business Models and Differences of Services of HARA and Tani Group

	HARA	Tani Group
Business Model	Gathers farmers' data through mobile applications, compile it as big data and sell it to stakeholders.	Offers an on-line platform that links farmers and off-takers.[50]
Differences of Services from Farmers' Point of View		
Profit	Farmers receive a higher profit compared with Tani Group as they directly sell their produce to the off-takers.	Since Tani Group keeps 40% of the profit as a commission, its farmers receive a lower profit than HARA.[51]
Crop Failure	Loans must be repaid even when farmers face crop failures caused by natural disasters.	Farmers need not pay back the loans when the cause of the crop failure is a severe natural calamity, such as a large typhoon.
Repayment Period	The repayment period is as long as 2 years, considered the time necessary to make up for several cycles of crop failure.	The maximum repayment period is one year since an agreement is made for every harvest cycle.
Marketing	Farmers can find on their own the off-takers interested in their harvest.	Tani Group will take full responsibility for selling the farmers' produce. Tani Group will also purchase produce of all grades produced by the farmers.
Selling Price	The selling price of farmers' harvest is normally based on the market price (unless any prior agreements are made with the off-takers).	Farmers must sell their produce to Tani Group at a prearranged price.[52]

When farmers who wished to apply for the KUR loans were asked to decide between Tani Group and HARA services, all of them answered that they preferred to work with HARA. As shown in Table 80, from

[49] The majority of the rejected applicants held other outstanding loans.
[50] Capital is acquired from private investors and banks (including KUR loans).
[51] The profit is determined by deducting costs of cultivation and KUR loans' interest from the sales.
[52] Farmers cannot side-sell their produce to another party even when the market price is higher than the price previously agreed to with Tani Group.

farmers' points of view, HARA's business model seemed to be more profitable since it allows them to find better markets by themselves while Tani Group charged a high commission fee (40%).

The Project and HARA had a meeting in each district to explain to potential applicants the data required for applying for KUR, which would be entered in HARA's software application, as well as to conduct, at the selected farmer's fields, demonstrations on how to enter data using the application.[53] The Project supported farmers in the preparation of the required documents with 220 farmers in six districts submitting the applications for the third batch KUR to BTPN by January 2019.

However, BTPN could not begin credit assessments of the applicants due to its high non-performing loan (NPL) rate[54] of micro KUR.[55] According to the government regulation, the NPL rate needs to be less than 5% in order for a bank to continue to be engaged in KUR. Since BTPN expected that it would take a relatively long time for the NPL rate to be reduced to below 5% due to the relatively large amount of NPL, the Project decided in March 2019 to look for another partner bank that would be capable of providing micro KUR to the 220 applicants. The Project started discussions with Bank Negara Indonesia (BNI), one of the state-owned banks, since BNI had experience in providing KUR to rice farmers in East Java where credit assessments were conducted with HARA's application.

Initially, BNI regarded loans to horticultural farmers as risky because of commodity price fluctuations. The Project explained that the repayment schedule corresponded to each commodity's harvest period, which the Project had designed in collaboration with BTPN to minimize the risk of default. BNI appreciated the mechanism and agreed to cooperate for the third batch KUR.

Since each BNI branch had to sign contracts with loan applicants, the Project visited branches to explain the repayment mechanism and arranged meetings between branch officers and farmers in early August 2019. Since almost one year had already passed since the applicant list for the third batch was made, the Project reconfirmed the applicants and also supported the applicant farmers in preparing and submitting the required documents, resulting in 37 farmers' applications being submitted to BNI branch offices in late August 2019. However, since the repayment mechanism the Project proposed was new to the BNI branches, they required official instruction from BNI headquarters specifying the loan conditions, which in the end were never issued. With limited time until the end of the Project, the Project decided to cancel the third batch KUR.

1-4-2 Profit-sharing Scheme with Penny Growing

Having difficulties working with the banks, the Project searched for other options to provide initial capital to vegetable farmers. Through an introduction by JICA Indonesia, the Project met Penny Growing, a small investment fund willing to make a social investment in Indonesian agriculture. After several discussions from October 2019, both parties agreed to implement a trial investment project on melon and watermelon since a farmer of the Al Mujahidin FG in Sukabumi expressed the need for financing to expand his melon cultivation.

Based on the detailed cultivation costs and average selling prices for different commodities provided by the Project, Penny Growing designed a draft profit-sharing scheme for melon and watermelon. Between December 2019 and February 2020, the Project facilitated the communication among Penny Growing, the farmer and the supplier, and proposed some modifications to the scheme in line with the realities on the ground. The trial investment project started on the 25th of February 2020 when an agreement was concluded among Penny Growing, the farmer and the supplier.[56] The trial project site was located in Cipatat in West Bandung: 3,000 m^2 for watermelon and 2,000 m^2 for melon.

Involving the supplier, Penny Growing employed a tripartite profit-sharing scheme that worked as follows.

[53] HARA's software application allows farmers to enter the data required for applying for KUR loans in a digital format through their mobile phones, then all the data will be transferred to HARA's data center. Collected digitized data will be sent from HARA to BTPN and then used by the bank for credit assessment.
[54] It was made clear that most of the NPL of micro KUR generated in previous years did not belong to the recipients (farmers) supported by the Project.
[55] The smallest KUR loan with the maximum loan size of IDR 25 million.
[56] The agreed amount of investment was IDR 83 million.

Penny Growing provides the farmer with funds for the production of melon and watermelon. The farmer then starts the cultivation of melon and watermelon with the funds, and Penny Growing would take 40% of the profit the farmer makes while the remaining 60% goes to the farmer. The farmer would sell the harvest to the collaborating supplier at the agreed prices shown in Table 81. The supplier then needs to purchase melons and watermelons at higher prices than the market price up to the target yield, and once the harvests exceed the target yield, the unit prices would be reduced. To enjoy the lower prices, the supplier must ensure that the farmer does not incur crop failure.

Table 81 Agreed Prices of Melon and Watermelon in the Trial Financing Project with Penny Growing

Grade	Melon (Delmetion)			Melon (Honey Dew)			Watermelon (Black Hero)		
	Target Yield (kg)	Price (IDR)		Target Yield (kg)	Price (IDR)		Target Yield (kg)	Price (IDR)	
		Up to Target Yield	Over Target Yield		Up to Target Yield	Over Target Yield		Up to Target Yield	Over Target Yield
A	1,000	18,100	7,800	1,000	14,200	6,200	5,000	8,500	4,000
B	300	17,000	4,800	300	12,000	3,200	2,200	6,100	2,000
C	140	5,300	900	140	6,700	1,100	2,100	4,000	500
Total	1,440			1,440			9,300		

Penny Growing disbursed IDR 13,610,000 for the first phase of the field activities on the 26th of February. With the funds, the farmer started the cultivation of melon and watermelon.

With very low yields and quality of harvests (both melon and watermelon) as shown in the following table due to continual rain and also the lack of care by the farmer, only 1,735 kg of watermelon could be shipped to modern markets. Originally, the supplier, who knew cultivation techniques for both commodities, was supposed to regularly instruct farmers on cultivation. Monitoring by the supplier, however, was conducted only a few times during the entire cultivation period because the farmer was often absent and the supplier was also busy. As a result, the farmer could not have enough harvests to repay the fund to Penny Growing. From September 2020, Al Mujahidin cultivated big chili and had sales of IDR 20,000,000, with which repayment to Penny Growing was completed.

Table 82 Harvest Results for the Profit-sharing Scheme with Penny Growing

	Melon		Watermelon	
Variety	Honey Dew	Dalmation	Baby Black	Inul Golden[57]
Number of plants	1,533	848	3,330	
Number of fruits	621	526	1,524	401
Fruits per plant	0.4	0.6	0.6 (0.93 kg/plant)	
Yield (kg)	630	520	2,559	553
Sold amount to modern markets (kg)[58]	0	0	1,735	0

1-5 Activities for Output 2

Output 2. Managerial capacity of government officials who promote modernized production & distribution systems is strengthened.

1-5-1 Training in Japan

The Project implemented three training sessions on advanced practices in agricultural production in Japan, inviting Indonesian government officials. Each training was conducted for two weeks once a year. The first training was for the officials from the Ministry of Agriculture and senior officers of DINAS while the second training was mainly for technical officers of DINAS and the Ministry of Agriculture. The third

[57] Since the demand for Inul Golden from modern markets such as supermarkets was low, it was shipped to local markets.
[58] Although 369 pcs of relatively good quality melons were shipped to modern markets in Jakarta, they were rejected because of the low sugar content and then sold to other markets such as wholesale markets.

training targeted representatives from the target FGs and technical officers of DINAS. The Project collaborated with the Institute for the Development of Agricultural Cooperation in Asia (IDACA) in planning and conducting the training. At the end of the training course, participants prepared action plans based on what they learned through the training. Table 83 shows the number of participants for the training in Japan.

Table 83 Number of Participants for the Training in Japan

	Central/Local Government				Farmers	Total
	Ministry of Agriculture	West Java Province	District/City DINAS	Subtotal		
First Training (2016)	6	1	4	11	0	11
Second Training (2017)	5	1	6	12	3	15
Third Training (2018)	2	1	6	9	6	15
Total	13	3	16	32	9	41

In the first training, from the 28th of November to the 10th of December in 2016, participants visited different types of distribution facilities for horticulture products, which varied in size and had their own administration and transaction systems, including a wholesale market in Omiya City, a collection center and farmers' market operated by Nansai Agriculture Cooperative, and a Zenno Saitama collection and shipping center. Additionally, they visited the research institute of a local government that conducted research on the improvement of post-harvest technologies and product distribution systems, a private seed company that produced new seed varieties based on market needs, and a supermarket chain that was making continuous efforts to provide fresh vegetables to consumers. Participants had valuable opportunities to examine the entire horticulture value chain (production, processing, distribution and sale) through a series of field visits.

The second training in Japan was conducted from the 3rd of September to the 16th of September in 2017. Participants from FGs were selected through evaluations using the criteria prepared by the Project as well as recommendations from project field staff and DINAS extension officers. Participants learned about the roles and characteristics of Japan Agricultural Cooperatives (JA) in terms of production, post-harvest management, distribution systems, mechanism for collective activities concerning collection and business deals, operational and management systems for wholesale markets, and so forth. The participants visited Michi no Eki (Roadside Station), an agribusiness firm in Chiba, different facilities managed by JAs and a public wholesale market in Fukushima.

The third training was conducted from the 21st of October to the 3rd of November in 2018. Participants from FGs were selected through the same procedure as the second training. Participants learned about JA's roles and characteristics same as the previous year's training. Participants visited a farmer in Chiba to learn about different shipping strategies depending on the type of commodities and the volume of production. Another farmer in Yamanashi showed participants how he kept cultivation records in the planting calendar and managed the farm. At JA Chibamidori, participants learned about the process of creating the Chibamidori brand and different JA's facilities for cooling and sorting. Participants also visited Ota market (a public wholesale market) in Tokyo to learn how the wholesale market is managed, what roles the stakeholders such as traders and buyers are playing as well as how a vegetable auction is conducted.

1-5-2 Research on International and Local Best Practices for the Production and Distribution of High-quality Agriculture Products

The Project collected information on good practices relating to the distribution of agricultural products adopted in neighboring countries as well as other provinces in Indonesia. The Project analyzed the innovative features of each good practice and derived implications for the trial project to improve the agriculture product distribution systems. Good practices in the Philippines, Vietnam and Thailand were gathered through the Internet. Details are shown in Annex 8.12.

1-5-3 Support in the Development of Government Projects

Thirty-three projects that contribute to the modernization of production and distribution system were proposed or implemented by the Indonesian government during the four years of the project period. When necessary, the Project provided technical support to the DGH and DINAS. Most DINAS planned or implemented farmers' field schools, demo fields, training on cultivation techniques or crop protection. The table below shows examples of those projects conducted by the DGH and DINAS (details are shown in Annex 8.13).

Table 84 Examples of projects implemented by DGH and DINAS

City/District	Project	Description	Status
Directorate of Horticulture Protection	Development of Organic Agriculture	Developed an area in a village where organic agriculture was conducted.	Completed (2015-2019)
West Java Province	Capacity Building for Farmers and DINAS officials	Provide technical guidance to farmers and DINAS officers/extension workers particularly to encourage farmers to take quality certificates such as Prima 3.	On-going
Bogor City	Training on cultivation	Provide technical training on cultivation of mushroom, orchid, vegetables (edamame, chili and leafy vegetables) to FGs and FG associations in Bogor City.	On-going 3 times per year
Bogor District	Demonstration Plot	Share effective cultivation techniques or good management practices for fields in demo plots with farmers.	On-going
Sukabumi City	Trial project	Selected farmers conduct trial projects for bean and tomato, applying the same techniques and agro-inputs as those introduced by the Project.	On-going
Sukabumi District	Field School for GAP for Chili	Teach good practices in chili cultivation to farmers.	On-going since 2018
Cianjur District	Revitalization of STA	Repair facilities and review functions of the STA.	On-going
Bandung District	Improvement on agricultural distribution	Support farmers in negotiating with modern markets, such as suppliers, supermarkets and importers.	On-going
West Bandung District	Demonstration Plot Development at FGs	Share effective cultivation techniques or good management practices for fields in demo plots with farmers.	On-going
Garut District	Development of supply chain management for Chili	Provided technical support to farmers so that their produce will be able to meet the specifications required by modern markets.	Completed

Among all these projects, there is a project implemented by Sukabumi City DINAS to succeed the Project's 2017 trial project. Sukabumi City DINAS implemented follow-up activities for three FGs engaged in the 2017 trial project with its own budget. The FGs re-implemented a trial project (chili with cabbage, tomato or bean) with 200 m^2 of each farmland using cultivation management methods introduced by the Project, such as keeping cultivation records in the planting calendar and harvest records. Inputs were provided by DINAS. While implementing such follow-up activities, Sukabumi City DINAS intended to use Sukabumi STA to collect and pack agricultural products from small-scale farmers around Sukabumi City and develop distribution channels to modern markets in and around Sukabumi City. The first meeting between farmers and DINAS staff was held on the 16th of March 2017. Based on a request from Sukabumi City DINAS, the Project field staff provided technical advice to DINAS staff in January 2018 for the beginning of the activities. After receiving technical support from the Project, they became able to conduct activities by themselves with new staff hired especially for those activities.

1-6 Other Activities

(1) Collaboration with the ASEAN Secretariat

The Project conducted a joint activity with ASEAN Secretariat (with Japan-ASEAN Goodwill Ambassador on Food and Agriculture) to disseminate good practices on horticulture production. Ms. Melody, a former member of JKT 48, was appointed as the goodwill ambassador in February 2018 with the aim of enhancing relationships between Japan and ASEAN, and commemorating their 45 years of cooperation. Against this backdrop, the ASEAN secretariat planned a new activity in which Ms. Melody would experience the entire supply chain of horticultural products.

The ambassador was involved in field activities from sowing to harvesting of Kuroda carrot and Momotaro tomato carried out by the Utama and Mujagi FG in Cianjur every two weeks between May and September 2019. The Project shot a series of videos of the ambassador's interviews with farmers, which explained and advertised the cultivation techniques being introduced by the Project. Seven videos in total were shot and uploaded to the ambassador's YouTube channel. These videos got more than 20,000 views as of March 2020.

To complete the ambassador's collaboration in the advertisement of the Project, as the last part of the supply chain, the Project held a promotional event on the 29th of October 2019 at Papaya Fresh Gallery in Jakarta, to which the vegetables from Cianjur were supplied. In the event, the ambassador interviewed three Japanese customers regarding the quality of the Japanese vegetables, followed by a media interview. Several articles about the event were published by different media.

Furthermore, the Project together with the ambassador presented a lecture on supply chain development for horticultural products at the National University of Laos on the 25th of October 2019, gathering the experience of the Project. This program was under the initiative of "the Human Resource Development Project in Food-related Areas through Partnership with Universities in ASEAN Region" organized by the ASEAN secretariat.

Chapter 2 Achievements of the Project

2-1 Achievements of Objectives

2-1-1 Output 1-1

Output 1-1. Technique to produce and cultivate safe and high-quality agricultural products is acquired by the target farmers.

<Indicator>

1-1-1: Trainings on agricultural production are attended by 70% of the target farmers' groups.

Result: **Achieved** (99%)

Table 85 Target FGs' Attendance at Training

	2017		2018		2019		Total
	Dry	Rainy	Dry	Rainy	Dry	Rainy	
No. of participating FG	30	30	31	31	34	27	183
No. of FG that attended	30	30	31	30	33	27	181
Rate	100%	100%	100%	97%	97%	100%	99%

The Project conducted a total of six rounds of trial projects, in which almost all of the target FGs attended the training provided. Each trial project began with a field demonstration, where the experts taught farmers nursery management including procedures for seeding, preparation of a nursery bed, proper fertilization methods for land preparation and transplanting, proper transplanting methods for seedlings to farmland, and so forth. Field staff regularly monitored each farmer's field and the Japanese experts also periodically visited and provided instruction.

1-1-2: Improved cultivation techniques promoted by the project are followed through by 80% of the target farmers.

Result: **Achieved** (89%)

Table 86 Target Farmers Following the Techniques Promoted by the Project

	2017		2018		2019		Total
	Dry	Rainy	Dry	Rainy	Dry	Rainy	
No. of participating farmers	289	226	254	235	218	170	1,392
No. of farmers who followed[59]	205	217	225	217	211	170	1,245
Rate	71%	96%	89%	92%	97%	100%	89%

89% of the participants in the trial project properly followed the instruction given by the Project and completed each round of trial projects. The rate increased as the Project progressed, which can be attributed to the enhanced capacity of the Project staff in terms of monitoring and teaching, as well as to the good relationships established between farmers and the Project.

1-1-3: Good product rate is increased for 60% of the target farmers.

Result: **Achieved** (61%)

[59] Field staff confirmed if farmers properly practiced the introduced technique or not through regular monitoring of each participant's fields.

Table 87 Target Farmers Improving Quality of Harvests

	2017		2018		2019		Total
	Dry	Rainy	Dry	Rainy	Dry	Rainy	
No. of participating farmers[60]	202	201	220	235	218	170	1,246
No. of farmers who improved quality[61]	95	142	142	156	131	91	757
Rate	47%	71%	65%	66%	60%	54%	61%

In the six rounds of trial projects, more than 60% of farmers succeeded in improving the quality of their harvests by practicing the techniques the Project introduced. Among those who failed to improve quality, fewer farmers failed due to a lack of management than due to severe conditions such as long droughts or disease outbreaks. Even in such cases, however, some farmers understood that the introduced techniques in fact mitigated the damage.

2-1-2 Output 1-2

Output 1-2. Capacity to plan and carry out cultivation according to market needs is attained by the target farmers.

<Indicator>

1-2-1: Planting calendar is recorded by 60% of the target farmers who have completed the trial project on cultivation technique.

Result: **Achieved** (87%)

Table 88 Target Farmers Recording the Planting Calendar

	2017		2018		2019		Total
	Dry	Rainy	Dry	Rainy	Dry	Rainy	
No. of farmers who completed	205	217	225	217	211	170	1,245
No. of farmers who recorded	160	176	192	193	201	164	1,086
Rate	78%	81%	85%	89%	95%	96%	87%

More than 80% of the participants who completed their round of trial projects recorded activities conducted on the fields, including sowing, transplanting and pesticide application, in the planting calendar, and the ratio increased as the Project progressed. Farmers found the recording to be useful for managing their fields and to maintain quality.

2-1-3 Output 1-3

Output 1-3. Target farmers' groups' marketing channels are developed.

<Indicator>

1-3-1: Events to promote linkages between modern markets and farmers were participated by 80% of the target farmers' groups.

Result: **Achieved** (80%)

1-3-2: Business negotiation with modern markets is made by 50% of the target farmers' groups.

Result: **Achieved** (55%)

[60] Some farmers in 2017 and 2018, such as those who completely abandoned their fields, were excluded from the number of participants in order to properly evaluate the impact of the Project.
[61] Field staff confirmed if the quality was improved or not through regular monitoring as well as communication with farmers.

Table 89 Summary of the Business Forums

	No. of Participated FGs	Target FGs	%	No. of FGs which made business negotiations	Target FGs	%
First Forum (Apr 2017)	20	30	67%	-	-	N/A
Second Forum (Jan 2018)	26	30	87%	20	30	67%
Third Forum (Aug 2018)	27	31	87%	15	31	48%
Fourth Forum (Feb 2019)	24	31	77%	16	31	52%
Total	97	122	80%	51	93	55%

The Project, together with the DGH, held four business forum meetings inviting private companies (supermarket chains, food service industries, and major exporters and traders, etc.), FGs and financial institutions in order to promote dialogue and information exchange among participants. In total, 80% of the target FGs participated in the business forum and 55% of the target FGs conducted business negotiations with modern markets, both of which met the target indicators.

2-1-4 Output 1-4

Output 1-4. Target farmers' groups' access to finance is improved.

<Indicator>

1-4-1 Briefing on financial services is attended by 300 members of target farmers' groups.

Result: **Achieved** (528 members)

Table 90 Number of Farmers Attending the Briefings on KUR

	Second Round	Third Round	Total
No. of farmers	223	305	528

A total of more than 500 farmers attended the briefing on KUR for the second batch and the third batch combined. The briefing for the first batch was conducted only for the farmers selected by the Project since it was the first attempt under the Project.

1-4-2 Financial services such as loans and savings are used by 150 members of the target farmers' groups.

Result: **Not achieved** (50 members)

Table 91 Number of Farmers Receiving KUR

	First Batch	Second Batch	Total
No. of farmers	24	26	50

In collaboration with Bank BTPN, the Project supported farmers in receiving a loan through two batches of KUR. With the third round not being realized, the number of farmers who enjoyed the loan totaled 50, not reaching the target.

2-1-5 Output 2

Output 2. Managerial capacity of government officials who promote modernized production & distribution systems is strengthened.

<Indicator>

2-1: 24 events related to agricultural distribution and marketing are organized by government officials from the Directorate General of Horticulture and district Department of Agriculture (DINAS).

Result: **Achieved** (45 events)

A total of 45 events related to agricultural distribution and marketing have been organized by the DGH and DINAS (see Annex 8.14).

Most of the events are farmers' markets, festivals or exhibitions to promote and sell farmers' products either weekly, monthly or on special occasions. Though not all of these events were directly associated with Project activities, they share the same objectives or ideas (such as business forum) as the Project.

Table 92 Examples of the Events Organized by DGH and DINAS

City/District	Event	Description	Status
DGH	Auction Market	The auction market aims to reduce the number of intermediary actors in supply chains and facilitating transparent and fair transactions between farmers and buyers so that farmers can receive the highest price.	On-going Since May 2018
West Java Province	Exhibition and Bazaar	Province DINAS supports farmers in joining exhibitions and bazaars held by private companies or other institutions to sell their products.	On-going Invitation basis
Bogor City	Farmers' Market	The farmers' market was held once a month, using a car to go around the city until December 2017.	Completed
Bogor District	Business matching	DINAS facilitates business matching between farmers and buyers.	On-going 4 times a year
Sukabumi City	Business forum	Inviting farmers and banks to the DINAS office for business discussions.	On-going Every year
Sukabumi District	Exhibition at district, provincial, and national levels	Supporting farmers to join exhibitions for fresh and processed products at the district, provincial and national levels.	On-going Every year
Cianjur District	Bazaar	Farmers are supported by DINAS staff to sell vegetables at the DINAS office.	Completed in 2018 Every Friday
Bandung District	Mall to Mall	Promotion of farmers' products at the event in cooperation with ASPARTAN (Association of Farmers' Markets).	Scheduled by ASPARTAN
West Bandung District	Bazaar	Promotion and sale of farmers' fresh and processed products.	On-going Every Friday
Garut District	Bazaar ASPARTAN	Promotion and sale of farmers' products in cooperation with ASPARTAN at the Garut DINAS office or the Province DINAS office.	Every month

2-2: Training on modernized production, marketing, and distribution of high-quality agricultural products is participated by 30 government officials.

Result: **Achieved** (32 government officials)

Table 93 Participants in the Training in Japan

	Central/Local Government				Farmers	Total
	Ministry of Agriculture	West Java Province	City/District DINAS	Subtotal		
First Training (2016)	6	1	4	11	0	11
Second Training (2017)	5	1	6	12	3	15
Third Training (2018)	2	1	6	9	6	15
Total	13	3	16	32	9	41

Training on the modernized production, marketing, and distribution of high-quality agriculture products was conducted three times from 2016 to 2018 in Japan. A total of 32 government officials and nine representatives of selected target FGs participated in the training in Japan for two weeks.

2-3: 10 policies including related projects that contribute to modernization of production and distribution system are proposed or implemented.

Result: **Achieved** (33 projects)

Thirty-three projects that contribute to the modernization of production and distribution systems were proposed or implemented (see Annex 8.13).

All items counted for this indicator were "projects" not policies. These projects were conducted mainly through the DGH and each DINAS based on learning through project implementation. Only when necessary, the Project provided technical support to the DGH and DINAS.

Most DINAS planned or implemented farmers' field schools, demo fields, training on cultivation techniques or crop protection.

2-1-6 Project Purpose

Project Purpose: Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the target farmers' groups at the model sites in West Java Province.

<Indicator>

1: Improved production and management techniques are applied by 70% of the target farmers at their own field(s).

Result: **Achieved** (77%)

Table 94 Target Farmers Applying the Introduced Techniques to Their Own Fields

	2019 Dry Season	2019 Rainy Season	Total
No. of target farmers	218	170	388
No. of farmers applying the introduced techniques at their own field	166	134	300
Rate	76%	79%	77%

Among the participants in the 2019 trial projects, 77% had applied the techniques introduced by the Project to their own fields. Many of them employed the nursery management methods, knowing that they lead to a higher survival rate for seedlings and healthier growth at later stages. Some examples of good practices applied outside the trial project are highlighted below.

Table 95 Good Practices at Farmers' Own Field

District	Commodity	FG	Good Practice
Bogor	Melon	Rukun Tani	• After acknowledging the effectiveness of the rain shelter in the trial project, a farmer built a new rain shelter in early April 2019 for producing melon.
	Crystal Guava	Bina Tani Sepakat	• Using the knowledge provided by the Project, one of the group farmers won the crystal guava contest in April 2019. • His fruits were highly valued for their appearance, taste (sweetness), uniform size, color, crunchiness, and proper maturity level.
	Melon Bitter Melon	Teguh Jaya Tani	• After the trial projects for bean and tomato, a farmer cultivated Honeydew melon (musk melon) using a rain shelter and cultivated bitter melon using a net. • The rain shelter reduced pesticide application and promoted healthy growth of melons while the use of the net made the maintenance of plants easier.

	Bean Okura Cucumber	Tunas Tani Pangrango	• After the trial project for bean, a farmer applied the net in his bean, Chinese okura and cucumber fields. • The use of nets simplified cultivation and harvesting. Moreover, the pruning methods introduced by the Project improved plant condition and prolonged the harvest period.
Sukabumi	Chili	Sugih Mukti Pandan Arum	• Some farmers continued project methods such as nursery and pruning as they understand that these will lead to higher production.
	Bean	Mucekil	• A farmer continued using the net, expecting that the maintenance of plants would be easier.
Cianjur	Broccoli	Padajaya	• A farmer employed the rain shelter and other techniques, admitting that the use of temporary rain shelters resulted in a higher selling price.
		Saluyu	• A farmer practiced the nursery management methods for broccoli though without a rain shelter. The plants' conditions were fine.
	Bean	Padajaya	• Farmers continued the techniques introduced by the Project in their own fields and obtained good harvests.
	Chili	Mujagi	• A farmer used a temporary rain shelter for chili in 500 m^2 of his own field (instead of Takiron poles introduced by the Project, he used iron structures to build the rain shelter).
	Tomato	Parabon	• A participant in the trial project on tomato in 2018 applied the nursery management technique to his own field. The highest yield from 100 m^2 reached over 1,500 kg.
Garut	Choy Sum	Baroka Karunia Tani	• After learning the nursery management and soil media techniques for tomato, a farmer applied the techniques to choy sum.
	Tomato	Hitda Mandiri	• A farmer practiced the improved techniques in his own fields (250 m^2) since he had experienced the benefits: easier management, more efficient in pesticide application and longer harvest period.
	Carrot	Cikandang Agro	• After conducting the trial project of Kuroda carrot, a farmer cultivates local carrots by applying the same methods. • He thought that the techniques were easier in sowing seed, weeding and harvesting.
Bandung	Tomato	Hataki	• Farmers continued tomato cultivation, using Project methods. • A farmer had around 12-15 clusters per plant, showing increased productivity.
	Chili	Hataki	• Farmers continued chili cultivation, using Project methods such as pinching first fruits.
West Bandung	Bean	Sinar Mukti	• Farmers continued practicing the techniques introduced by the Project such as using a net and basal fertilizer. • A farmer additionally bought a net himself. • Some farmers experimented with direct sowing instead of a nursery in order to compare the cost-efficiency of these methodologies.
	Tomato	Sinar Mukti	• Farmers continued following the Project methods for tomato such as nursery management and fertilization.

	Tomato	Panen Lestari	• Farmers continued following the Project methods. • One of them harvested 3.5 tons of good quality fruits from 1,000 plants. • Members want to expand the nursery in order to increase the planting area though they seem to hesitate over the costs.
	Broccoli	Panen Lestari	• Farmers continued following Project methods and obtained A grades for 90% of their harvests, which fulfilled the specifications of a supermarket.

2: Distribution and marketing channels that allow agricultural products to be sold to modern markets is developed at 70% of the target farmers' groups.

Result: **Achieved** (74%)

Table 96 Target FGs Selling to Modern Markets

	2019 Dry Season	2019 Rainy Season	Total
No. of target FGs	34	27	61
No. of FGs selling to modern markets	22	23	45
Rate	65%	85%	74%

After two years focusing on improving farmers' capacity to have quality and stable harvests as demanded by modern markets, the Project made an effort to link capable farmers with different actors in modern markets in 2019. More than 70% of the participating FGs in 2019 supplied vegetables to modern markets.

Working as a core FG in Cianjur, Mujagi collected Japanese vegetables (Kuroda carrot and Momotaro tomato) from other FGs in the district and sold them to Papaya Fresh Gallery (supermarket) in Jakarta. Those farmers in Cianjur established a cooperative called Koperasi Maju Berkah Mandiri (KMBM), through which four FGs in Cianjur sold several items for processing to a supplier, PT. Sayuran Siap Saji. Most FGs in Garut and a few in Bogor also started shipping to Sayuran Siap Saji.

Al Ittifaq has been selling Kuroda carrots to AEON in Jakarta and Super Indo (supermarket chain). Since the demand from Super Indo was high, the Project introduced to Al Ittifaq other FGs in Cianjur, Bandung and Garut producing Kuroda carrots in the trial project. Through Al Ittifaq, those FGs sold Kuroda carrots to Super Indo.

In Sukabumi, the Project worked with a supplier HSI that has regular shipments to supermarkets in Jakarta. All of the participating FGs in Sukabumi supplied beans or tomatoes to HSI in the 2019 rainy season.

2-2 Other Achievements

2-2-1 Improvement in Production and Profitability of Main Commodities

The main commodities the Project supported in the trial projects throughout the project period were tomato, broccoli, bean, crystal guava, and carrot. More and more farmers became capable of practicing the improved techniques introduced by the Project as the rounds progressed, achieving higher yields with larger profits. Besides an improvement in production, the Project linked farmers with modern markets, which resulted in higher selling prices.

(1) Tomato (Dry Season)

Table 97 Participants in Trial Project on Tomato (Dry Season)

	2017		2018		2019	
	Dry	Rainy	Dry	Rainy	Dry	Rainy
Participants	43		95		31	

Tomato was one of the most popular products in the trial projects. Since there are some differences in the introduced cultivation techniques for tomato between the dry and rainy season, the results of the tomato trial projects need to be presented separately by season. In dry season, the main objective was to increase the amount of the harvest of the demanded grade with proper nursery management and cultivation techniques, such as training, thinning, and pruning. In Figure 4 below, the bars show the average and highest yield in each round while the line shows the share of farmers who achieved sales larger than material costs. Figure 5 shows the target farmers' average selling price of tomatoes.

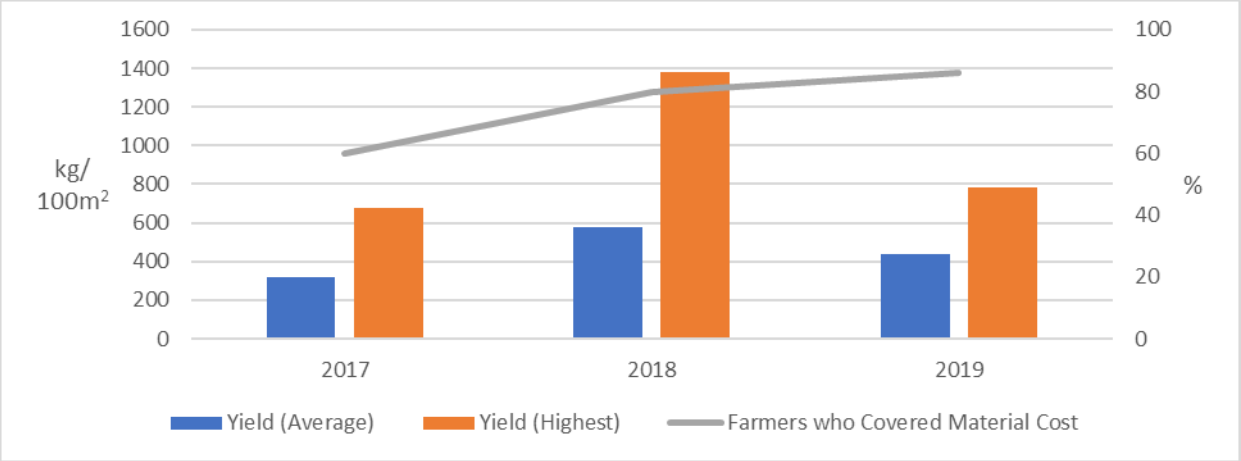


Figure 4 Yield of Tomato (Dry Season) (kg/100m²)

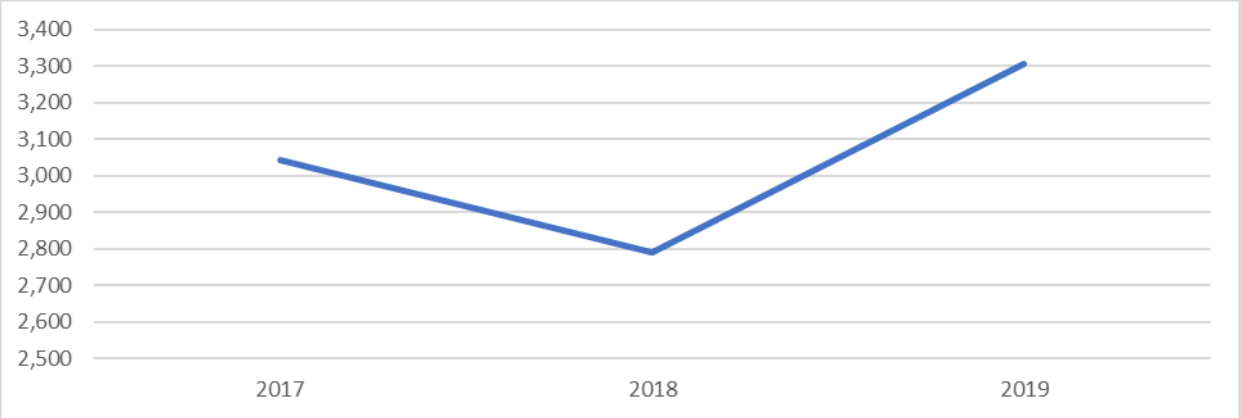


Figure 5 Target Farmers' Average Selling Price of Tomato (Dry Season) (IDR/kg)

All three rounds' averages achieved a higher yield than the average in Indonesia (173 kg/100 m²). In 2017, the fields of some farmers who did not properly conduct pruning and thinning showed excessive vegetative growth, which could be one of the causes for the disease outbreak. Pest and disease cases were less observed in the subsequent year since more farmers properly applied the introduced techniques. The farmers especially appreciated that the nursery management techniques led to healthier plants at later stages. Moreover, the adjusted components of soil media improved germination rates and nursery conditions. Several farmers with irrigation systems successfully harvested more than 1,000 kg from 100 m² of land. Although the participants' average selling price in 2018 was lower than that in 2017, the increased yield resulted in a higher share for farmers who made a profit.

In 2019, cultivation was well managed in most fields and the share of the farmers making a profit was 86%. Among 31 participants, those 18 farmers in Garut who supplied tomatoes to the supplier Sayuran Siap Saji enjoyed a higher selling price (IDR 4,500/kg) at a time when the local market price was as low as IDR 500-1,000/kg.

(2) Tomato (Rainy Season)

Table 98 Participants in Trial Project on Tomato (Rainy Season)

	2017		2018		2019	
	Dry	Rainy	Dry	Rainy	Dry	Rainy
Participants		54		75		51

Besides the techniques in dry season, tomato cultivation in rainy season employed rain shelters (composed of locally available materials) to control rain-caused disease.

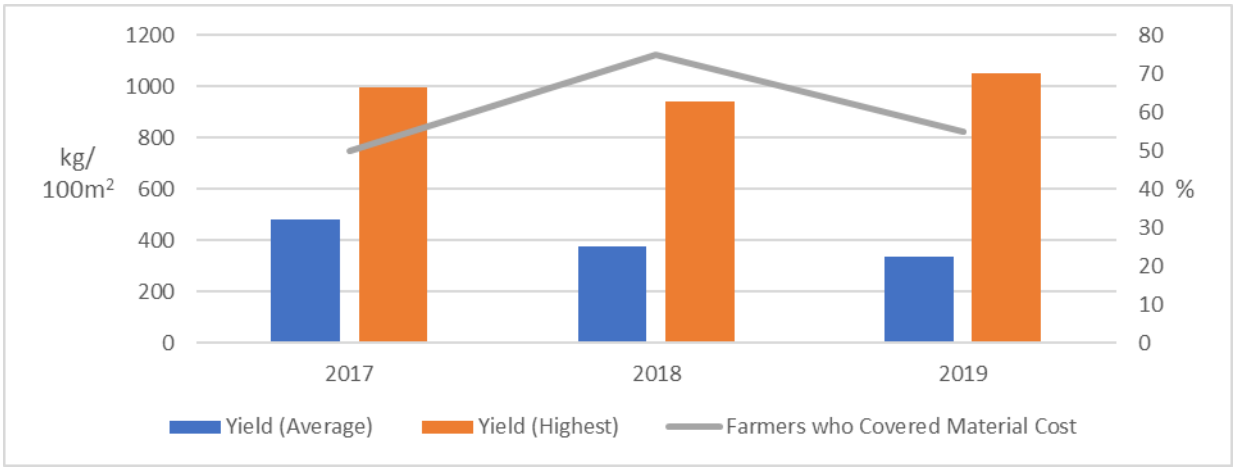


Figure 6 Yield of Tomato (Rainy Season) (kg/100m^2)

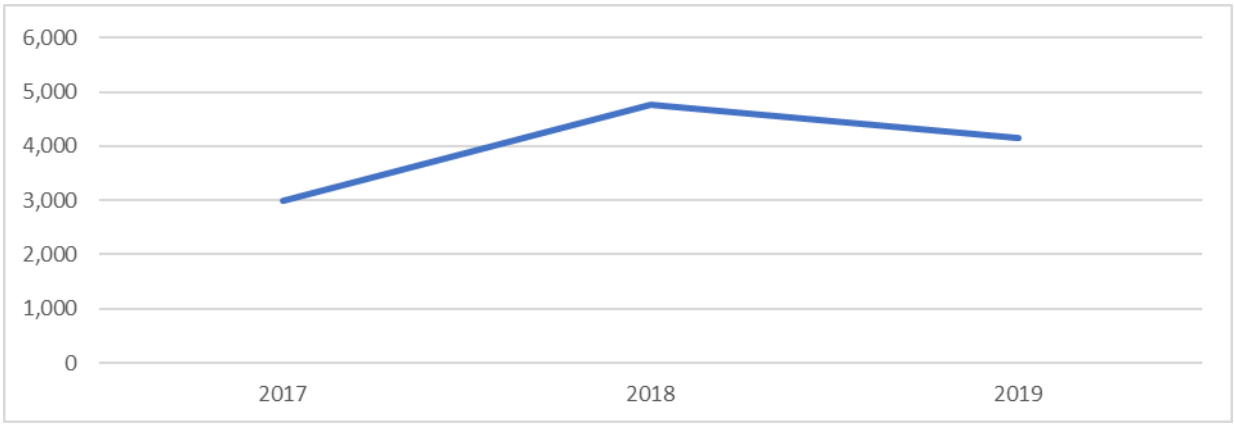


Figure 7 Target Farmers' Average Selling Price of Tomato (Rainy Season) (IDR/kg)

Same as dry season, three rounds' averages achieved a higher yield than the average in Indonesia (173 kg/100 m^2). In the first year, some rain shelters could not function since they were destroyed by strong winds. The application of granular pesticides to the planting holes at the time of transplanting controlled damage from pests.

Many fields severely suffered from long rain in the 2018 late rainy season, which caused a disease outbreak and a sharp decrease in the harvest. However, the fields with rain shelters maintained a higher level of harvest than those without rain shelters. Farmers realized the advantages of the rain shelters: increased yields resulting from the extended harvest period, improved quality of produce, and low risk of disease infection. Lower supplies in the market raised the price of tomato, which contributed to the higher share of the farmers who could make a profit compared to the previous year.

In 2019, some rain shelters in Bogor were damaged due to a strong wind, resulting in low quality and yield of produce. In Sukabumi, HSI, a supplier to supermarkets, procured tomatoes from farmers at the price of 1.5 times higher than that of the local market. However, since the demand from supermarkets decreased

due to the Covid-19 outbreak, HSI limited the purchase amount. As a result, farmers were obliged to sell most produce to local traders at a lower price, resulting in less profitability than they expected.

(3) Broccoli (Rainy Season)

Table 99 Participants in Trial Project on Broccoli (Rainy Season)

	2017		2018		2019	
	Dry	Rainy	Dry	Rainy	Dry	Rainy
Participants		31		98		31

Broccoli cultivation in rainy season employed rain shelters (composed of locally available materials) to control rain-caused disease. The rain shelters also prevented degradation of the produce due to rain exposure. Improved cultivation techniques in nursery management, fertilization and pest control were also employed.

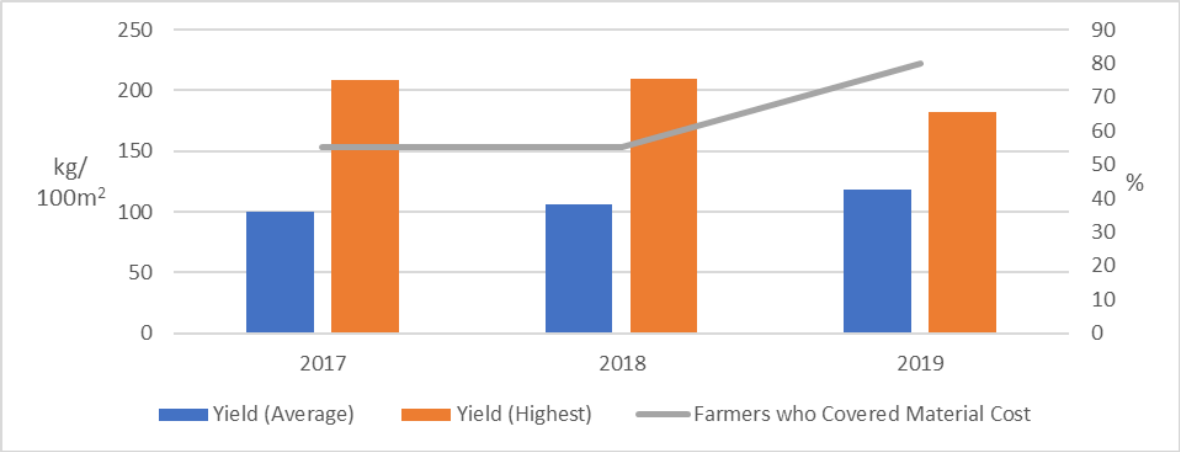


Figure 8 Yield of Broccoli (Rainy Season) (kg/100m²)

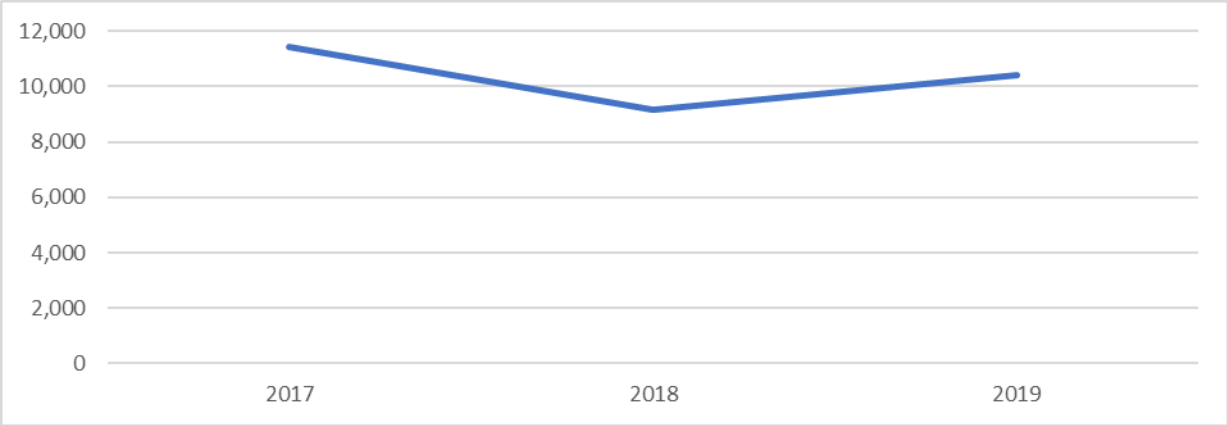


Figure 9 Target Farmers' Average Selling Price of Broccoli (Rainy Season) (IDR/kg)

Broccoli under a rain shelter grew better than in an open field over the last two years of the project as a result of the basal fertilizer not being washed away by rain thanks to the rain shelter and mulch. In 2017, the good quality was reflected in a higher selling price, though some farmers felt a longer period in the nursery stage required more labor, resulting in higher costs. The share of farmers who could cover the costs was still just above 50% in 2017.

In 2018, the yield of the broccoli for the participating farmers was at the same level. For one farmer's field, 100% of the harvests from the rain sheltered beds could be shipped while 60% of the harvests from his own land without a rain shelter was damaged and thus could not be shipped. The rain shelter contributed to the

improved quality of the produce. The share of farmers who could cover the costs, however, remained 55% in 2018, which could be ascribed to the low market prices.

In 2019, while the average yield of the participating farmers slightly increased compared to that of the previous year, the share of farmers who covered the materal costs increased to 80%; most participating farmers achieved stable yields.

(4) Bean

Table 100 Participants in Trial Project on Bean

	2017		2018		2019	
	Dry	Rainy	Dry	Rainy	Dry	Rainy
Participants	17	19	52	8	63	8

Bean can be considered the most successful case among all the varieties. A net training method was introduced to increase efficiency in the utilization of space and to improve growing conditions. Unlike the local common practice of letting vines grow along narrowly structured bamboo, bean leaves did not cover each other and thus the plants enjoyed better ventilation and sunshine, thanks to the wider space provided by the nets. Fewer cases of pest and disease were observed and photosynthesis was promoted, all of which resulted in healthier bean growth. The Project also promoted a top pinching and proper top-dressing method.

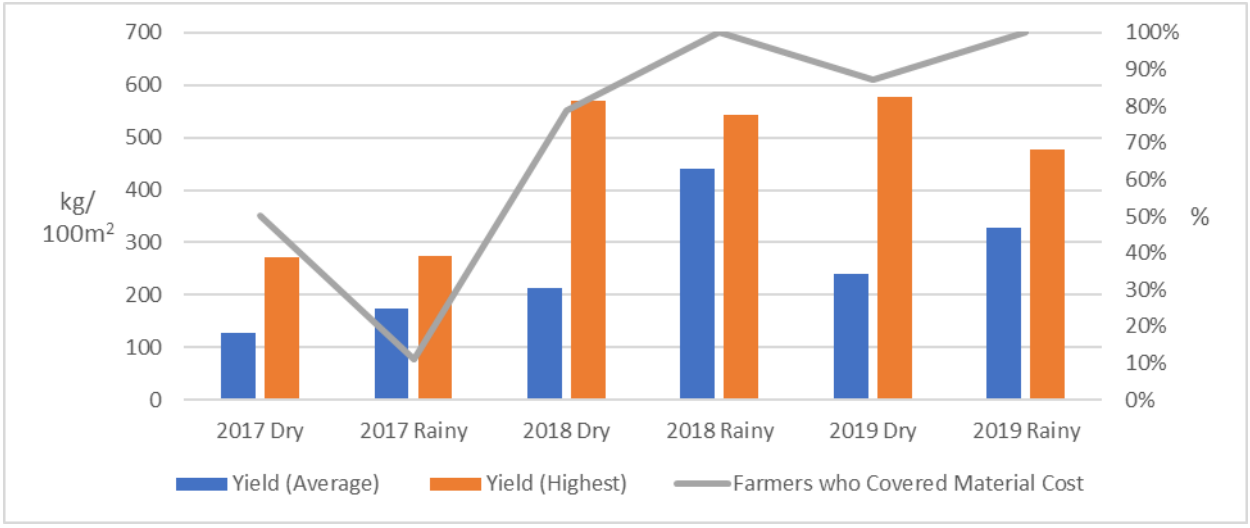


Figure 10 Yield of Bean (kg/100m²)

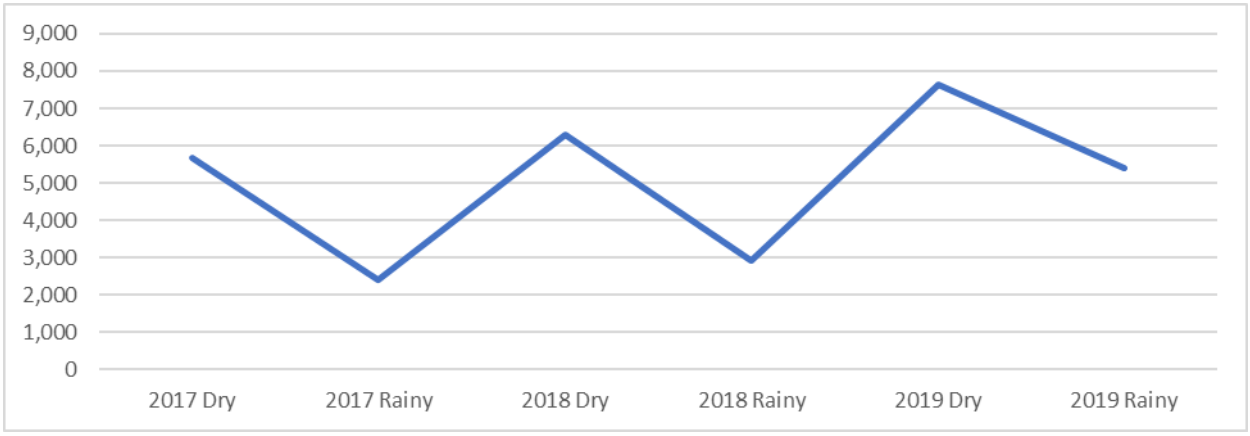


Figure 11 Target Farmers' Average Selling Price of Bean (IDR/kg)

The average yields of the target farmers in all rounds exceeded the local average production of beans (117 kg/100 m^2). With the average yield reaching 200 kg/100 m^{2}after 2018, several farmers produced over 300

kg which was more than double the average in Indonesia. Most farmers appreciated that the use of nets improved yield and quality (straight shape and uniform size) of beans. A fishing net was used in the beginning, for which the high price was problematic. The Project negotiated with a local producer of fishing nets to develop a specific product for agriculture, which was realized in 2019 and is currently available in a fishing shop in Cianjur at almost one-tenth of the original price.

Another issue was price fluctuations; although farmers had good harvests, making a profit was still not easy when the selling price in the local market was low in the 2017 rainy season. In 2019, the Project located a supplier that could purchase beans at a good and stable price and linked him with the farmers.

(5) Crystal Guava

Table 101 Participants in Trial Project on Crystal Guava

	2017		2018		2019	
	Dry	Rainy	Dry	Rainy	Dry	Rainy
Participants	45	44	15	12	14	21

The traditional practice of guava cultivation in West Java requires practically no technical input. For a larger harvest of higher quality crystal guava, the Project introduced the appropriate cultivation techniques of trimming old branches, fruit bagging with proper materials, appropriate type and timing of fertilization, pruning of excess fruits and pest control.

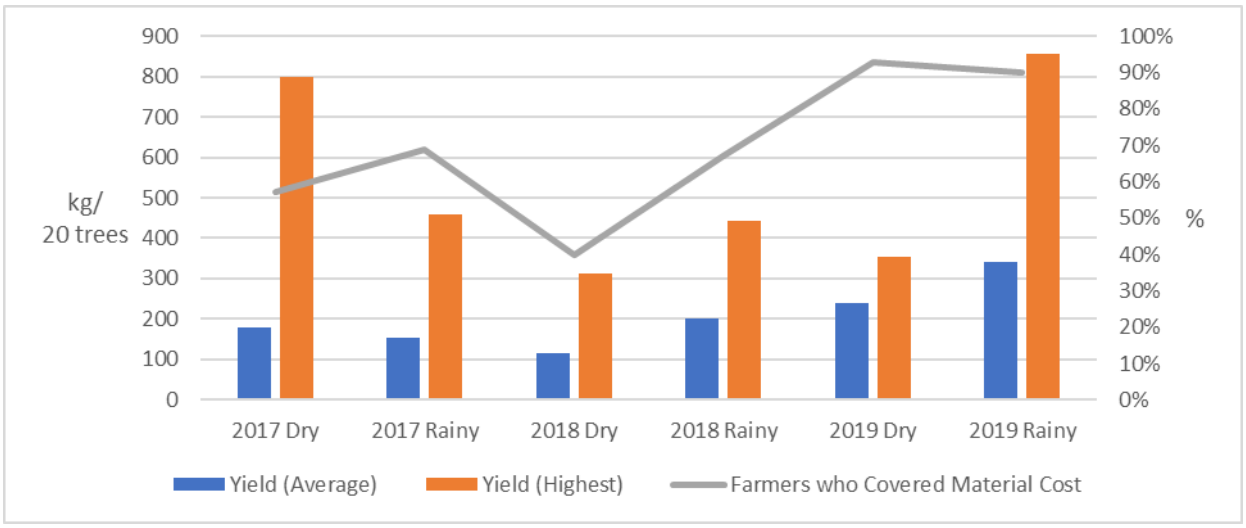


Figure 12 Yield of Crystal Guava (kg/20 trees)

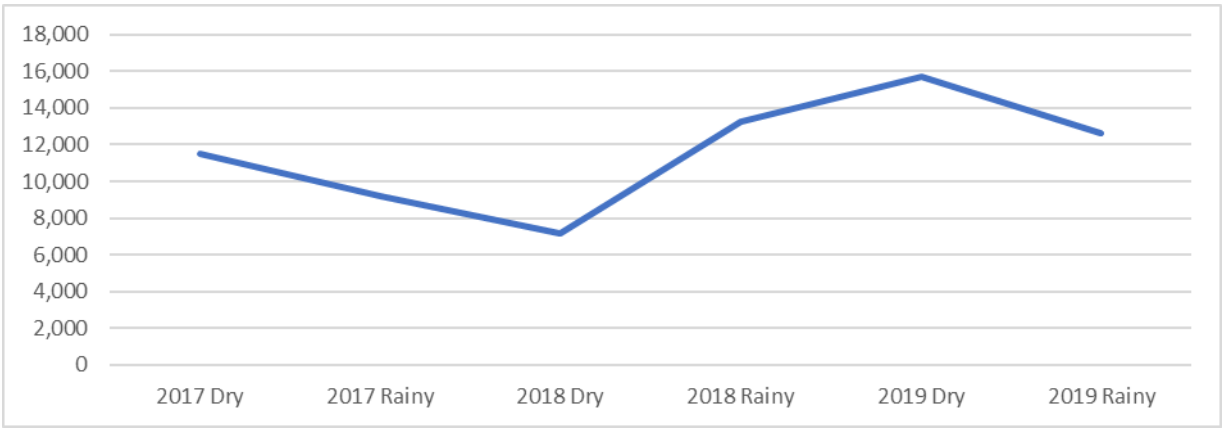


Figure 13 Target Farmers' Average Selling Price of Crystal Guava (IDR/kg)

In the 2017 dry season, due to the defective fruit bags that the Project introduced in the trial project, fruits were damaged by pests across many fields. The bags were replaced with a common plastic bag which

proved to be effective in later rounds.

In the 2018 dry season, a long drought inhibited new shoots from growing and thus the yield was suboptimal. Although some farmers appreciated the introduced fertilization as it increased sweetness of the fruits, many suffered low market prices at that time.

At the beginning of the trial project, many farmers were reluctant to prune and trim the trees, thinking that the harvests would be less. In the 2018 rainy season, many farmers successfully increased production through proper trimming and pruning; more and more farmers understood the effectiveness of these techniques and were able to properly implement them.

The 2019 dry season was again severe for guava farmers due to water shortages; however, the average yield of the farms supported by the Project increased, and farmers also enjoyed the elevated selling price in the dry season. During the rainy season, the yield and quality of produce improved with sufficient irrigation water.

(6) Kuroda Carrot

Table 102 Participants in Trial Project on Kuroda Carrot

	2017		2018		2019	
	Dry	Rainy	Dry	Rainy	Dry	Rainy
Participants	39	32	44	-	41	31

The Project promoted Kuroda carrot as a type of Nantes carrots (large cylinder type carrots), which were in increasing demand by modern markets; disseminating the cultivation techniques suitable for the variety with which local farmers had not been previously familiar.

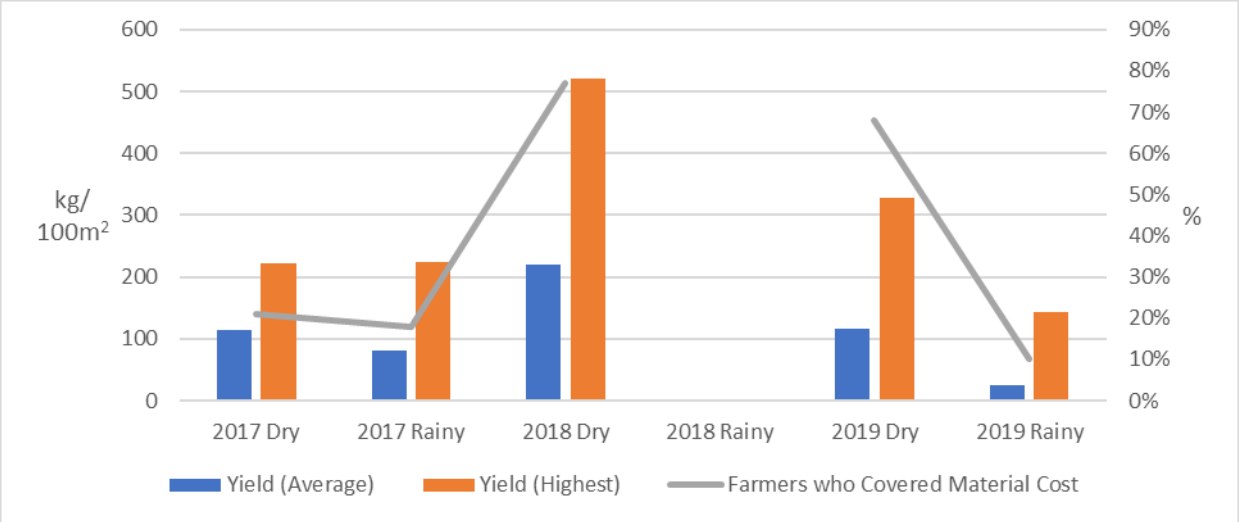


Figure 14 Yield of Kuroda Carrot (kg/100m²)

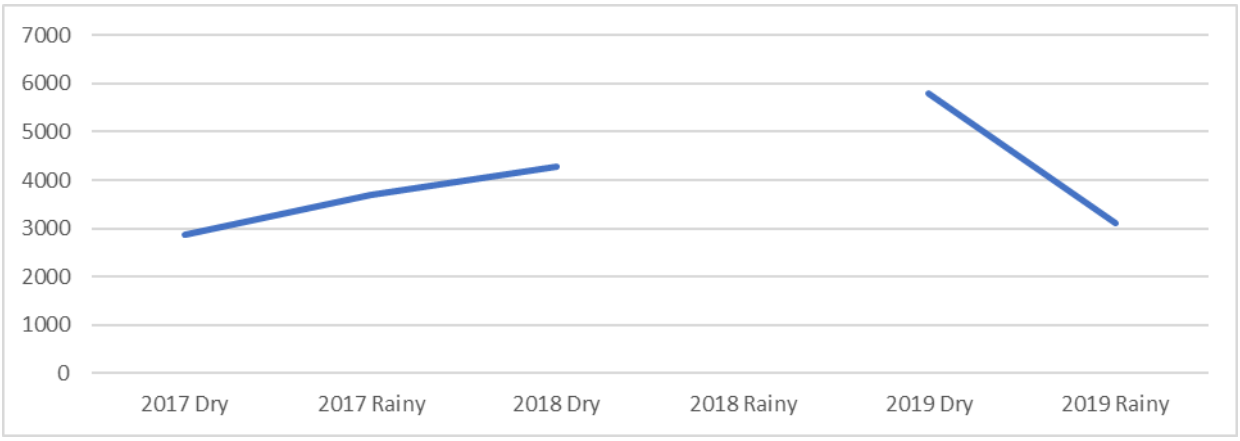


Figure 15 Target Farmers' Average Selling Price of Kuroda Carrot (IDR/kg)

In the 2017 dry season, the yield was not ideal due to improper thinning and also damage caused by nematodes. In the subsequent rainy season, problems with germination were observed. Heavy rain washed away the seed sown in some fields while some farmers experienced non-uniform germination because the depth of sowing was not even. Inadequate thinning resulted in smaller carrots (below 10 cm in length) which could not be accepted by modern markets and thus were sold in the local market at a cheaper price.

Lack of irrigation water during the 2018 dry season inhibited the germination and growth of tubers, but more and more farmers became able to properly cultivate Kuroda carrots with the average yield reaching 200 kg. While no farmers chose Kuroda carrot in the 2018 rainy season due to concerns about its marketability,[62] 41 participants grew Kuroda carrots in the subsequent season. The main objective in the 2019 dry season was to supply the carrots to suppliers who value Kuroda more than other carrots and hence offer a better price. Farmers benefited from higher selling prices by supplying Kuroda to Al Ittifaq or Papaya, but production itself was low.

Most farmers had poor harvest in the 2019 rainy season due to the low germination rate that resulted from topsoil and seed flushed away by rainwater as well as poor growth of roots damage damaged by heavy rain. Besides, due to the COVID-19 outbreak, the demand for Kuroda carrots from supermarkets sharply decreased, and thus Al Ittifaq could not receive Kuroda carrots harvested by the participating farmers, as a result of which they could not sell produce at a better price, resulting in low profitability.

In addition to the above-mentioned activities in technical guidance and sales promotion, the Project installed three carrot washing machines in three districts (Garut, Bandung, and Cianjur) to ease the burden of washing carrots as well as improve their quality. According to Papaya, machine-washed Kuroda carrots' appearance was far more appealing to customers.

The Project also introduced a sowing machine for carrots in 2019 as an experiment. For 400 m^2 of land, hand sowing usually takes five hours with four laborers while a worker can finish the work in 30 minutes with the sowing machine.

2-2-2 Impact on Farmers' Income[63]

Given that individual plots of only 100 m^2 were used for the trial project, the Project did not intend to measure increases in each farmer's income. With some farmers based near cities having a side business in addition to agriculture, the importance of agriculture as a source of income varies among farmers, which is the main reason why the Project adopted the trial project approach. After the trial project, farmers themselves could decide how to utilize (or not to utilize) the learned techniques according to their circumstances.

[62] Although no farmers chose Kuroda carrots for the trial project in the 2018 dry season, some FGs in Bandung and Cianjur that had previously participated in carrot trial projects continued carrot cultivation with their own fields. The Project conducted periodic monitoring of the fields and provided technical advice.
[63] The analysis was made based on the data obtained before the Covid-19 outbreak.

That said, comparing yields and selling prices of several farmers in the trial project with those of ordinary Indonesian farmers will help understand the Project's impact on farmers' income, instead of measuring each farmer's income. The table below compares selected farmers' results of the trial project and the Indonesian average. For each commodity two farmers were picked from participants in the 2019 dry season or the 2018 rainy season as samples: one is near the average and the other is one of the most successful farmers in the season. The Indonesian average selling price was set based on the local market prices collected throughout the project period. Taking into account local cultivation methods, the Project calculated the material cost of the Indonesian average. With that information as well as the average yields in Indonesia, the profits of the Indonesian average were calculated.

Table 103 Difference in Profit between Target Farmers and the Indonesian Average in 100 m^2 of Land

Commodity	Farmer		Average Selling Price (IDR/kg)	Yield (kg)[64]	Sales (IDR)	Material Cost (IDR)[65]	Profit (IDR)	Difference in Profit from the Indonesian Average	
Tomato (Dry Season)	Target Farmer	Avg	3,487	451	1,572,222	756,400	815,822	675,222	480%
		Good	3,330	676	2,250,926	756,400	1,494,526	1,353,926	963%
	Indonesian Average		3,000	173	519,000	378,400	140,600	-	-
Tomato (Rainy Season)	Target Farmer	Avg	5,116	351	1,795,600	999,880	795,720	482,120	154%
		Good	5,532	939	5,195,000	999,880	4,195,120	3,881,520	1,238%
	Indonesian Average		4,000	173	692,000	378,400	313,600	-	-
Broccoli (Rainy Season)	Target Farmer	Avg	9,435	115	1,085,000	917,300	167,700	109,600	189%
		Good	8,979	188	1,688,000	917,300	770,700	712,600	1,227%
	Indonesian Average		7,000	50	350,000	291,900	58,100	-	-
Bean	Target Farmer	Avg	6,790	267	1,813,000	686,000	1,127,000	996,500	764%
		Good	8,685	578	5,020,000	686,000	4,334,000	4,203,500	3,221%
	Indonesian Average		4,000	117	468,000	337,500	130,500	-	-
Crystal Guava	Target Farmer	Avg	13,586	191	2,595,000	1,071,000	1,524,000	1,081,000	244%
		Good	19,211	355	6,820,000	1,071,000	5,749,000	5,306,000	1,198%
	Indonesian Average		8,000	100	800,000	357,000	443,000	-	-
Kuroda Carrot	Target Farmer	Avg	6,489	126	816,000	374,750	441,250	57,250	15%
		Good	6,000	225	1,347,059	374,750	972,309	588,309	153%
	Indonesian Average		3,500	175	612,500	228,500	384,000	-	-

Except for Kuroda carrot, the material costs in the trial projects were two to three times as much as that of local practices. On the other hand, the yields of the average target farmers are much higher than the local averages, which could easily cover the increased material cost. Most of the average target farmers made more than 1.5 times as much profit as the Indonesian average. Though target farmers' yields for Kuroda carrots are not necessarily higher than the Indonesian average yield of carrots, the higher selling price contributed to the profit which is larger than the Indonesian average.

Not appearing in Table 103 is the fact that the cultivation techniques introduced by the Project require more intensive care than the local cultivation. However, it is still obvious that farmers can greatly increase their income by properly practicing the introduced techniques.

[64] No data was found for the Indonesian average yield of broccoli and crystal guava. Their figures in the table were based on information from farmers.

[65] Since the material cost for crystal guava under the local cultivation method was not clear, one third of the material cost in the trial project is set to be the material cost for the Indonesian average.

2-2-3 Ripple Effects beyond Target Farmers

The Project investigated the Project's impact on non-target farmers surrounding the target groups. Some farmers who participated in the trial project taught the improved cultivation techniques learned through the trial project to farmers who did not participate in the Project. Some examples are summarized in the table below.

Table 104 Examples of Ripple Effects beyond Target Farmers

District	FG	Examples of Ripple Effects
Bogor	Bina Tani Sepakat	• A participant in the trial project on crystal guava taught another member the introduced cultivation techniques, knowing they could improve yield and quality. He gave samples of a fruit bag to the member.
	Bakti Mandiri Sukajadi	• A brother of a participant in a trial project applied the nursery management methods introduced by the Project, such as pot-up to polybags. He observed the seedlings' higher survival rate.
Sukabumi	Kamboja/ Lembur Situ	• Several farmers employed the nursery management with polybags and the net cultivation method for beans under a program of Sukabumi City DINAS.
	Mucekil	• A farmer who did not join any trial projects applied the nursery management techniques for raising tomato seedlings, such as making a nursery bed and using polybags for pot-up instead of banana leaves.
Cianjur	Individual farmer	• A farmer saw the trial project sites and started asking about the cultivation techniques applied there. After the project staff explained the techniques, the farmer applied the nursery management technique using polybags for tomato.
	Mujagi	• A farmer who did not participate in any trial project learned from another member in the FG the nursery management technique the Project introduced. With this technique, he has grown nasu in a 500 m^2 field since February 2020.
Bandung	Taruna Mukti	• Two members of the Taruna Mukti FG obtained advice from the trial project member (leader of Hataki) on nursery management and cultivation techniques for tomato and then applied them on their own farm. They were also interested in the cultivation techniques for carrot and chili adopted by the trial project.
	Hataki	• Two non-target farmers of the Hataki FG learned the cultivation technique of tomato from the group leader (participant of the trial project) and applied it at their farm.
West Bandung	Cipeusing Maju	• A farmer used nets for bean cultivation on 1,400 m^2 of land in late 2019. She bought 30 packs of the net, which were ordered through project staff. • The farmer also applied the pruning method on shoots introduced by the Project. • The farmer confirmed that both quality and yield of fruits were better than those by the traditional cultivation method using bamboo sticks.

Chapter 3 Challenges, Key Innovations, and Lessons Learned in the Implementation of the Project

3-1 Challenges

(1) Mobilization of Farmers

Introducing new techniques is not as easy as it sounds. Some introduced techniques, such as pruning, were too drastic for some farmers to apply. The nursery management method using polybags takes a longer period of time in the nursery with more minute care, which was not acceptable for some farmers. They would apply the techniques only when they saw the benefits, but they had to try the methods at least once to see and appropriately understand those benefits. Establishing trust with farmers was the first hurdle the Project needed to overcome.

(2) Severe Weather Conditions

Agriculture is highly subject to the environment. The trial project experienced a drought lasting four to five months in the dry season leading to crop failures; an unusual event even in dry season. In addition, continuous heavy rain in rainy season washed out carrot seed sown on the field prior to its germination. Such extreme weather conditions resulting from climate change are one of the major obstacles for the cultivation of high-quality horticulture products as well as to supplying modern markets since the markets require continuous and stable product supplies.

(3) Market Price Fluctuation

The wide range of market price fluctuation greatly affects farmers' profitability. There were cases where, due to lower market prices compared to the preceding seasons, many farmers had smaller sales even though they successfully increased yields with the introduced techniques. The price fluctuations, caused by changes in the supply on the market due to various factors such as weather conditions and pest and disease are difficult to foresee with price sometime being less than one-third of the previous season. To avoid price fluctuations in the local market, the Project promoted the transactions with modern markets, especially in 2019.

(4) Communication between FGs and Modern Markets

Another challenge also lay in communication between FGs and modern markets. In the 2019 dry season, for instance, farmers in Garut concluded a deal for shipping Kuroda carrots to the supplier PT. Agro Selaras Abadi. In the first shipment, however, the two parties could not agree on the detailed arrangements such as the specifications, the packing method and how to deal with the rejected carrots. The shipped carrots were rejected for unknown reasons with no payment being made to farmers. The farmers ended up discontinuing shipments to Agro Selaras. The strengthening of FGs' negotiation skills targeting modern market actors is essential for a sustainable and mutually beneficial relationship with modern markets.

(5) Agricultural Finance to Horticultural Farmers

The Project worked with a commercial bank for the lending to horticultural farmers of KUR, short-term low-interest credit requiring no collateral with the government offering interest subsidies to KUR providers. Even with the subsidies, however, many banks were reluctant to provide KUR for agriculture and to horticultural farmers in particular. Most banks considered the many uncertainties in horticultural business, such as market price fluctuations and risks of crop failure caused by pest and disease outbreak, to be barriers to the repayment of the loan.

To mitigate the risks on the bank side, the Project proposed a two-year financing scheme in which farmers could have several cultivations and even if they should incur one crop failure, they could still complete the repayment through subsequent cultivations. Although this scheme was applied in the collaboration with BTPN, BNI was reluctant to disburse loans to horticultural farmers using the scheme. For promoting agricultural finance that is manageable for and beneficial to both farmers and banks, farmers need to understand more about finance and make more commitments to loan repayments while banks need to better

understand the agriculture contexts.

3-2 Key Innovations

(1) Deployment of Local Staff

To conduct regular monitoring of many farmers fields across a project site ranging a large area across over six districts, three levels of local staff (excluding a secretary) were deployed. One staff member was allocated as field staff to each of the districts, who then monitored the condition of each farmer's field on a daily basis. Above the field staff were placed two field coordinators, each of whom was in charge of three districts. They managed the field staff and facilitated communication between the fields and the project office based in Jakarta. The head of all local staff was the project coordinator, who was based in the Jakarta office with the Japanese experts. The project coordinator managed the field coordinators as well as the progress of overall activities. With this three-layer structure of local staff, the Project could manage the wide-ranging project sites and promptly respond to any issues as they occurred.

Table 105 Deployment of the Local Staff

Position	Description
Project Coordinator	• Based in the project office in Jakarta with Japanese experts, managed the progress of overall activities. • Managed the field coordinators. • Received reports on the progress in the field from the field coordinators.
Field Coordinator	• Two were appointed as field coordinators, each of whom was in charge of three districts to cover all six target areas. • Managed the field staff and monitored the field in the appointed districts. • Received reports on the field conditions prepared by the field staff and provide technical advice to FGs when problems occurred. • Coordinated with different actors in the supply chain in the area.
Field Staff	• One deployed in each district. • Continuously visited and monitored the fields of the FGs in the district.

(2) Cooperation among FGs for an Efficient Distribution System

The distribution cost as well as the associated commissions increase with the involvement of several agents before products reach the markets, resulting in farmers' receiving lower income. The Project has worked on the establishment of efficient distribution channels by linking farmers and modern markets. Since the modern markets are reluctant to directly deal with small-scale FGs, the Project has promoted, since 2019, cooperation among FGs that are located close to each other so that they are able to supply to modern markets jointly or through a capable local supplier. The Project facilitated cooperation among FGs in Cianjur and Garut for shipments to Sayuran Siap Saji, FGs in Bandung and Garut for shipments to Al Ittifaq, and FGs in Sukabumi for the shipment to HSI as described in 1-1-1-5 and 1-1-1-6.

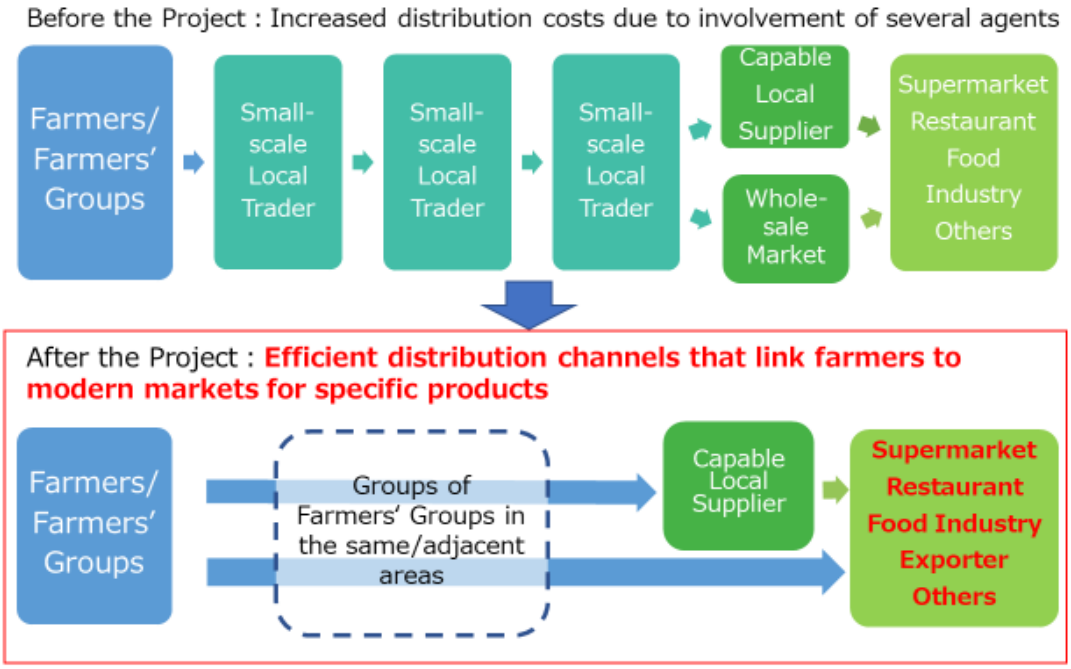


Figure 16 Improvement of Distribution Systems for Horticulture Products

(3) Collaboration with Private Companies

As written in 1-1, the Project collaborated with Japanese private companies and their subsidiaries in Indonesia, such as CWF, UNITIKA, Asahi Biocycle, Takiron Indonesia, Takii & Co., Ltd., and Shimota Nougei Co., Ltd. These Japanese enterprises took advantage of the trials to examine possible production in Indonesia or the marketing potential / effectiveness of their products in Indonesia. This collaboration also provided opportunities for farmers participating in the trial project to link themselves with modern markets, to learn good cultivation techniques from the companies, and/or to utilize new agricultural materials yet to be available in Indonesia. Even without the Project's involvement, CWF procured potatoes from Mekar Tani in Bandung and used them for production. As such, after being linked with private companies by the Project, FGs are able to continue working with the private companies even without Project support.

Partnerships with not only Japanese companies, but also local suppliers, input suppliers, a seed importer, banks, an investor, and so forth, brought a dynamism to the Project. To improve a horticulture product supply chain, in which different actors are linked with, it was necessary to engage from the upstream to the downstream instead of focusing on a specific issue or actor. In another part of the supply chain, the Project found capable and cooperative partners, and the collaboration with them allowed the Project to effectively tackle issues in different parts of the supply chain.

(4) Communication with Counterparts

The Project placed great importance on communication with counterparts. From the beginning of the Project in 2016, the Project held weekly meetings every Monday to share with the DGH the activity progress over the previous week as well as the activities planned in the week. When problems were observed in the field, the DGH and the Project discussed the issue in order to find solutions. The number of meetings held exceeded over 140. When a topic attracted the DGH staff's attention, the Project brought them to the relevant location to share the detailed information. In addition to the weekly meeting, the Project invited the DINAS of each target district to the introductory meetings at the beginning of each round of the trial project, where the Project explained the details of the trial project.

3-3 Lessons Learned

(1) Involvement of Different Actors in Establishing Efficient Supply Chain in Each Target Area

Since the level of FGs varies in terms of cultivation, marketing and organizational capacity; establishing a supply chain suitable for each FGs' capacity is important. Thus, in addition to the direct supply to end markets such as supermarkets and restaurants, collaboration with local capable suppliers can be essential for many of FGs.

(2) Dissemination of Appropriate Cultivation Techniques

Farmers tend to apply new techniques in their fields only after they themselves experience the positive impacts (increases in yields, better quality of harvests, etc.) the techniques can bring. The trial project, to which the Project provided most of the materials necessary for the introduced techniques, offered farmers the first opportunity to experiment with the new techniques with minimal risk. Then, farmers who had observed the advantages of the techniques in the trial project were able to continue practicing them in their own fields. Many cases of ripple effects to non-target farmers were observed; seeing the effectiveness of the techniques in their neighboring target farmers' fields, some non-target farmers also applied the techniques in their fields. Small-scale trial cultivation, through which farmers can witness the introduced techniques' advantages, is an effective means to disseminate the improved cultivation techniques.

(3) Introduction of Necessary Agricultural Materials and Machines

Besides improved cultivation techniques, the introduction of appropriate agricultural materials and machines for more stable production, more efficient work or better post-harvest management, is important for the production of high-quality horticultural products. The Project introduced several materials/machines: i) a net for bean (yield and quality were improved, and pest and disease damage was reduced); ii) a sowing machine (a lot of time and labor for sowing carrot seed were saved); iii) carrot washing machines (a lot of time and labor for washing was saved and washing quality also improved); iv) wrapping and measuring tools, and so forth. Furthermore, in relation to the collaboration with private companies, the Project conducted trial cultivation with *Pass Lite* of UNITIKA and with fully mature compost of Shimota; both which were for the effective control of pest and disease.

(4) Strategic Collaboration with Private Companies

The Project collaborated with different private companies for the establishment of supply chains for horticultural products. With CWF especially, the Project conducted five rounds of trial projects with a view towards increasing CWF's use of local potatoes for processing in the near future. The trial projects examined local variety's (Median) characteristics (productivity, quality, pests/disease tolerance, etc.) as well as the appropriate cultivation techniques for them, and transferred the cultivation techniques to participating farmers. After discussions with CWF on the results of the trial projects, the Project made a plan to be followed upon project completion in April 2020 for: i) Median seed potato production by a capable target FG; and ii) contract farming using the seed potatoes. As of April 2020, seed potatoes are being prepared according to the plan. In this way, apart from the activities conducted within the project period, having discussions with partner companies about concrete business strategies to be implemented following project completion was essential for establishing sustainable commercial relationships between FGs and private companies.

In addition, the result of the survey on the Covid-19's impacts on the horticulture value chain showed that e-commerce companies focusing on online B2C (business to consumers) markets sharply increased their sales. Since the e-commerce companies intend to strengthen cooperation with FGs for further market expansion, farmers expect online markets to be their new marketing channel. Furthermore, fintech companies and several agritech service providers, such as companies providing farm management software and agricultural machine leasing service, show an interest in collaboration with different actors, including farmers and suppliers/traders, to establish a business ecosystem for the sustainable horticulture supply chain.

(5) Importance of Capacity Building for Core FGs

In each target area, the Project aimed to have a core FG, which was expected to lead business with modern markets while involving other neighboring FGs. Core FGs in some districts already started working with other FGs or individual farmers for continuous supply of horticultural products. Their organizational

capacity needs further improvement in such domains as making planting plans for each member, transferring cultivation techniques, financing for agricultural materials, post-harvest management, negotiation with modern markets, and book-keeping. Raising core FGs with these capacities in each area and supporting them in forming a coordinated supply chain to modern markets are important.

Chapter 4 For the Achievement of Overall Goals after the Project Completion

4-1 Prospects to Achieve Overall Goal

Overall Goal: Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the farmers' groups at the model sites in West Java Province.

<Indicator>

1. 50% of the target farmer groups selected by DINAS at the model sites in West Java Province, as the target groups to achieve Overall Goal, sell agricultural products to modern markets through suppliers and/or by themselves in March 2024.

2. In March 2024, improved production and management techniques introduced by the Project are applied in;

   1) 50% of non-participants' fields (farmers who did not join the trial projects in 2019-2020) at the model sites of West Java Province; and

   2) 50% of the fields of target farmer groups' members, who are newly selected by DINAS as the target groups to achieve Overall Goal, at the model sites in West Java Province.

As described in 2-1-6, there were many cases of improved techniques practiced on farmers' own farms; the farmers appreciated the effectiveness of the techniques in improving yields and the quality of produce. The Project supported different FGs in selling their harvests to modern markets, which led to higher selling prices. The relationships between the modern markets and FGs established through the 2019 trial project are not limited to the trial project but are expected to continue since they are beneficial for both sides. Farmers will continue economically benefiting from deals with modern markets by continuously applying the introduced techniques, and thus the positive impacts of the Project will be long lasting.

4-2 Recommendations

For further improvement in the supply chain of horticultural products, the Project recommends the following activities:

(1) Further Development of Supply Chains

The supply chains the Project established in each target district should be strengthened or extended by promoting core FGs' partnerships with other neighboring FGs and individual farmers, which will enable the larger production scale modern markets require. With core FGs' current capacity, commodities, marketing channels and partner farmers being taken into consideration; support that responds to the needs in each area must be designed and carried out. Core FGs' capacity to coordinate partner FGs/farmers should also be strengthened.

Cooperation among FGs does not have to be limited to district boundaries. Collaboration between core FGs in different districts can establish new supply chains for horticultural products. For example, Al Ittifaq in Bandung has difficulty in meeting the huge demand for Kuroda carrots from Super Indo in Jakarta due to its limited production capacity. Cooperation with other FGs such as Mujagi and Utama in Cianjur, Hikmah Farm and Hataki in Bandung, and Cikandang Agro in Garut, all of whom have sufficient experience in Kuroda carrot cultivation, will allow a stable supply of Kuroda carrots throughout the year, so that Al Ittifaq will be able to expand the market. Table 106 illustrates some ideas for strengthening supply chains.

Table 106 Ideas for Further Development of Supply Chains

District	Commodity	Core FG	Target FG	Market
Bogor	Crystal guava	Pemuda Tani Naratas	Bina Tani Sepakat	Supermarkets in Jakarta
Bogor	Chili, tomato, broccoli, bean	Tunas Tani Pangrango	Other neighboring FGs	Suppliers to modern markets
Sukabumi	Melon, watermelon	Al Mujahidin		Supermarkets in Jakarta through suppliers
Sukabumi	Chili, tomato, leafy vegetables	Bumi Mekar/Hikmah Tani, Ciloa		Supermarkets in Jakarta through suppliers
Cianjur	Japanese vegetables	KMBM	Member FGs of KMBM	High-end supermarkets and restaurants in Jakarta, e-commerce. KMBM functions as a supplier.
Garut	Tomato	Cikandang Agro, Sinar Mandiri, Mekar Tani	Barokah Karnia Tani, Hitda Mandiri, Mukti Tani Jando	Suppliers to modern markets PT Sayuran Siap Saji The Sinar Mukti FG in West Bandung (shipped to modern markets)
Bandung	Kuroda carrot, Paprika	Hataki	Other neighboring FGs	Wholesale markets in Bandung, suppliers to supermarkets or food industries
Bandung	Momotaro tomato, nasu, mizuna	Al Ittifaq	Lyco Farm, selected Islamic Boarding Schools	High-end supermarkets and restaurants in Jakarta, e-commerce, exporters
West Bandung	Different varieties	Sinar Mukti	Other neighboring FGs	Modern markets
Bandung Cianjur Garut	Kuroda carrot	Al Ittifaq	Mujagi, Utama Hikmah Farm, Mekar Tani, Cikandang Agro	Super Indo and other high-end supermarkets, food industries

(2) Further Collaboration with Private Companies

Collaboration with private companies was one of the keys to the success of the Project, and thus it should be strengthened in order to realize greater impacts. Examples of potential partners are: i) fintech companies, investors/funds or financial institutions to realize farmers' access to finance; ii) agri-tech companies for farm management, book-keeping or online marketing; and iii) suppliers of agricultural inputs, materials and machines with which farmers can improve efficiency or quality of work in the field.

(3) Export Promotion

Some FGs have the potential to export high-quality horticultural products, if working with a capable exporter, through contract farming. Markets and commodities that match the FGs' capacity should be strategically selected. If the export markets require a certificate such as Global GAP, technical support for obtaining the certificate should also be provided.

Annex

1. Project Design Matrix
2. Flowchart of Project Activities
3. Plan and Actual Implementation of Operation
4. Assignment of Experts
5. List of Participants in the Training in Japan
6. List of Equipment
7. Minutes of JCC Meetings
8. Other Materials
    - 8.1. Technical Guides
    - 8.2. Planting and Work Calendars
    - 8.3. Planting and Shipping Calendars
    - 8.4. Summary of Wrap-Up Workshop of the Trial Project 2017
    - 8.5. Project Sheets
    - 8.6. Reports on the Short-term Training for Level C Farmers' Groups
    - 8.7. Summary of the Variety Registration Procedure in Indonesia
    - 8.8. Examples of Business Negotiations during the Business Forum
    - 8.9. Results of Taste Testing at JETRO Consultative Meeting
    - 8.10. Management Options and Draft Lease Terms for Sukabumi STA
    - 8.11. Articles of KUR Recipients
    - 8.12. International and Local Good Practices for the Production and Distribution of High-quality Agriculture Products
    - 8.13. Projects that Contribute to Modernization of Production and Distribution System
    - 8.14. Events Related to Agricultural Distribution and Marketing
    - 8.15. Summary of the Survey on Agricultural Mechanization Service
    - 8.16. Farmers' Groups Database
    - 8.17. Survey Report on the Covid-19's Impacts on the Horticultural Value Chain
    - 8.18. Good Practices of Sales Promotion and Collaboration with Different Actors Initiated by the Farmers Groups during the 2020 Rainy Season

Annex 1. Project Design Matrix

Project Monitoring Sheet I (Revision of Project Design Matrix)

Project Title: Public-Private-Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System **Version 5**

Implementing Agency: DG of Horticulture, MOA, DINAS of West Java Province, Cianjur District, Garut District, Bogor City, Sukabumi City **Dated 30 March, 2021**

Bandung District, and West Bandung District

Target Group: Agricultural farmers' groups in the Model Sites

Period of Project: Five (5) years and five (5) months

Project Site: Project Site: Jakarta, West Java Province (Cianjur District, Garut District, Bogor City, Sukabumi City, Bandung District, and West Bandung District)

Model Site: Cianjur District, Garut District, Bogor City, Sukabumi City, Bandung District, and West Bandung District

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption	Achievement	Remarks
Super Goal					
Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the farmers' groups in West Jawa Province	The number of the farmers' groups who sell safe & high-quality agriculture products in West Java in 2030	Government statistics	The Government implements polices to disseminate outputs of the project to the entire area of West Java Province	N/A	N/A
Overall Goal					
Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the farmers' groups at the model sites in West Jawa Province	1. 50% of the target farmer groups selected by DINAS at the model sites in West Java Province, as the target groups to achieve Overall Goal, sell agricultural products to modern markets through suppliers and/or by themselves in March 2024. 2. In March 2024, improved production and management techniques introduced by the Project are applied in; 1) 50% of non-participants' fields (farmers who did not join the trial projects in 2019-2020) at the model sites of West Java Province; and 2) 50% of the fields of target farmer groups' members, who are newly selected by DINAS as the target groups to achieve Overall Goal, at the model sites in West Java Province.	1) Government statistics 2) Sample survey		N/A	N/A
Project Purpose					
Modernized production & distribution systems of safe & high-quality agricultural products that lead to an increase of farmers' incomes are developed for the target farmers' groups at the model sites in West Jawa Province.	1. Improved production and management techniques are applied by 70% of the target farmers at their own field(s)	1) Project monitoring sheets and interviews with target farmers 2) End-line survey	The agricultural policy does not change drastically.	76% (166/218 farmers, 2019 dry season) 79% (134/170 farmers, 2019 rainy season)	N/A
	2. Distribution and marketing channels that allow agricultural products to be sold to modern markets is developed at 70% of the target farmers' groups	1) Interviews with non-target farmers in the group 2) End-line survey		65% (22/34 FGs, 2019 dry season) 85% (23/27 FGs, 2019 rainy season)	N/A

Outputs					
1-1. Technique to produce and cultivate safe and high-quality agricultural products is acquired by the target farmers	1-1-1. Trainings on agricultural production are attended by 70% of the target farmers' groups 1-1-2. Improved cultivation techniques promoted by the project are followed through by 80% of the target farmers 1-1-3. Good product rate is increased for 60% of the target farmers	1) List of training attendees 2) Project monitoring sheet 3) Harvest record	Massive natural disasters (such as drought and flood) do not occur.	99% A cumulative total of 181/183 FGs in trial projects from 2017 to 2019. 89% A cumulative total of 1,245/1,392 farmers followed in trial projects from 2017 to 2019. 61% A cumulative total of 757/1,246 farmers in trial projects from 2017 to 2019.	
1-2. Capacity to plan and carry out cultivation according to market needs is attained by the target farmers	1-2-1. Planting calendar is recorded by 60% of the target farmers who have completed the trial project on cultivation technique	1)Planting calendar	Market on agricultural products does not drastically change.	87% A cumulative total of 1,086/1,245 farmers in trial projects from 2017 to 2019.	
1-3. Target farmers' groups' marketing channels are developed	1-3-1. Events to promote linkages between modern markets and farmers are participated by 80% of the target farmers' groups 1-3-2. Business negotiation with modern markets is made by 50% of the target farmers' groups	1) List of event participants 2) List of business negotiations	Market on agricultural products does not drastically change.	87% A cumulative total of 97/122 FGs in four business forums. 55% A cumulative total of 51/93 FGs in four business forums.	
1-4. Target farmers' groups' access to finance is improved	1-4-1. Briefing on financial services is attended by 300 members of target farmers' groups 1-4-2. Financial services such as loans and savings are used by 150 members of the target farmers' groups	1) List of financial service briefing participants 2) List of financial service users	Financial market and banking system does not drastically change	Total 528 members are given briefing on financial service (KUR 2nd and 3rd 24 (KUR 1st batch) 26 (KUR 2nd batch)	
2. Managerial capacity of government officials who promote modernized production & distribution systems is strengthened	2-1. 24 events related to agricultural distribution and marketing are organized by government officials from the Directorate General of Horticulture and district Department of Agriculture (DINAS) 2-2. Training on modernized production, marketing, and distribution of high-quality agricultural products is participated by 30 government officials 2-3. 10 policies including related projects that contribute to modernization of production and distribution system are proposed or implemented.	1) List of events 2) Policy papers, List of government support projects or activities 3) List of training participants	Drastic transfer of human resources that leads to a loss of accumulated knowledge does not occur.	45 events were organized. 11 trainees (2016) 12 trainees (2017) 9 trainees (2018) Total 32 trainees 33 projects were proposed or implemented.	

Activities	Inputs		Important Assumption
	The Japanese Side	The Indonesia Side	
1-1-1. Identify farmers' groups with high potential for producing safe and high-quality products. 1-1-2. Taking into account the capacity of the identified farmers' groups, develop trial projects. 1-1-3. Carry out training to the target farmers' groups on improved production methods through 2 trial projects/year.	1 Dispatch of Experts - Chief Advisor / Marketing & Distribution - Other experts as necessary (e.g. Cultivation Technologies / Extension, Financing Scheme, Training Management /Coordinator) 2. Training in Japan 3. Provision of equipment : As necessary. 4. Budget for operational cost for the Project implementation.	1 Allocation of Counterpart Personnel (Project Director, project coordinator, project manager, operational manager, district level counter points, and other government officials) 2 Space and building for Project Office 3 Budget for operational cost for the Project implementation (electricity, water, internet access and travel allowance for Indonesian counterparts) 4 Supply or replacement of equipment and any other materials other than the equipment provided by JICA	
1-2-1. Investigate modern markets such as supermarkets and restaurants, and their suppliers, to analyze market needs. 1-2-2. Based on the market needs, help the target farmers' groups develop cultivation plans. 1-2-3. Carry out training to the target farmers' groups on production management based on the cultivation plans through 2 trial projects/year.			
1-3-1. Encourage target farmers' groups to join the farmer and modern market networking events. 1-3-2. Support marketing activities which allow target farmers' groups to build linkages with modern markets at 2 trial projects/year. 1-3-3. Support establishing market channels using STA.			
1-4-1. Investigate target farmers' groups' financial needs and existing financial services in the market. 1-4-2. Share information on financial services with target farmers' groups. 1-4-3. Support farmers in need of financing to use financial services.			

2-1. Regularly share project status and progress with government officials from the Directorate General of Horticulture and district Department of Agriculture (DINAS) 2-2. Gather international and local best practices on production and distribution of high-quality agricultural products which will contribute to the modernization of production and distribution systems. 2-3. Conduct training on modernized production, marketing, and distribution of high-quality agricultural products for government officials. 2-4. Support the development of policies/action plans/ projects that contribute to the modernization of production and distribution of agricultural products.			

Farmers' Group List for the Target of Overall Goal

Farmers' Groups engaged in Phase 1

Area		Farmers' Groups	Location (Kecamatan)	Total No. of Active Members	No. of Target Farmers	Target No. 50%
Bogor	1	Manggis Raya Lestari	Leuwiliang	25	25	13
	2	Wana Lestari	Leuwisadeng	120	120	60
	3	Neglasari Jaya Mandiri	Cigombong	35	35	18
	4	Bina Mandiri	Caringin	30	30	15
	5	Subur Tani	Caringin	25	25	13
	6	Mekar Tani	Cibungbulang	17	27	14
	7	Tani Jaya	Cibungbulang	26	26	13
	8	Karta Raharja	Ciampea	20	20	10
	9	Karya Mekar	Pamijahan	20	20	10
	10	Bumi Cianten Endah	Pamijahan	50	50	25
	11	Sukaresmi Tani Mandiri	Megamendung	24	24	12
	12	Cikatapis Maju Berkah	Megamendung	22	22	11
	13	Bakti Madiri	Tamansari	25	20	10
	14	Bina Tani Sepakat	Dramaga	25	14	7
	15	Pemuda Tani Naratas	Megamendung	25	15	8
	16	Tunas Tani Panggrango	Megamendung	25	18	9
	17	Rukun Tani	Ciawi	25	22	11
			Sub-Total	539	513	257
Kota Sukabumi	1	Sugih Mukti 2	Cibeureum	25	25	13
	2	Karang Mekar	Cibeureum	25	25	13
	3	Sejahtera	Gunung Puyuh	10	20	10
	4	Mucekil	Gunung Puyuh	25	22	11
			Sub-Total	85	92	46
Sukabumi	1	Jaya Abadi	Kadudampit	100	100	50
	2	Sumber Tani	Kadudampit	15	15	8
	3	Baraya Tani	Kadudampit	80	80	40
	4	Saluyu Bersatu	Caringin	17	17	9
	5	Sari Mukti	Caringin	11	11	6
	6	Seungapan	Caringin	15	15	8
	7	KWT Wanasari	Sukabumi	19	19	10
	8	Tangsel	Sukalarang	25	25	13
	9	Rukun Tani 2	Sukalarang	10	10	5
	10	Cipriangan	Sukalarang	17	17	9
	11	Al Mujahidin Association	Caringin	100	95	48
	12	Ciloa	Sukaraja	20	15	8
	13	Bumi Mekar	Kadudampit	20	17	9
	14	Hikmah Tani	Kadudampit	22	20	10
	15	Pandan Arum	Caringin	25	20	10
			Sub-Total	496	476	238

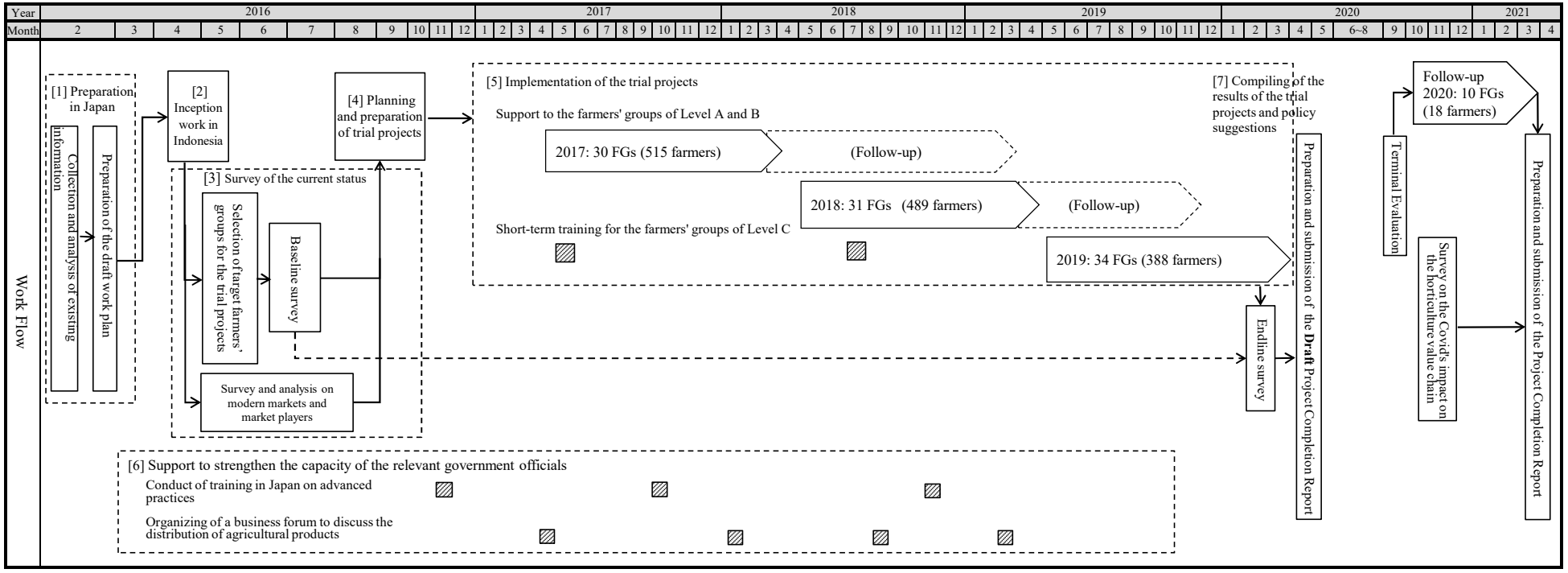
Cianjur	1	Makmur Tani	Campaka Mulya	20	20	10
	2	Palm	Pacet	25	25	13
	3	Taruna Mekar	Pacet	20	20	10
	4	Harapan	Pacet	15	15	8
	5	Cipendawa Lestari	Pacet	12	12	6
	6	Selaawi Mukti	Pacet	20	20	10
	7	Puta Giri Kencana	Pacet	21	21	11
	8	Mekar Tani	Cipanas	14	14	7
	9	Mitra Tani Parahyangan 2	Warung Kondang	10	10	5
	10	Gede Harapan	Gekbrong	17	17	9
	11	Tani Kencana	Gekbrong	17	17	9
	12	Cemerang	Pacet	17	10	5
	13	Mandiri	Pacet	15	5	3
	14	Saridona 2	Cugenang	31	23	12
	15	Saluyu	Cugenang	14	4	2
	16	Padajaya	Cipanas	43	37	19
	17	Mujagi	Pacet	50	42	21
	18	Utama	Pacet	15	5	3
			Sub-Total	376	317	159
Garut	1	Famili Berkah Tani	Cikajang	25	25	13
	2	Bumi Asih 3	Cikajang	25	25	13
	3	Tunas Harapan	Cikajang	25	25	13
	4	Sahabat Berkah Tani	Cikajang	25	25	13
	5	Ciharus	Cikajang	10	10	5
	6	Sinar Mandiri Cooperative	Cisurupan	30	30	15
	7	Agro Makmur	Pasirwangi	20	20	10
	8	Garut Green Farm	Bayongbong			
	9	Hitda Mandiri	Cikajang	12	6	3
	10	Barokah Tani	Cigedug	9	3	2
	11	Mukti Tani Jando	Cikajang	14	8	4
	12	Mekar Tani	Sukaresmi	20	15	8
	13	Cikandang Agro	Cikajang	31	30	15
			Sub-Total	246	222	111
Bandung	1	Hidayah Alam	Ciwidey	10	10	5
	2	Al-Istiqomah	Ciwidey	100	100	50
	3	Biomedia	Pangalengan	21	21	11
	4	Bernard Tani	Pangalengan	20	20	10
	5	Seghara Agri	Pangalengan	10	10	5
	6	Alam Lestari	Pangalengan	25	25	13
	7	Katenzo	Pangalengan	15	15	8
	8	Cipta Rasa	Arjasari	50	50	25
	9	Ana Berkah	Kertasari	8	8	4
	10	Mutiara Tani	Kertasari	48	48	24
	11	Mekar Tani	Kertasari	35	28	14
	12	Hataki	Pasirjambu	30	25	13
	13	Hikmah Farm	Pangalengan	35	31	16
			Sub-Total	407	391	196

West Bandung	1	Saluyu	Lembang	33	33	17
	2	Rahayu Ningrat	Lembang	30	30	15
	3	Abadi I	Lembang	20	20	10
	4	Mitra Makmur	Lembang	10	10	5
	5	Cipeusing Maju	Lembang	35	35	18
	6	Mekar Mandiri	Lembang	20	20	10
	7	Harapan	Lembang	12	12	6
	8	Tani Saluyu (Lemon)	Cisarua	5	5	3
	9	Jaya Mandiri	Cisarua	17	17	9
	10	Mulya Tani	Cisarua	17	17	9
	11	Mekar Jaya	Sindangkerta	96	96	48
	12	Famili	Sindangkerta	20	20	10
	13	Masyarakat Sejahtera	Sindangkerta	15	15	8
	14	Tani Jaya	Cililin	31	31	16
	15	Padaringan	Cililin	30	30	15
	16	Giri Hurip	Cililin	15	35	18
	17	Tumaritis	Cililin	35	35	18
	18	Mekar Harapan	Cililin	34	34	17
	19	Giri Wangi	Batujajar	35	35	18
	20	Tunas Mekar	Batujajar	35	35	18
	21	Sinar Mukti	Cisarua	24	6	3
	22	Panen Lestari	Lembang	26	16	8
			Sub-Total	595	587	294
			TOTAL	**2,744**	**2,598**	**1,299**

Revisions of PDM

Version	Date	Revisions
2	25th October 2016	• Bandung and West Bandung districts were included in the Project Sites since the baseline survey indicated that the challenges for FGs in the two districts were similar to those of the other four districts.
3	12th December 2017	• Outputs and Activities were not changed, but re-arranged or rephrased in order to clearly present project targets and activities in the PDM. • A "Super Goal" was set as a milestone for the future development of a modernized horticulture production and distribution system in Indonesia by applying and disseminating the JICA Project's outcomes. • The "Overall Goal" and its target areas were made more specific (narrowed down) in order to have them be more realistic and measurable. • Indicators for the Project Purpose and the Overall Goal were modified.
4	12nd September 2019	• The Project period was extended for four months to implement another round of trial projects during the rainy season.
5	30th March 2021	• The specific indicators of Overall Goal were set.

Annex 2. Flowchart of Project Activities


Year
2016
2017
2018
2019
2020
2021
Month
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 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6-8 9 10 11 12 1 2 3 4
Work Flow
[1] Preparation in Japan
Collection and analysis of existing information
Preparation of the draft work plan
[2] Inception work in Indonesia
[3] Survey of the current status
Selection of target farmers' groups for the trial projects
Baseline survey
Survey and analysis on modern markets and market players
[4] Planning and preparation of trial projects
[5] Implementation of the trial projects
Support to the farmers' groups of Level A and B
2017: 30 FGs (515 farmers)
(Follow-up)
2018: 31 FGs (489 farmers)
(Follow-up)
Short-term training for the farmers' groups of Level C
2019: 34 FGs (388 farmers)
[6] Support to strengthen the capacity of the relevant government officials
Conduct of training in Japan on advanced practices
Organizing of a business forum to discuss the distribution of agricultural products
Endline survey
[7] Compiling of the results of the trial projects and policy suggestions
Preparation and submission of the Draft Project Completion Report
Terminal Evaluation
Follow-up 2020: 10 FGs (18 farmers)
Survey on the Covid's impact on the horticulture value chain
Preparation and submission of the Project Completion Report

Annex 3. Plan and Actual Implementation of Operation

Project Monitoring Sheet II (Plan of Operation)

Version 12

Dated April, 2021

Project Title: Public-Private-Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System

Inputs	Year	1st Year (2016)				2nd Year (2017)				3rd Year (2018)				4th Year (2019)				5th Year (2020)				6th Year (2021)		Remarks	Monitoring: Issue	Monitoring: Solution
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II			
Expert																										
Team Leader/ Product Marketing and Distribution/ Capacity Building	Plan																									
	Actual																									
Public Private Partnership (1)	Plan																									
	Actual																									
Farming Technology	Plan																									
	Actual																									
	Plan																									
	Actual																									
Access to Finance	Plan																									
	Actual																									
Promotion of Farmers' Groups/ Public Private Partnership (2) / Coordination	Plan																									
	Actual																									
Post-harvest management	Plan																									
	Actual																									
Impact Analysis/Product Marketing and Distribution (Assistant)	Plan																									
	Actual																									
Information and Digital Technology Promotion	Plan																									
	Actual																									
EC Utilization Analysis	Plan																									
	Actual																									
Equipment																										
As necessary	Plan																									
	Actual																									
	Plan																									
	Actual																									
Training in Japan																										
Training for Counterpart Personnel	Plan																									
	Actual																									

Activities / Sub-Activities	Year	1st Year (2016)				2nd Year (2017)				3rd Year (2018)				4th Year (2019)				5th Year (2020)				6th Year (2021)		Responsible Organization: Japan	Responsible Organization: Indonesia	Achievements	Issue & Countermeasures
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II				
Output 1-1 Technique to produce and cultivate safe and high-quality agricultural products is acquired by the target farmers.																											
1-1-1 Identify farmers' groups with high potential for producing safe and high-quality products.	Plan																							JICA	PMU	18 farmers from 10 FGs with high potential implemented the trial project in the 2020 rainy season.	
	Actual																										
1-1-2 Taking into account the capacity of the identified farmers' groups, develop trial projects.	Plan																							JICA	PMU	The trial project in the 2020 rainy season aims at seeing the profitability of the introduced techniques when they are applied on larger scales.	
	Actual																										
1-1-3 Carry out training to the target farmers' groups on improved production methods through 2 trial projects/year.	Plan																							JICA	PMU	The Project conducted a series of training for the target farmers including the field demonstration, workshops and regular monitoring.	
	Actual																										
Output 1-2 Capacity to plan and carry out cultivation according to market needs is attained by the target farmers.																											
1-2-1 Investigate modern markets such as supermarkets and restaurants, and their suppliers, to analyze market needs.	Plan																							JICA	PMU	Value chain survey of the Covid-19's impacts were conducted from October 2020.	
	Actual																										
1-2-2 Based on the market needs, help the target farmers' groups develop cultivation plans.	Plan																							JICA	PMU	Already completed. (Details are provided in Monitoring Sheet Ver.2).	
	Actual																										
1-2-3 Carry out training to the target farmers' groups on production management based on the cultivation plans through 2 trial projects/year.	Plan																							JICA	PMU	See Activity 1-1-3.	
	Actual																										
Output 1-3 Target farmer groups' marketing channels are developed.																											
1-3-1 Encourage target farmers' groups to join the farmer and modern market networking events.	Plan																							JICA	PMU	Already completed. The business forum has been held four times by February 2019.	
	Actual																										
1-3-2 Support marketing activities which allow target farmer groups to build linkages with modern markets at 2 trial projects/year.	Plan																							JICA	PMU	The Project supported FGs on business discussions with potential buyers.	
	Actual																										
1-3-3 Support establishing a market channels using STA.	Plan																							JICA	PMU	An activity plan to strategically utilize Cianjur STA is currently being explored.	
	Actual																										
Output 1-4 Target farmer groups' access to finance is improved.																											
1-4-1 Investigate target farmer groups' financial needs and existing financial services in the market.	Plan																							JICA	PMU	See Activity 1-4-3.	
	Actual																										
1-4-2 Share information on financial services with target farmer groups.	Plan																							JICA	PMU	See Activity 1-4-3.	
	Actual																										
1-4-3 Support farmers in need of financing to use financial services.	Plan																							JICA	PMU	The Project completed the trial financing project with Penny Growing by June 2020.	
	Actual																										

Output 2-1 Managerial capacity of government officials who promote modernized production & distribution systems is strengthened.					
2-1-1 Regularly share project status and progress with government officials from the Directorate General of Horticulture and district Department of Agriculture	JICA	PMU	The joint terminal evaluation was conducted from the end of August 2020 and the 6th JCC meeting was held in September. A series of consultations with Directorate of Horticulture and all DINAS were conducted from January 2021 to discuss specific indicators of Overall Goal of PDM. The joint meeting with Indonesian counterparts and JICA was held on March 2021 to agree on the new indicators of Overall Goal and revise the PDM.		
2-1-2 Gather international and local best practices on production and distribution of high-quality agricultural products which will contribute to the modernization of production and distribution systems.	JICA	PMU	Already completed. (Details are provided in Monitoring sheet Ver.2)		
2-1-3 Conduct training on modernized production, marketing, and distribution of high-quality agricultural products for government officials.	JICA	PMU	All of 3 trainings in Japan were already completed by 2018.		
2-1-4 Support the establishment of policies/action plans/projects that contribute to the modernization of production and distribution of agricultural products.	JICA	PMU	Ideas on how to support farmers in taking advantage of EC and digital technologies was explored through the survey on the Covid-19's impact of the horticulture value chain, and the result was presented to all stakeholders at the web seminar held in January 2021.		

Duration / Phasing					

Monitoring Plan	Year	1st Year (2016)				2nd Year (2017)				3rd Year (2018)				4th Year (2019)				5th Year (2020)				6th Year (2021)		Remarks	Issue	Solution
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II			
Monitoring																										
Joint Coordination Committee	Plan	●				●				●				●				●								
	Actual	●			●				●				●				●				●					
Submission of Monitoring Sheet	Plan	▲			▲	▲			▲	▲			▲	▲			▲	▲			▲					
	Actual	▲			▲	▲			▲	▲			▲	▲			▲	▲			▲					
Monitoring Mission from Japan	Plan																									
	Actual																									
Joint Monitoring	Plan																									
	Actual																									
Post Monitoring	Plan																									
	Actual																									
Reports/Documents																										
Work Plan	Plan	▲				▲																				
	Actual	▲				▲																				
Progress Report	Plan				▲																					
	Actual				▲																					
Project Completion Report	Plan																		▲				▲			
	Actual																		▲				▲			
Public Relations																										
Establishment and Operation of web Site	Plan			▲																						
	Actual							▲			▲															
Materials for public relations related to project activities	Plan			▲			▲		▲		▲		▲		▲		▲									
	Actual		▲				▲	▲		▲	▲			▲	▲		▲									
Seminar for Public at Jakarta and Bandung	Plan			▲				▲				▲				▲										
	Actual										▲															

Annex 4. Assignment of Experts

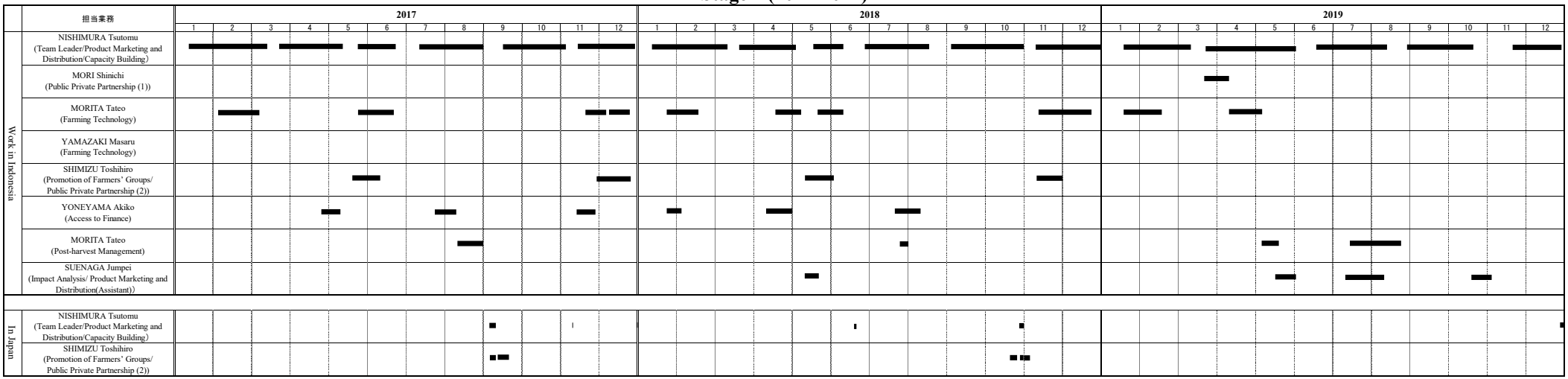
Stage 1 (2016)

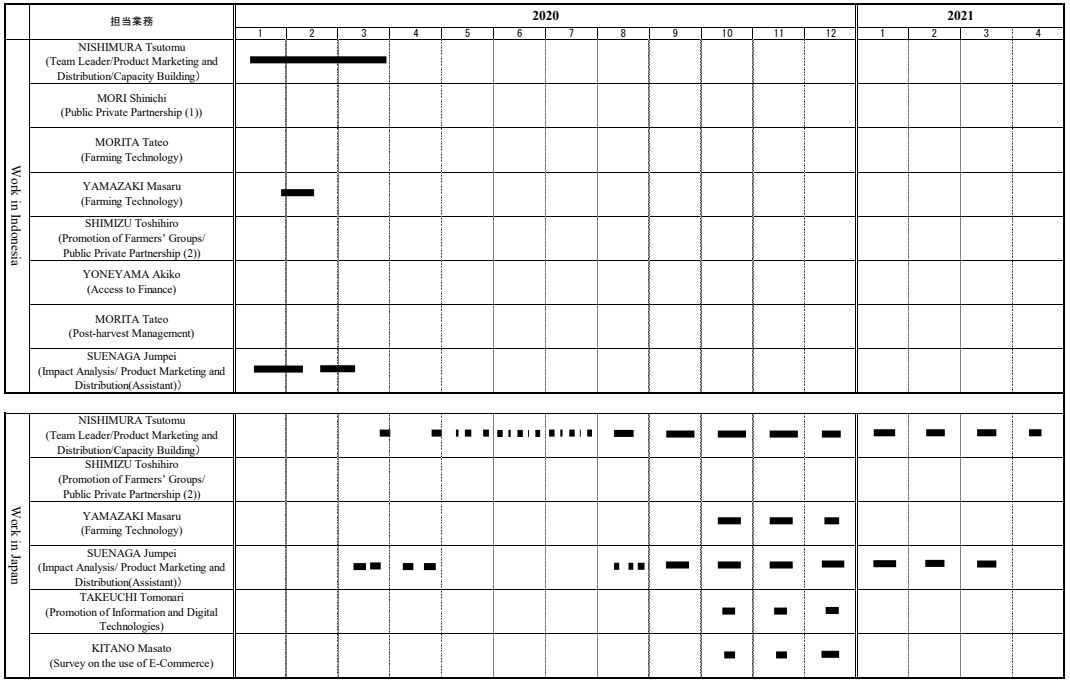
	Responsibilities	Name	2016 3	4	5	6	7	8	9	10	11	12
Work in Indonesia	Team Leader / Marketing / Product Development	Shinichi Mori		■			■			■		
	Sub Team Leader / Marketing / Capacity Building	Tsutomu Nishimura	■	■	■	■	■	■	■	■		
	Farming Technology	Takeo Morita			■	■	■	■				
	Promotion of Farmers' Groups/Capacity Building 2	Yssuko Matsumi			■	■						
	Promotion of Farmers' Groups/Capacity Building 2	Mio Kajita							■	■	■	
	Access to Finance	Akiko Yoneyama						■				
	Promotion of Farmers' Groups / PPP	Toshihiro Shimizu		■	■				■	■	■	
	Post-harvest and Coordination	Shunsuke Tanaka		■	■	■	■	■	■	■	■	
Work in Japan	Sub Team Leader / Marketing / Capacity Building	Tsutomu Nishimura	□	□				□		□	□	□
	Promotion of Farmers' Groups/Capacity Building 2	Mio Kajita									■	

Legend ■ Work in Indonesia

□ Work in Japan

Stage 2 (2017-2021)





Annex 5. List of Participants in the Training in Japan

No.	Name of Trainee	Duration	Training Institute	Position	Current Position	Date of turnover
First Training in Japan (2016)						
1	Mr. Ahmad Widodo Heru	28 November - 9 December 2016	JICA Tokyo Center	Deputy Director of Directorate of Fruits and Floriculture, DGoH	Head of Plan Division, Secretariat of DGoH	March 2017
2	Mr. Guruh Gempita Dawoed	Ditto	Ditto	Head of Finance and Equipment Section, Secretariat of DGoH	Pension	August 2017
3	Ms. Anastasia Promosiana	Ditto	Ditto	Senior Policy Advisor, DGoH	Pension	January 2017
4	Ms. Yuliastuti Purwaningsih	Ditto	Ditto	Head of Sub-Directorate Marketing and Investment, Directorate of Processing and Marketing, DGoH	Head of Section of Climate Change Mitigation, Sub-Directorate of Climate Change Impact and Natural Disaster, Directorate of Horticulture Protection, DGoH	06 June 2018
5	Ms. Mutiara Sari	Ditto	Ditto	Head of Shallot and Tuber Vegetable Area Development Section, Directorate of Vegetables and Medicinal Plants, DGoH	same as left	n/a
6	Ms. Prillliani Setiyaningsih	Ditto	Ditto	Contact Point of International Cooperation Bureau, MoA	same as left	n/a
7	Mr. Sukma Pahlawan Tanra	Ditto	Ditto	Head of Marketing Section, Business Guidance Division, Provincial Agricultural Office of West Java	same as left	n/a
8	Mr. Azrin Syamsudin	Ditto	Ditto	Head of Agricultural Office, Bogor City	Expert Staff for Bogor City Government	01 January 2020
9	Mr. U. Supriatna Hasan	Ditto	Ditto	Head of Horticulture Division, Agricultural Office of Cianjur District	Head of Empowerment and Institutional Division, Maritime, Fisheries and Livestock Office of Cianjur District	November 2019
10	Ms. Kardina Karsoedi	Ditto	Ditto	Head of Food Security, Agriculture and Fisheries Office, Sukabumi City	same as left	n/a
11	Ms. Rasmanah Sri Rahayu	Ditto	Ditto	Head of Processing and Marketing of Horticulture Product Section, Agricultural Office of Garut District	Pension	2018

No.	Name of Trainee	Duration	Training Institute	Position	Current Position	Date of turnover
Second Training in Japan (2017)						
1	Ms. Novida Siti Jubaedah	3-9 September 2017	Ditto	Head of Sub-Division of Cooperation, Secretariat of DGoH	same as left	n/a
2	Mr. Langgeng Muhono	6-16 September 2017	Ditto	Head of Sub-Directorate of Seed Quality Control, Directorate of Horticulture Seedling, DGoH	Head of Seed Production Section, Sub-Directorate of Seed Production and Institution, Directorate of Horticulture Seedling, DGoH	March 2019
3	Mr. Irpan Sugandi	Ditto	Ditto	Staff of Sub-Directorate of Marketing & Investment, Directorate of Processing and Marketing, DGoH	Head of Sub-Division of Equipment, Secretariat of DGoH	March 2019
4	Ms. Fajar Anggraeni	Ditto	Ditto	Staff of Shallot and Tuber Vegetable Area Development Section, Sub-Directorate of Shallot and Tuber Vegetable, Directorate of Vegetables and Medicinal Plants, DGoH	same as left	n/a
5	Ms. Dina Rosita	Ditto	Ditto	Staff of Sub-Directorate of Citrus, Shrubs and Trees, Directorate of Fruits and Floriculture, DGoH	same as left	n/a
6	Mr. Herniningsih	3-16 September 2017	Ditto	Head of Ornamental and Medicinal Plants Section, Provincial Agricultural Office of West Java Province	same as left	n/a
7	Ms. Siti Nurianty	Ditto	Ditto	Head of Food Crops, Horticultures, and Plantations Office, Bogor District	same as left	n/a
8	Mr. Kuswaya	Ditto	Ditto	Coordinator of Agricultural Extension Office, Sukabumi City	same as left	n/a
9	Mr. Mamad Nano	Ditto	Ditto	Head of Agricultural Office, Cianjur District	same as left	n/a
10	Mr. Rieza Fauzani	Ditto	Ditto	Head of Fruits and Ornamental Plants Section, Agricultural Office of Garut District	Head of Seasonal Plants and Spices Section, Plantations Division, Agricultural Office, Garut District	January 2019
11	Ms. Renny Yuniasari	Ditto	Ditto	Head of Facility and Protection of Horticulture Plants Section, Agricultural Office of Bandung District	Head of Processing and Marketing of Horticulture Products Section, Agricultural Office, Bandung District	November 2017
12	Ms. Patmawati	Ditto	Ditto	Head of Seedling, Production and Protection of Horticultural Plants Section, Agricultural Office of West Bandung District	Passed away	16 December 2019
13	Mr. Suhendar	Ditto	Ditto	Leader of Mujagi Farmer Group, Cianjur District	same as left	n/a
14	Mr. Teten Rustendi	Ditto	Ditto	Leader of Cikandang Agro Farmer Group, Garut District	same as left	n/a
15	Mr. Wilarto	Ditto	Ditto	Leader of Gerbang Emans Farmer Group, West Bandung District	same as left	n/a

No.	Name of Trainee	Duration	Training Institute	Position	Current Position	Date of turnover
Third Training in Japan (2018)						
1	Ms. Irma Siregar	21 October - 2 November 2018	Ditto	Head of Section of Fruits and Floriculture Pest and Disease Controlling Facilities, Directorate of Horticulture Protection, DGoH	same as left	n/a
2	Mr. Aprizal	Ditto	Ditto	Plants Seeds Supervisor, Seed Certification Section, Sub-Directorate of Seed Quality Control, Directorate of Horticulture Seedling, DGoH	same as left	n/a
3	Ms. Chakrawati	Ditto	Ditto	Head of Post-Harvest of Horticulture Plants Section, Provincial Agricultural Office of West Java	same as left	n/a
4	Mr. Robert	Ditto	Ditto	Head of Division of Food Crop and Horticulture, Agricultural Office of Bogor City	Pension	01 January 2019
5	Mr. Deni Ruslan	Ditto	Ditto	Head of Horticulture Production Section, Agricultural Office of Sukabumi District	same as left	n/a
6	Mr. Iwan Setiawan Asep	Ditto	Ditto	Head of Division of Agribusiness and Extension, Agricultural Office of Cianjur District	Secretary, Agricultural Office of Cianjur District	19 November 2019
7	Mr. Deni Herdiana	Ditto	Ditto	Head of Horticulture Division, Agricultural Office of Garut District	Head of Resources Division, , Agricultural Office of Garut District	22 February 2019
8	Mr. Jumhana	Ditto	Ditto	Head of Horticulture Division, Agricultural Office of Bandung District	same as left	n/a
9	Mr. Wiwin Darwin	Ditto	Ditto	Coordinator of Extension Worker, Agricultural Extension Office Lembang, Agricultural Office of West Bandung District	same as left	n/a
10	Mr. Dede Supria	Ditto	Ditto	Leader of Tunas Tani Pangrango Farmers Group, Bogor District	same as left	n/a
11	Mr. Amin Hermawan	Ditto	Ditto	Leader of Pandan Arum Farmers Group, Sukabumi District	same as left	n/a
12	Mr. Acep Sofyan Hadi	Ditto	Ditto	Leader of Saluyu Farmers Group, Cianjur District	same as left	n/a
13	Mr. Ucu Sumiarsa	Ditto	Ditto	Leader of Barokah Karunia Tani Farmers Group, Garut District	same as left	n/a
14	Ms. Riswati Wahyuni	Ditto	Ditto	Leader of Hataki Farmers Group, Bandung District	same as left	n/a
15	Mr. Muhamad Taufik	Ditto	Ditto	Leader of Sinar Mukti Farmers Group, West Bandung District	same as left	n/a

Annex 6. List of Equipment

No.	Name of Machinery	Product No.	Maker	Arrival Date	Installation Place	Purpose of Use
1	Wrapping Machine (2 Unit)	HW-450	PT. WIJAYAMAS TEKNINDO	05 April 2017	Sukabumi STA	To enhancing function of STA in Sukabumi
2	Digital Weight Scale (2 Unit)	KK-SW1	PT. Kenko Elektrik Indonesia	05 April 2017	Ditto	Ditto
3	Analog Weight Scale (1Unit)	TERA 06-581	Krisbow	10 April 2017	Ditto	Ditto
4	Water Tank (1 Unit)	TB 110	Penguin	05 April 2017	Ditto	Ditto
5	Plastic Container (30 Unit)	2210L	Green Leaf	05 April 2017	Ditto	Ditto
6	Chairs (6 Unit)	n/a	Green Leaf	05 April 2017	Ditto	Ditto
7	Stainless Sink	SS304	Jaya Stainless	05 April 2017	Ditto	Ditto
8	Stainless Table (2 Unit)	SS 201 HL	CV. BENUA TEHNIK	05 April 2017	Ditto	Ditto
9	Fruit & Vegetable Washer, Brush Roller Root Fruit Washer/Peeler	QX-608	Getra	03 September 2018	Taman Teknologi Pertanian (TPP), Garut District	To wash root vegetables (especially carrots) for improving quality of products
10	Small Container (50 Unit)	2212L	Greenleaf	03 September 2018	Ditto	To sort washed carrots for improving quality of products
11	Large Container (30 Unit)	2210L	Greenleaf	03 September 2018	Ditto	Ditto
12	Fruit & Vegetable Washer, Brush Roller Root Fruit Washer/Peeler	QX-608	Getra	22 February 2019	Pondok Pesantren Al-Ittifaq, Bandung District	To wash root vegetables (especially carrots) for improving quality of products
13	Fruit & Vegetable Washer, Brush Roller Root Fruit Washer/Peeler	QX-608	Getra	28 November 2019	Tani Multi Tani Jaya Giri Association (Mujagi), Cianjur District	Ditto

Annex 7. Minutes of JCC Meetings

MINUTES OF MEETING
ON
THE KICK-OFF MEETING
FOR
THE PUBLIC-PRIVATE PARTNERSHIP PROJECT FOR THE IMPROVEMENT OF THE AGRICULTURE PRODUCT MARKETING AND DISTRIBUTION SYSTEM
IN
THE REPUBLIC OF INDONESIA

Jakarta, May 23, 2016

The Japan International Cooperation Agency (JICA) dispatched the JICA Experts' Team to implement the Public-Private Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System in the Republic of Indonesia based on the Record of Discussions signed between JICA and the Ministry of Agriculture of the Republic of Indonesia on 25th September in 2015.

The Ministry of Agriculture and JICA Experts' Team convened a kick-off meeting on 21st and 22nd April in 2016 in Bogor to discuss the work plan and the plan of operation with the attendance of the representatives from JICA headquarters, JICA Indonesia Office, the Ministry of Agriculture, West Java Province, Cianjur District, Garut District, Bogor City, Sukabumi City and the private sector.

Both parties agreed upon the work plan and the plan of operation (Attachment) of the Project. Bandung and West Bandung Districts are excluded from the locations of trial projects in the current work plan. Both parties agreed that given the high potential in horticultural production of these two districts, they could be included for trial projects after the baseline survey should respective DINAS express their interest to participate in the project and the Record of Discussions be amended accordingly.

Mr. Shinichi Mori
Team Leader
JICA Experts' Team

Mr. Yasid Taufik
Executive Secretary
Directorate General of Horticulture
Ministry of Agriculture
The Republic of Indonesia

Witness

Mr. Mikiya Saito
Senior Resident Representative
Japan International Cooperation Agency
Indonesia Office
JAPAN

Attachment: Plan of Operation

Plan of Operation

Version 1

Date 22 April, 2016

Project Title: Public-Private-Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System

Monitoring

Inputs	Year	1st Year (2016)				2nd Year (2017)				3rd Year (2018)				4th Year (2019)				5th Year (2020)				6th Year				7th Year				8th Year				Remarks	Issue	Solution
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV			
Expert																																				
Team Leader/Marketing/Product Development	Plan																																			
	Actual																																			
Sub-Team Leader/Marketing/Capacity Building	Plan																																			
	Actual																																			
Farming Technology	Plan																																			
	Actual																																			
Promotion of Farmers' Groups	Plan																																			
	Actual																																			
Access to Finance	Plan																																			
	Actual																																			
Promotion of Farmers' Groups/PPP	Plan																																			
	Actual																																			
Posy-harvest/Coordination	Plan																																			
	Actual																																			
Equipment																																				
As necessary	Plan																																			
	Actual																																			
	Plan																																			
	Actual																																			
Training in Japan																																				
Training for Counterpart Personnel	Plan																																			
	Actual																																			
In-country/Third country Training																																				
Third country training for Counterpart Personnel	Plan																																			
	Actual																																			

Activities / Sub-Activities	Year	1st Year (2016)				2nd Year (2017)				3rd Year (2018)				4th Year (2019)				5th Year (2020)				6th Year				7th Year				8th Year				Responsible Organization		Achievements	Issue & Countermeasures
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	Japan	Indonesia		
Output 1: Models of modernized production & distribution systems that connect markets for safe & high-quality agricultural products and farmers are developed and their effectiveness is validated.																																					
1-1 Conduct a survey on the demand of modern markets (supermarkets, convenience stores, restaurants, agro-food processing factories, etc.) for safe & high-quality agricultural products.	Plan																																	JICA	PMU		
	Actual																																				
1-2 Identify candidates of farmers' groups that have high potential to produce safe & high-quality agricultural products, and conduct a baseline survey.	Plan																																	JICA	PMU		
	Actual																																				
1-3 Prepare trial projects to develop production & distribution systems that establish a direct and long-term relationship between modern markets and farmers identified in above 1-2.	Plan																																	JICA	PMU		
	Actual																																				
1-4 Implement the trial projects prepared in 1-3, including the improvement in the procurement of agricultural inputs (including new varieties), production and harvest methodologies, collection and post-harvest (including utilization of Sub-terminal of Agribusiness (STA)), access to finance, transportation, marketing, etc.	Plan																																	JICA	PMU		
	Actual																																				
1-5 Conduct monitoring & evaluation on the progress of the activities.	Plan																																	JICA	PMU		
	Actual																																				
1-6 Create the mechanism to continuously implement the process from 1-1 to 1-5.	Plan																																	JICA	PMU		
	Actual																																				
Output 2:The managerial capacity of government officials who promote modernized production & distribution systems is strengthened.																																					
2-1 Collect information of domestic and international good practices for the distribution of safe & high-quality agricultural products.	Plan																																	JICA	PMU		
	Actual																																				
2-2 Conduct training to counterpart personnels & farmers' groups about advanced cases of the production & distribution of safe & high-quality agricultural products (including the JA system, marketing information system, market management, product branding, and the concept of "local production for local consumption")	Plan																																	JICA	PMU		
	Actual																																				
2-3 (Training participants) Prepare action plans to modernize production & distribution systems including improvement of STA management.	Plan																																	JICA	PMU		
	Actual																																				
2-4 (PMU) Hold periodical meetings to strengthen relationships and exchange information among farmers, market players and government officials.	Plan																																	JICA	PMU		
	Actual																																				
2-5 Prepare policy recommendations so that lessons from the project are reflected to the policy.	Plan																																	JICA	PMU		
	Actual																																				
Duration / Phasing	Plan																																				
	Actual																																				

Monitoring Plan	Year	1st Year (2016)				2nd Year (2017)				3rd Year (2018)				4th Year (2019)				5th Year (2020)				6th Year				7th Year				8th Year				Remarks	Issue	Solution
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV			
Monitoring																																				
Joint Coordination Committee	Plan		●			●				●				●				●																		
	Actual																																			
Submission of Monitoring Sheet	Plan		▲		▲		▲		▲		▲		▲		▲		▲																			
	Actual																																			
Monitoring Mission from Japan	Plan																																			
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Reports/Documents																																				
Work Plan	Plan		▲			▲																														
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Progress Report	Plan				▲																															
	Actual																																			
Project Completion Report	Plan																	▲																		
	Actual																																			
	Plan																																			
	Actual																																			
Public Relations																																				
Establishment and Operation of web Site	Plan				▲																															
	Actual																																			
Materials for public relations related to project activities	Plan				▲		▲		▲		▲		▲		▲		▲																			
	Actual																																			
Seminar for Public at Jakarta and Bandung	Plan				▲				▲				▲				▲																			
	Actual																																			

Thursday - Friday, April 21-22, 2016, JICA-PPP Kick Off Seminar

No.	Name	Institution
1	Dr. Chandra	International Cooperation Bureau, Ministry of Agriculture (MoA)
2	Juariah	International Cooperation Bureau, Ministry of Agriculture (MoA)
3	Fitri	International Cooperation Bureau, Ministry of Agriculture (MoA)
4	Ansar Usman	Processing and Marketing of Agriculture Product, DG of Horticulture, MoA
5	Nabilla Affilia Z. A.	Processing and Marketing of Agriculture Product, DG of Horticulture, MoA
6	Supardi	Processing and Marketing of Agriculture Product, DG of Horticulture, MoA
7	Rokhmi Afifah B.	Directorate of Fruits & Floriculture, DG of Horticulture, MoA
8	Okta Risma Yony	Directorate of Fruits & Floriculture, DG of Horticulture, MoA
9	Rafik Sudiaz	Directorate of Fruits & Floriculture, DG of Horticulture, MoA
10	Azril Suharto	Directorate of Fruits & Floriculture, DG of Horticulture, MoA
11	Andi A.	DG of Horticulture, MoA
12	Wawan Danih	DG of Horticulture, MoA
13	Eko	DG of Horticulture, MoA
14	Toto M. Toha	Directorate Secretariat, MoA
15	Robby Adianto	Directorate Secretariat, MoA
16	Sri Mulyani	Directorate Secretariat, MoA
17	Yantho	Planning Section, MoA
18	Dwinanto	Planning Section, MoA
19	Azrin Syamsuddin	Head of Bogor City Agriculture Office (DINAS)
20	Sukma	West Java Provincial Agriculture Office (DINAS)
21	Nurul	West Java Provincial Agriculture Office (DINAS)
22	Slamet Riyadi	West Java Provincial Agriculture Office (DINAS)
23	Malisa D.	Bogor City Agriculture Office (DINAS)
24	Kartini	Bogor City Agriculture Office (DINAS)
25	Yani Muhdiana	Bogor City Agriculture Office (DINAS)
26	Wawan D.	Bogor City Agriculture Office (DINAS)
27	Wardoyo	Bogor STA (Rancamaya)
28	M. Dudung S.	Bogor STA (Rancamaya)
29	M. Yuda	Bogor STA (Rancamaya)
30	Kardina	Head of Sukabumi City Agriculture Office (DINAS)
31	Fenti	Sukabumi City Agriculture Office (DINAS)
32	Femmy	Sukabumi City Agriculture Office (DINAS)
33	Cecep R.	Sukabumi City Agriculture Office (DINAS)
34	Shandi P.	Sukabumi City STA
35	Eko Yudi Prasetyo	Sukabumi STA
36	Dadan H.	Head of Cianjur District Agriculture Office (DINAS)
37	Moh. Sobur	Cianjur District Agriculture Office (DINAS)
38	Deni Sanjaya	Cianjur District Agriculture Office (DINAS)
39	Yatno S.	Cianjur STA (Cigombong)
40	Asep Tatang G.	Cianjur STA (Cigombong)
41	Beti Y.	Garut District Agriculture Office (DINAS)
42	Dedi Hermawan	Garut STA (Bayongbong)
43	Sri Apidiani	Garut District Agriculture Office (DINAS)
44	Undang H.	Bandung District Agriculture Office (DINAS)
45	Dodi P.	Bandung District Agriculture Office (DINAS)
46	Riyanto	West Bandung District Agriculture Office (DINAS)
47	Doni Naibaho	West Bandung District Agriculture Office (DINAS)
48	Alit R.	West Bandung District Agriculture Office (DINAS)
49	Ulus Pirmawan	Farmer Group Association: Wargi Panggupay (West Bandung District)
50	Yadi Setiadi	Farmer Group Association: Wargi Panggupay (West Bandung District)
51	Komar Mulyawibawa	PT. Alamanda
52	Gan Gan Megantara	PT. Alamanda
53	Tatit D. Nawang	Barantan
54	Takahiro Shimbo	Embassy of Japan
55	Kazuya Suzuki	Rural Development Department, JICA
56	Shinji Hironaka	Rural Development Department, JICA
57	Masashi Nishikawa	JICA Indonesia Office
58	Nindita P.	JICA Indonesia

59	Tommy Nugraha	Committee (DG of Horticulture, MoA)
60	Bahri	Committee (DG of Horticulture, MoA)
61	Budi Permadi	Committee (DG of Horticulture, MoA)
62	Hasnawati	Committee (DG of Horticulture, MoA)
63	Sindha Cahya W.	Committee (DG of Horticulture, MoA)
64	Ernawati	Committee (DG of Horticulture, MoA)
65	Afriliza Hening	Committee (DG of Horticulture, MoA)
66	Suwardi	Committee (DG of Horticulture, MoA)
67	Imron	Committee (DG of Horticulture, MoA)
68	Purnomo Nugroho	Committee (DG of Horticulture, MoA)
69	Ria Tania R. B.	Committee (DG of Horticulture, MoA)
70	Ria Herlina	Committee (DG of Horticulture, MoA)
71	M. Syaifuddin	Committee (DG of Horticulture, MoA)
72	Didik Iisnanto	Committee (DG of Horticulture, MoA)
73	Reza Ganevi	Treasurer
74	Shinichi Mori	IMG
75	Tsutomu Nishimura	IMG
76	Tsutomu Nishimura	IMG
77	Shunsuke Tanaka	IMG
78	Dini Harmita	JICA Project Team
79	Tomy Perdana	University of Padjadjaran

MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MINISTRY OF AGRICULTURE OF THE REPUBLIC OF INDONESIA
FOR AMENDMENT OF THE RECORD OF DISCUSSIONS
ON
THE PUBLIC-PRIVATE-PARTNERSHIP PROJECT FOR THE IMPROVEMENT OF THE AGRICULTURE PRODUCT MARKETING AND DISTRIBUTION SYSTEM
IN
THE REPUBLIC OF INDONESIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and Ministry of Agriculture hereby agree that the Record of Discussions on the Public-Private-Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System (hereinafter referred to as "the Project") signed on September 25, 2015 will be amended as follows;

Signature

Before	Amended Version
Witness (Signature)_____ Mr. Didien Trisnadi, M.P. Head of Agriculture Agency West Java Province The Republic of Indonesia (Signature)_____ Ms. Rika Ida Mustikawati Head of Food Agriculture and Horticulture Agency Cianjur District The Republic of Indonesia (Signature)_____ Mr. Tatang Hidayat, M.P. Head of Food Agriculture and Horticulture Agency Garut District The Republic of Indonesia (Signature)_____ Mr. Azrin, M.Si Head of Agriculture Agency Bogor City The Republic of Indonesia	Witness (Signature)_____ Prof. Dr. Ir. Deny Juanda Puradimaja, DEA (Acting) Head of Agriculture Agency West Java Province The Republic of Indonesia (Signature)_____ Mr. Dadan Harmilan, M. H. Head of Food Agriculture and Horticulture Agency Cianjur District The Republic of Indonesia (Signature)_____ Mr. Tatang Hidayat, M.P. Head of Food Agriculture and Horticulture Agency Garut District The Republic of Indonesia (Signature)_____ Mr. Azrin Syamsuddin, M.Si Head of Agriculture Agency Bogor City The Republic of Indonesia

(Signature) Mr. Kardina Karsoedi, M.T. Head of Agriculture, Fishery and Food Resilience Agency Sukabumi City The Republic of Indonesia	(Signature) Ms. Kardina Karsoedi, M.T. Head of Agriculture, Fishery and Food Resilience Agency Sukabumi City The Republic of Indonesia (Signature) Mr. A. Tisna Umaran, M. P. Head of Agriculture, Plantation and Forestry Agency Bandung District The Republic of Indonesia (Signature) Ms. Ida Nurhamida, M. Si. Head of Agriculture, Plantation and Forestry Agency West Bandung District The Republic of Indonesia

Bandung and West Bandung Districts were considered as advanced agricultural areas compared to the other 4 areas, Cianjur District, Garut District, Bogor City and Sukabumi City at the time of the detailed planning survey of the Project. As a result, in the original Record of Discussions (R/D) signed on September 25, 2015, these two districts were made part of "project sites" due to their potential to be used as farmers' groups training sites while they were excluded from trial project sites. This is the reason why DINAS of both districts did not sign on R/D as witnesses.

After the implementation of the baseline survey, however, it was found that the challenges for farmers' groups in both districts are mostly the same as those of the other 4 districts and thus that farmers' groups in the two districts are in need of similar support through the Project. Hence, the Japanese and Indonesian sides agreed to formally include Bundung and West Bundung Districts in the trial project sites and their DINAS in the Project organization structure (the organizational chart is provided in Annex 3), and the Joint Coordinating Committee (JCC) (Annex 4).

Appendix 1

Before	Amended Version
II OUTLINE OF THE PROJECT 2. Implementation Structure (1) MOA (c) Project Manager Director of Production and Post Harvest of Vegetable and Medicinal Crops, Director General of Horticulture, will be responsible for management and implementation of the Project.	II OUTLINE OF THE PROJECT 2. Implementation Structure (1) MOA (c) Project Manager Director of Processing and Marketing of Horticulture Product, Director General of Horticulture, will be responsible for management and implementation of the Project.

Annex 3 Project Organization Chart

Before	Amended Version
C/P (Ministry of Agriculture and DINAS Agriculture) DGH - Project Director (Director General) - Project Coordinator (Executive Secretary) - Project Manager (Director of Production and Post Harvest of Vegetable and Medicinal Crops) - Operational Manager (Head of Cooperation, Sub-Division for Directorate General of Horticulture) - Province-level Contact Point (West Java DINAS) - City-level Contact Point (Bogor DINAS) - City-level Contact Point (Sukabumi DINAS) - District-level Contact Point (Cianjur DINAS) - District-level Contact Point (Garut DINAS)	C/P (Ministry of Agriculture and DINAS Agriculture) DGH - Project Director (Director General) - Project Coordinator (Executive Secretary) - Project Manager (Director of Processing and Marketing of Horticulture Product) - Operational Manager (Head of Cooperation, Sub-Division for Directorate General of Horticulture) - Province-level Contact Point (West Java DINAS) - City-level Contact Point (Bogor DINAS) - City-level Contact Point (Sukabumi DINAS) - District-level Contact Point (Cianjur DINAS) - District-level Contact Point (Garut DINAS) - District-level Contact Point (Bandung DINAS) - District-level Contact Point (West Bandung DINAS)

Annex 4 A List of Proposed Members of Joint Coordinating Committee/ Project Management Unit

Before	Amended Version
A. Joint Coordinating Committee (JCC) 2. Committee Composition The JCC will be composed of the following members. (1) Chairperson - Director General, Directorate General of Horticulture , MOA (Project Director) (2) Indonesian Side - Executive Secretary of Horticulture (Project Coordinator) - Director of Production and Post Harvest of Vegetable and Medicinal Crops (Project	A. Joint Coordinating Committee (JCC) 2. Committee Composition The JCC will be composed of the following members. (1) Chairperson - Director General, Directorate General of Horticulture , MOA (Project Director) (2) Indonesian Side - Executive Secretary of Horticulture (Project Coordinator) - Director of Processing and Marketing of Horticulture Product (Project Manager)

Manager) - Head of Cooperation, Sub-Division for Directorate General of Horticulture (Operational Manager) - Project Contact Points: Representative of DINAS West Java Province Representative of DINAS Cianjur District Representative of DINAS Garut District Representative of DINAS Bogor City Representative of DINAS Sukabumi City - Representative(s) of DG of PMAP - Representative(s) of DG of Horticulture - Representative(s) of Research and Development Agency - Representative(s) of Agency for Agricultural Extension and Human resource Development - Other Personnel concerned with the Project decided by MOA, if necessary	- Head of Cooperation, Sub-Division for Directorate General of Horticulture (Operational Manager) - Project Contact Points: Representative of DINAS West Java Province Representative of DINAS Cianjur District Representative of DINAS Garut District Representative of DINAS Bogor City Representative of DINAS Sukabumi City Representative of DINAS Bandung District Representative of DINAS West Bandung District - Representative(s) of DG of PMAP - Representative(s) of DG of Horticulture - Representative(s) of Research and Development Agency - Representative(s) of Agency for Agricultural Extension and Human resource Development - Other Personnel concerned with the Project decided by MOA, if necessary
(3) Japanese Side> - JICA Experts - Representatives from JICA Indonesia Office - Other Personnel concerned with the Project decided by JICA, if necessary	(3) Japanese Side> - JICA Experts - Representatives from JICA Indonesia Office - Other Personnel concerned with the Project decided by JICA, if necessary
<Observer> - Official(s) of the Embassy of Japan - Other official(s) appointed by the Chairperson	<Observer> - Official(s) of the Embassy of Japan - Other official(s) appointed by the Chairperson

This amendment will become effective as of the date of the signing of this Minutes of Meetings.

Annex : Record of Discussions (signed on September 25th, 2015)

Jakarta, 25th October, 2016

Mr. Naoki ANDO
Chief Representative
Japan International Cooperation Agency
Indonesia Office
Japan

Dr. Spudnik Sujono Kamino
Director General of Horticulture
Ministry of Agriculture
The Republic of Indonesia

Witness

Prof. Dr. Ir. Deny Juanda Puradimaja, DEA
(Acting) Head of Agriculture Agency
West Java Province
The Republic of Indonesia

Mr. Dadan Harmilan, M. H.
Head of Food Agriculture and Horticulture Agency
Cianjur District
The Republic of Indonesia

Mr. Tatang Hidayat, M.P.
Head of Food Agriculture and Horticulture Agency
Garut District
The Republic of Indonesia

Mr. Azrin Syamsuddin, M.Si
Head of Agriculture Agency
Bogor City
The Republic of Indonesia

Ms. Kardina Karsoedi, M.T.
Head of Agriculture, Fishery and Food Resilience Agency
Sukabumi City
The Republic of Indonesia

Mr. A. Tisna Umaran, M. P.
Head of Agriculture, Plantation and Forestry Agency
Bandung District
The Republic of Indonesia

Ms. Ida Nurhamida, M. Si.
Head of Agriculture, Plantation and Forestry Agency
West Bandung District
The Republic of Indonesia

List of Attendee on 2nd JCC

Bogor, 25 October 2019

No.	Name	Institution
1	Azrin Syamsudin	Agriculture Dinas of Bogor City
2	Dudi Fitri Susandi	Agriculture Dinas of Bogor City
3	Malisa Darwati	Agriculture Dinas of Bogor City
4	Kardina Karsoedi	Agriculture Dinas of Sukabumi City
5	Cecep Rapih	Agriculture Dinas of Sukabumi City
6	Dadan Harmilan	Agriculture Dinas of Cianjur
7	U. Supriatna Hasan	Agriculture Dinas of Cianjur
8	Ahmad Firdaus	Agriculture Dinas of Garut District
9	Sri Rahayu	Agriculture Dinas of Garut District
10	Beti Yogiartini	Agriculture Dinas of Garut District
11	Ida Sriwidaningsih	Agriculture Dinas of Bogor District
12	Sutiman	Agriculture Dinas of Bogor District
13	Alit Rukmana	Agriculture Dinas of West Bandung District
14	Abdul Rakhman Sani	Agriculture Dinas of West Bandung District
15	Wardoyo	Agriculture Dinas of Bogor City
16	Fifin Susetyowati	Agriculture Dinas of Bandung District
17	Sukma	Agriculture Dinas of West Java Province
18	Iman Santoso	Agriculture Dinas of Bogor City
19	Fenti Rahayu	Agriculture Dinas of Sukabumi City
20	Solihadin	Agriculture Dinas of Garut District
21	Ernawati	DG of Horticulture
22	Dudi Taryono	Agriculture Dinas of Bandung District
23	Aprizal	DG of Horticulture
24	Nurli Eriza	DG of Horticulture
25	Intan Fajar M.	DG of Horticulture
26	Mutiara Sari	DG of Horticulture
27	Irma Siregar	DG of Horticulture
28	Liliek Sri Utami	DG of Horticulture
29	Yuliastuti Purwaningsih	DG of Horticulture
30	Budi Wiwaha	Agricultural Human Resource Agency
31	Wahyu Hukama	International Cooperation Bureau of MoA
32	Priliani Setyaningsih	International Cooperation Bureau of MoA
33	R. Deky Subiyanto	International Cooperation Bureau of MoA

34	Tania Pradhani	DG of Horticulture
35	Deden Syarif Hidayah	Agriculture Dinas of Sukabumi District
36	Eka Subarkah	Agriculture Dinas of Sukabumi District
37	Pepen Permana	Agriculture Dinas of Cianjur
38	Nishimura	JICA
39	Shimizu	JICA
40	Mio	JICA
41	Tanaka	JICA
42	Desti Rahmaniar	UPAD
43	Watanabe	JICA
44	Nishikawa	JICA
45	Chaming	DG of Horticulture
46	Dini Harmita	UPAD
47	Shinichi Mori	JICA
48	Nasyitha	DG of Horticulture
49	Tommy N	DG of Horticulture
50	Hasnawati	DG of Horticulture
51	Budi P	DG of Horticulture
52	Bahri	DG of Horticulture
53	Nindita P	JICA
54	Imron	DG of Horticulture
55	Tatit Diah N	Agriculture Quarantine Agency
56	Toto M. Toha	DG of Horticulture
57	Dita Yuniyanti	DG of Horticulture
58	Mimat Ruhimat	DG of Horticulture
59	Ovie Nida	DG of Horticulture
60	Firdaus	Agriculture Dinas of Bogor City
61	Ria Herlina	DG of Horticulture
62	Yantho Sudrajat	DG of Horticulture
63	Kartini	Agriculture Dinas of Bogor City
64	Budi Sunarto	DG of Horticulture
65	Suwardi	DG of Horticulture

Third JCC Meeting Memo

Subject	Third JCC Meeting
Participants	See the list of participants (ANNEX 1)
Date & Time	December 12, 2017 & 09:00 – 15.00
Place	Salak Tower Hotel, Bogor City
Recorded by	Dina

Memo

1. Opening speech by Mr. Yasid Taufik, Director of Processing and Marketing of Horticulture Products

- The project aims at improving distribution and supply chain in agriculture product. First, we need to understand how farmers manage their farm. Agriculture in Indonesia is complicated. Indonesian farmers are different from Japanese farmers regarding (1) the size of farm land, Japanese farmers have 30 Ha of field, while Indonesian farmers can have only 0.3 Ha; and (2) capability, Indonesian farmers are different from Japanese farmers in cultivation technique and farm management. If we think of 30Ha of farm land in Cianjur, 100 farmers need to be organized and managed. It is very difficult to manage 100 farmers and to share one perception among them in terms of fertilizer, soil, and human resources.
- We would like to ask the Project Team to improve not only the production, but also the distribution chain, supply chain including STA, and involve as many farmers as possible in the program.
- Since there are 600 farmers from 60 farmers' groups (FGs) joining the trial project, we expect that 60 FGs are able to properly implement what they learn from the trial project. DG of Horticulture and DINAS should consider how to disseminate the result of the trial project to other farmers.

2. Opening speech by Mr. Shunsuke Takatoi, Senior Representative of JICA Indonesia Office

- This 3rd JCC aims (1) to evaluate project implementation and (2) to modify Project Design Matrix (PDM).
- When I visited targeted FGs in Cianjur, I was so impressed to see that different stakeholders are involved and working together with the farmers' groups in producing and marketing high quality products. I hope lessons and learning from the first round of trial projects will be reviewed and analyzed for further improvement in the second round of the trial projects.
- In order to replicate and expand the outcomes of the Project to other areas after the Project completion, I request the Directorate of Horticulture and respective Agricultural Office of District Government for continuous and active support to the Project.

3. Presentation 1 (results and progress of project activities) (refer to Annex, Presentation)

4. Discussion 1

1) Mr. Yasid Taufik

- If we think of implementing the large scale farming e.g. 30Ha, we need to involve 100 farmers to distribute produce to modern market. Thus, our main focus on modern horticulture is about how to manage the large-scale farming until the distribution of horticulture products in Indonesia. How can we involve such a large number of farmers? It is also important for famers to gain bargaining power.

→ Mr. Nishimura: The project involves 300 farmers in the trial project. As one of management tool, we

introduced planting calendar for each commodity to farmers, so we can control and manage schedule for planting, fertilizing, and pesticide application. This planting calendar can be also used as a marketing tool to work with modern markets since they want safe products with assured traceability. Regarding the bargaining power, there is a good example from the trial project. Several capable farmers' groups collectively delivered their carrots to Sriboga Group. We are still exploring market opportunities in modern markets.

2) Mrs. Siti Nurianty

- I would like to know about what is marketing problem for farmers. DINAS would like to empower farmers in terms of marketing. AEON Mall will be built in Bogor. If farmers in Bogor can improve their marketing, they can sell their products to AEON Mall in the future.
  → Mr. Nishimura: The project held a seminar at JETRO to introduce farmers' products to Japanese companies. After the meeting, we visited companies to promote products from our target farmers, however none of contract has been made yet. Companies are still not sure if farmers can supply products continuously. For the carrot project, we advised farmers to plant in a different timing so that farmers can harvest and deliver products continuously.

3) Mrs. Kardina Karsoedi (DINAS Head of Sukabumi City)

- Characteristics of urban farmers is different from one of village (rural) farmers. Urban farmers are sometimes arrogant and do not accept any knowledge given by others. I really hope that the Expert Team can be patient in guiding urban farmers. Regarding STA, it should be managed by local farmers ideally. However, there is no farmers who are cable of and interested in managing STA in Sukabumi. Therefore, we need to involve capable local traders or suppliers who can manage STA.
- I hope that some Level C FG can be upgraded to Level B so that they can receive support from the project.

4) Mr. Robert (Bogor City DINAS)

- Available cultivation area in Bogor City is very limited. Furthermore, farmers have limited knowledge on cultivation management to use inputs efficiently such as land and agro inputs. I think farmers in Bogor City need to learn how to use limited land efficiently by improved cultivation management.
  → Mr. Nishimura: For the trial project of crystal guava cultivation in Bogor, we introduced improved cultivation management such as proper use of agro-inputs (fertilizers), proper thinning, pruning of trees as well as planting calendar to improve yield at the limited cultivation area. We found that market demand for crystal guava is high, so that we will continue on crystal guava project in Bogor to improve yields and quality through the trial project.

5. Presentation 2

1) Mr. Mulyana (Hikmah Tani FG)

- I am glad to join this project. We used to sow without any particular method, but through the trial project we learnt proper sowing.

2) Mr. Ayi Misbah (Utama FG)

- There was a misunderstanding about planting space and nematode problem. 10 farmers of my group produced 350 kg of carrot.

- We faced weather problem that damaged our rain shelter.
- Thanks to the Project Team, we could receive support in production and KUR loans.

3) Mr. Suhendar (Mujagi FG)
- We received technical guidance from the Project Team about proper nursery management that can reduce production cost. We found out that the cost for proper nursery management is lower than before. After learning seedlings selection, we can easily sort out healthy seedlings from all seedlings.
- We apply the technology learnt from the trial project not only to commodities for the trial project, but also to other commodities.
- We also received support to access to KUR loan to build a rain shelter. But the rain shelter was damaged by strong wind.

4) Mr. Teten
- Thank you for the Expert Team to guide farmers patiently, even though some of them do not implement trial project properly.
- I learnt some important points from the trial project. Regarding fertilizing, I found out that mixture of fertilizer and soil helps to improve productivity in our fields. Regarding chili, I learned that planting seedlings in the field when they start flowering is much better than planting them at the very young stage.
- Regarding the training in Japan, I learned about the Japanese distribution system through cooperative. We also have cooperative in Indonesia; however, the cooperatives in Indonesia do not function properly in distributing agricultural products like in Japan.
- Farmers generally do not try to implement new technology if they cannot expect quick results from the technology. First, our FG will work in changing our habit and implementing everything what the Project Team taught us. Once our FG achieves positive results from the trial project, other FGs will follow us.
- Again, thank you very much to JICA.

5) Mr. Irawan (Al Ittifaq Cooperative)
- We have hundreds of members but can still manage such a large group properly based on the concept of Islamic boarding school.
- We are grateful to be involved in this project. We hope there will be a snowball effect in disseminating positive points of the project.
- There are disciplined and undisciplined farmers in our group. Younger farmers (below 40 years old) are more open-minded to follow the instructions from the Project than the older ones.
- There are 3 important points from us for further improvement: (1) improvement on proper agricultural technology supported by proper facilities and infrastructure, (2) extension of market that offers stable price to farmers, and (3) great guidance from the Project Team. Hopefully the guidance from the Project will continue.

6) Mr. Wilarto (Gerbang Emas Cooperative)
- The obstacles for our FG are almost the same as ones for other FGs except for the thrips problem on paprika. During the guidance from the Project Team, we received many different solutions for thrips

problem. Although some plants were infected by thrips, plants' conditions have been improved by applying treatment instructed by the JICA Experts. For the second round of the trial project, the Project Team had prepared the pest control plan from the very beginning of cultivation until last harvest.

- The Expert Team introduced us to the proper pruning method for tomato that is very helpful for us. Farmers in Lembang have very limited land area, thus it is helpful to improve productivity by pruning.
- We hope other small FGs can also receive this kind of support so that they can sell their products to better markets.

7) Mr. Badri (Subur Makmur FG)

- We have been already equipped with good cultivation technology since Bogor Agricultural University (IPB) and Taiwan supported us before. Although the JICA Project introduced us to pruning and fruit bag, I thought that the fruit bag would not work properly. When there is a problem of a fruit bag, the Project Team properly handled and solved it.
- We understand that we have to produce good product to reach good market.

8) Mr. Novian (Saribhakti FG)

- Thank you for trusting Saribhakti to cultivate Japanese vegetables.
- We are located in Cicalengka which image is flood, traffic jam, and industry. We hope that we can change that image of Cicalengka to be an area of the horticulture producer.
- What we want to emphasize here is that we plant by knowing the market. If we plant without knowing the market and price, farmers will not be in a good position for marketing. Although there is a good market for Japanese vegetables, we need to educate farmers to reach the market.
- We improve not only horticulture production, but also waste management to re-utilize waste.

6. Discussion 2

1) Mrs. Siti Nurianty (Bogor District DINAS)

- To Mr. Wilarto. What is the obstacle for farmers in changing them to receive and follow any instruction from the Project Team?

  → Mr. Wilarto: It is usually difficult for older farmers to receive new technology and knowledge. They want proof first before implementing new technology. It would be better to select farmers who really want to follow. When they get the benefit, other farmers will see and follow what they do. For example, Mr. Morita, the JICA Expert, ever said that we can get some amount kg of tomato from one tree, but many farmers did not believe it. So, the solution is that we, who join the trial project, have to prove it through the trial project.

2) Ms. Dina

- To Mr. Teten. Is there any difference from your previous experience in cultivating median potato, when you cultivate the potato through the trial project? What is your expectation to the Project in the future?
- To Mr. Badri. You said that there is no difference between the JICA project and Taiwanese's project, so what do you expect from this project?

  → Mr. Teten: Before the trial project, we were freely in cultivating potato and the yield was 15-20

tons. Now, we can produce minimum 20 tons from the same area. We learned many things from JICA Project Team. Our fertilizer application is changed. We used to apply chicken manure, but under the trial project, we use mix of fermented organic fertilizer and soil that increase our production with better quality. We used to sell the potatoes only to home industry, now we can sell them to Calbee Wings. Previously, the price depended on market (fluctuating). Through a contract with Calbee the selling price is higher than before. My expectation in the future is that the Central Government and the Regional Government can adopt the way of JICA Project works in guiding and providing information to farmers very intensively.

→ Mr. Badri: Even though we had ever received technical guidance and SOP from Taiwan, we could still learn something new from the trial project such as proper timing of planting and harvesting based on market needs. Our expectation for the Project is to access to KUR loans. KUR loans without collateral will really help farmers who newly starting farming because they need large amount of capital. I received funding support for 18 trees from IPB and Taiwan Before. I have 2,400 trees now. So, I hope other farmers can also be like that. I hope that the JICA Project will continue to support our FG until 2020.

3) Mr. Yasin (West Java Province DINAS)

- I would like to ask to Mr. Irawan about Indonesian cooperative is better than Japanese cooperative after you join training in Japan? JICA Project, what is the result? What do you expect?

  → Mr. Irawan: First, I did not join the training in Japan. I think implementation of Japanese Cooperative is better than Indonesian Cooperative. We improved production through this project. We chose shallot and carrot, but now we focus on carrot since we already have the market (Yogya Supermarket). At the first round, all farmers planted at the same time, now we made a schedule to plant in sequent for sustainable production. Expectation: (1) new technology and infrastructure, (2) expansion of market with stable price, and (3) total guidance to reach perfect yield.

4) Mrs. Yuliastuti (DG of Horticulture)

- I am glad to hear that farmers receive positive inputs through this project.
- Our expectation is, since you are the champions of the project, we hope you can coordinate with other farmers to share information from this project, and we plan to facilitate farmers in marketing through “mall to mall” events. This will be coordinated with each DINAS next year.

5) Mr. Robert (Bogor City DINAS)

- Farmers can evaluate if the JICA’s cooperation is useful or not. If cooperation is useful, farmers will continue implement technology learnt through the trial project even after the project ends. It would be very difficult for DINAS to provide intensive guidance to farmers as the Project do. The point is how farmers can continue to apply acquired technology with the limited support from DINAS.

6) Mr. Nishimura

- My question is how you disseminate technology you learnt through the trial project to other members since there are more members who did not participate in the trial project.

  → Mr. Suhendar: We are still in the trial stage, which means that we are not perfect yet. I hope JICA will continue to support us even after the trial project ends. We still need support on how to produce

grafted seedlings of tomato by ourselves and how to market our products. Regarding how to disseminate technology to other farmers, we will not push other farmers who are not willing to learn from us, but start sharing our experience with farmers who really want to learn it. If we have a good market to sell our product, it helps to other farmers to learn from us.

→ Mr. Mulyana: If we successfully apply technology and knowledge from the trial project, we believe that other members of our FG will follow it.

→ Mr. Ayi: I have 21 members in my FG, but only 10 members participate in the trial project. Each member who joins the trial project will guide and cooperate with 2 other members who are not involved in the trial project.

7) Mr. Tommy

- Where there is sugar, there is an ant. So, if farmers can produce good products, they can sell their products to good market. By having good products, farmers have good bargaining position or even can control the price.

7. Presentation 3

- Mr. Nishimura explained about current PDM and proposed modification of the PDM.

8.Discussion 3

1) Mr. Badri: This proposed explanation (PDM) is very good and in-line with program by West Java Governor.
2) Mr. Bingo: Basically, I agree with the proposed PDM modification.
3) Mr. Takatoi: Basically, JICA Indonesia agrees with the PDM and expect there will be many inputs/suggestions from counterparts.
4) Mr. Nishimura: It is very confident that the project can achieve the indicators. The Expert Team discussed about this PDM with DG of Horticulture. We hope DINAS can also give any input to us.
5) Mrs. Yuliastuti: Is it possible to improve not only on production side, but also on post-harvest side? Since it is very important for farmers in maintaining product quality during storage, farmers need to improve their post-harvest management.
6) Mr. Tsurusaki (JICA Expert): What kind of quality and price of products that you are trying to reach out through the project?
7) → Mr. Nishimura: Regarding quality, it really depends on market demand. For example: suppliers have particular quality standard for carrot. We support our target FGs to produce carrot that meets market demand. Beef tomato, which is too large or too small according to the market' standard, is rejected by the modern market. Thus, we have to follow market demand in terms of quality.
8) Mr. Morita:

- Our main objective is improving farmers' profit. We try to increase farmers' profit by not necessarily through increasing the sales price, but through reducing the unit cost of production by improving efficiency such as efficient use of labor, fertilizer and pesticide application. Total input cost may increase due to additional input for improved cultivation technology, but the unit cost is expected to be lower because of improvement in yield and productivity. By improving cultivation management, farmers can sell more products to the modern market instead of the traditional market, total sales of their product increase. While the unit cost of product decrease, the profit per unit will increase.

- We do not aim at eliminating middlemen (traders, suppliers, collectors, etc.) but we like to make use of reliable middlemen who can improve efficiency in marketing and distribution compared to farmers. Then farmers can focus on cultivation. If more suppliers or traders come to buy good products from farmers, competitive environment among middlemen will be established. Farmers can get befit from such a competitive environment.

9. Closing remark by Mr. Tommy

- I request all stakeholders, DG of Horticulture, DINAS, the Project Team and FGs, should have better communication to implement the project smoothly.
- Farmers who participate in the trial project should act not only as project participants, but also as trainers for other farmers and neighborhood to share what you learnt from the trial project. You can be a good example for other farmers.
- DINAS as a counterpart of the project should actively share any updated information or ideas to be well coordinated with the Project Team.
- For field staff, we expect you can provide not only technical guidance to farmers, but also non-technical matters, such as working with positive mind. We encourage you to approach to other farmers who are not involved in the trial project. We really appreciate support from DINAS and hope it will continue. My expectation is very simple. Old saying in Indonesia says “where there is sugar, there is an ant”. So, when good vegetables and fruits are produced, there is good market for products. Last, I really want to say thank you to JICA and to the Project Team.

ANNEX 1

List of Participants

Ministry of Agriculture

DG of Horticulture: Mr. Yasid Taufik, Mr. Tommy Nugraha, Ms. Yuliastuti, Ms. Dina Rosita, Ms. Fajar A., Ms. Nasyitha R., Mr. Budi P., Mr. Aprijal, Ms. Irma S., Ms. Sindha, Mr. Bahri, Ms. Dita Y.
Foreign Cooperation Bureau: Mr. Deky S., Ms. Mardawati, Mr. Suyono, Ms. Ida Ayu, Ms. Priliani S.

Local Government

West Java Province DINAS: Mr. Yasin
Bogor City DINAS: Mr. Robert, Mr. Husen, Ms. Kartini, Mr. Wardoyo
Bogor District DINAS: Mrs. Siti Nurianty, Mrs. Ida S.
Sukabumi City DINAS: Mrs. Kardina K., Mrs. Sanny A.
Sukabumi District DINAS: Mr. Yandi M.
Cianjur District DINAS: Mr. S. Hasan
Bandung District DINAS: Mrs. Renny Y.
West Bandung District DINAS: Mrs. Patmawati
Garut District DINAS: Mr. Deni Herdiana

Farmers' Groups

Subur Makmur FG: Mr. Badri
Saribhakti FG: Mr. Novian, Mr. Galih
Cikandang Agro FG: Mr. Teten Rustendi
Mujagi FG: Mr. Suhendar
Utama FG: Mr. Ayi Misbah
Al Ittifaq Cooperative: Mr. A. Setia Irawan
Hikmah Tani FG: Mr. Mulyana
Gerbang Emas Cooperative: Mr. Wilarto

JICA

JICA Indonesia: Mr. Takatoi, Mr. Bingo, Ms. Nindita, Ms. Luh Eka
JICA Expert: Mr. Tsurusaki

Project Team

Mr. Nishimura, Mr. Morita, Mr. Shimizu, Mr. Tanaka, Ms. Kajita, Ms. Desti, Ms. Dina, Mr. Ajat, Mr. Faizal, Mr. Hisyam, Mr. Rony, Mr. Hardiansyah, Mr. Idham, Mr. Ogie, Ms. Dini

MINUTES OF MEETING
ON
JOINT COORDINATION COMMITEE
FOR
THE PUBLIC-PRIVATE PARTNERSHIP PROJECT FOR THE IMPROVEMENT OF THE AGRICULTURE PRODUCT MARKETING AND DISTRIBUTION SYSTEM
IN
THE REPUBLIC OF INDONESIA

Jakarta, 13 December, 2018

The Japan International Cooperation Agency (JICA) dispatched the JICA Experts' Team to implement the Public-Private Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System in the Republic of Indonesia based on the Record of Discussions signed between JICA and the Ministry of Agriculture of the Republic of Indonesia on 25th September in 2015.

The Ministry of Agriculture and JICA Experts' Team convened the forth Joint Coordination Committee on 13 December in 2018 in Bogor to report the results and progress of project activities in 2018 and discuss the work plan in 2019 with the attendance of the representatives from the Embassy of Japan in Indonesia, the JICA Indonesia Office, the Ministry of Agriculture, West Java Province, Bogor City, Bogor District, Sukabumi City, Sukabumi District, Cianjur District, Garut District, West Bandung District, and Bandung District.

Both parties accepted the progress report (the 6th monitoring report) and agreed upon the proposal on the implementation of the project activities in 2019 (Attachment).

Mr. Tsutomu NISHIMURA
Project Team Leader
JICA Experts' Team

Ir. Rr. Liliek Srie Utami, M.Sc
Executive Secretary
Directorate General of Horticulture
Ministry of Agriculture
The Republic of Indonesia

Witness:

Mr. Shunsuke TAKATOI
Senior Representative
Japan International Cooperation Agency
Indonesia Office

Attendee List on 4th JCC

Bogor, 13 Desember 2018

No.	Name	Institution
1	Dede Supria	Tunas Tani Pangrango FG
2	Muhamad Taufik	Sinar Mukti FG
3	Amay Wijaya	Bina Tani Sepakat FG
4	Eyeh Sureja	Ciloa FG
5	M. Abdurrahman	Subur FG
6	Dayat	Sugih Mukti FG
7	Deni Suhendar	Family Rezeki Tani FG
8	Romlih	Citra Tani Kencana FG
9	Amin Hermawan	Pandan Arum FG
10	Riswati Wahyuni	Hataki FG
11	Gandi	Hikmah Farm FG
12	Acep Sofyan Hadi	Saluyu FG
13	Ujang Dayat	Padajaya FG
14	Ucu Sumiarsa	Barokah Karuni Tani FG
15	Teten Rustendi	Cikandang Agro FG
16	Ujang Nurjaman	Bumi Mekar FG
17	Jaenudin	Mandiri FG
18	Iyep Risa	Cantigi FG
19	Dadang	Lembang Agri FG
20	Cece	Maju Terus 2 FG
21	Amang Mulyana	Mekar Tani FG
22	Asep	Mujagi FG
23	Fenti Rahayu	Sukabumi City Dinas
24	W. Darwin	West Bandung District Dinas
25	Fatmawati	West Bandung District Dinas
26	Aliyudin	Sukabumi City Dinas
27	Hiroshi Bingo	JICA
28	Benyamin D.	Bandung District Dinas
29	Siti Hurriyah R.	DG of Horticulture
30	Dina Rosita	DG of Horticulture
31	Ermi Nur Cahyani	DG of Horticulture
32	Tiara Puspita	Garut District Dinas
33	Hisyam	JICA Project

34	Ridwan	JICA Project
35	Idham	JICA Project
36	Hardi	JICA Project
37	Gita Maiza	JICA Project
38	Yardi Maulana	Sukabumi Dinas
39	Ogie Satriadi	JICA Project
40	Ajat Sudrajat	JICA Project
41	Wardoyo	Bogor City Dinas
42	Yusuke Shimizu	Embassy of Japan
43	Dhira A.N.	Ministry of Agrculture
44	Chakrawati	West Java Province Dinas
45	Emma A.N.	West Java Province Dinas
46	Hasan	Cianjur District Dinas
47	M. Nano	Cianjur District Dinas
48	Siti Nurianty	Bogor District Dinas
49	Tommy Nugraha	DG of Horticulture
50	Mio Kajita	JICA
51	Desti Rahmaniar	JICA Project
52	Dini Harmita	Interpreter
53	Tateo Morita	JICA
54	Ratna Juwita S.	Ministry of Agrculture
55	Luh Eka M.S.	JICA Project - MoA
56	Ichiro Tsurusaki	JICA Project - MoA
57	Evy Octavia	DG of Horticulture
58	T. Nishimura	JICA
59	Dina R.S.	JICA Project
60	Rony Ramdany	JICA Project
61	Asima N.	DG of Horticulture
62	Kartini	Bogor City Dinas
63	Siti Bibah	DG of Horticulture
64	Nabilla A.	DG of Horticulture
65	Renny Yuniasari	Bandung District Dinas
66	Langgeng Muhono	DG of Horticulture
67	Aprizal	DG of Horticulture
68	Anwar DG	DG of Horticulture
69	Sumiarsih	Bogor District Dinas
70	Heri Firdaus	Bogor District Dinas

71	Taufik Fathurrohman	Bogor District Dinas
72	Husen	Bogor City Dinas
73	Analia P.	DG of Horticulture
74	Santi Amani	DG of Horticulture
75	Robert	Bogor City Dinas
76	Yana M.	Bogor City Dinas
77	Unggul	Ministry of Agrculture
78	Nindita	JICA
79	Dara	JICA
80	Riyani	Ministry of Agrculture
81	Nasyitha Rolles B.	DG of Horticulture
82	Bahri	DG of Horticulture
83	Kelik Nugroho	DG of Horticulture
84	Sadewo Endyatmoko	DG of Horticulture
85	Novida S.J.	DG of Horticulture
86	Yasid Taufik	DG of Horticulture

MINUTES OF MEETING
ON
JOINT COORDINATION COMMITEE
FOR
THE PUBLIC-PRIVATE PARTNERSHIP PROJECT FOR THE IMPROVEMENT OF THE AGRICULTURE PRODUCT MARKETING AND DISTRIBUTION SYSTEM
IN
THE REPUBLIC OF INDONESIA

Jakarta, 12 September, 2019

The Japan International Cooperation Agency (JICA) dispatched the JICA Experts' Team to implement the Public-Private Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System in the Republic of Indonesia based on the Record of Discussions signed between JICA and the Ministry of Agriculture of the Republic of Indonesia on 25th September in 2015.

The Ministry of Agriculture and JICA Experts' Team convened the fifth Joint Coordination Committee on 12 September in 2019 in Bogor to report the results and progress of project activities in 2019 and discuss the extension of the project period until April 2020 with the attendance of the representatives from the JICA Headquarters and Indonesia Office, the Ministry of Agriculture, West Java Province, Bogor City, Bogor District, Sukabumi City, Sukabumi District, Cianjur District, Garut District, West Bandung District, and Bandung District.

Both parties accepted the progress report (the 7th monitoring report) and agreed upon the proposal on extension of the project period as details shown in the attachment.

Mr. Tsutomu NISHIMURA
Project Team Leader
JICA Experts' Team

Ir. Rr. Liliek Srie Utami, M.Sc
Executive Secretary
Directorate General of Horticulture
Ministry of Agriculture
The Republic of Indonesia

Witness:

Mr. Shunsuke TAKATOI
Senior Representative
Japan International Cooperation Agency
Indonesia Office

Attachment: Proposal for extension of the project period

1. Original project period: February 2020 (Field activity: End of December 2019)
2. Proposed extension of the project period: End of May 2020 (Field activity: End of April 2020)
3. Justification for extension of the project period and proposed activities during the extension period

   The Project has implemented a series of the trial projects since 2017 at the target districts and cities in West Java Province. Since April 2019, the Project has attempted a new arrangement for implementing the trial project in collaboration with selected suppliers and supermarkets with the aim of establishing new marketing channels through a contract farming arrangement.

   Though some desirable outcomes were produced through this arrangement, a need arises for further strengthening capacity of farmers' groups to establish a sustainable mechanism for shipping horticulture products to modern markets in collaboration with supply chain actors who work with farmers groups through the current trial project.

   In consideration of this situation, the Expert Team proposes to implement another round of the trial project (follow-up activities) in the rainy season 2019 by extending the period of the field activity until April 2020, as well as the submission deadline of the final report until May 2020. However, no additional project costs will be incurred. The following activities shall be conducted during the extended period.

   - Conduct the next round of contract farming with identified suppliers and supermarkets in order to:
     i) improve capacity of FGs on post-harvest management such as a sorting and grading method based on specification given by their customers;
     ii) strengthen negotiation and coordination skill of FGs; and
     iii) establish more applicable contract farming arrangement both for farmers' groups and their partners
   - Conclude the third batch KUR and conduct follow-up activities for recipients of KUR

4. Activity schedule for the extension period

Activities	2019												2020					
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
1. Implement the trial project 2019 (dry season)																		
2. Hold JCC meeting																		
3. Signing of M/M of amendment on R/D between MoA and JICA																		
4. Preparation of the trial project 2019 (rainy season)																		
5. Implement the trial project 2019 (rainy season)																		
6. Conduct terminal evaluation by JICA																		
7. Submit the final report																		

List of Attendee on 5th JCC

Bogor, 12 September 2019

No.	Name	Institution
1	Mio Kajita	JICA Project
2	Hisyam	JICA Project
3	Eka Subarkah	Agriculture Dinas of West Bandung
4	Nishimura	JICA Project Leader
5	Ajat S.	JICA Project
6	Siti Nurianty	Agriculture Dinas of Bogor District
7	Wardoyo	Agriculture Dinas of Bogor City
8	Chakrawati	Agriculture Dinas of West Java Province
9	Teten Rustendi	Cikandang Agro FG Association
10	Andri A.	Agriculture Dinas of Sukabumi City
11	Dina Ratih S.	JICA Project
12	Chisa Togo	JICA Head Quarter
13	Rony Ramdany	JICA Project
14	Amay Wijaya	Bina Tani Sepakat FG
15	Romlih	Citra Tani Kencana FG
16	Hasan	Agriculture Dinas of Cianjur
17	Takatoi Shunsuke	JICA Indonesia
18	Bingo Hiroshi	JICA Indonesia
19	Nasyitha	DG of Horticulture
20	Novida S.J.	DG of Horticulture
21	Husein	Agriculture Dinas of Bogor City
22	Setia Irawan	Al Ittifaq
23	Asuka Tachizaki	SMK PPN Tanjungsari
24	Ridwanulloh	JICA Project
25	Risman Suryatman	JICA Project
26	M. Hardiansyah	JICA Project
27	Gita Maiza	JICA Project
28	Nunu	Al Mujahidin FG
29	H. Yeyen	Saridona 2 FG
30	Jamaludin	Mucekil FG
31	Desti R.	JICA Project
32	Muh. Idris Bagus Oetomo	JICA Project
33	Nindya Ariani Nauli	DG of Horticulture

34	Deni Suhendar	Family Rezeki Tani FG
35	A. Widodo Heru	DG of Horticulture
36	Ratna Juwita S.	International Cooperation
37	Olivia	DG of Horticulture
38	Mardawati	International Cooperation
39	Nindita P.	JICA Indonesia
40	Benyamin Dwi P.	Agriculture Dinas of Bandung District
41	Robert	Agriculture Dinas of Bogor City
42	M. Ridwan	Agriculture Dinas of Bogor City
43	Kartini	Agriculture Dinas of Bogor City
44	Slamet Waluyo	DG of Horticulture
45	Setiawansyah	DG of Horticulture
46	Diah Ismayaningrum	DG of Horticulture
47	Sinda	DG of Horticulture
48	Amelia Chintia S.	DG of Horticulture
49	Desy Puspitasari	DG of Horticulture
50	Sumiarsih	Agriculture Dinas of Bogor District
51	Rico Simanjuntak	DG of Horticulture
52	Aprizal	DG of Horticulture
53	Nina Lubis	DG of Horticulture
54	Asima	DG of Horticulture
55	Suwardi	DG of Horticulture
56	Bahri	DG of Horticulture
57	Al Imron	DG of Horticulture
58	Niza Arumta	DG of Horticulture
59	Tommy Sulistyadi	DG of Horticulture

MINUTES OF MEETING
ON
THE 6TH JOINT COORDINATION COMMITEE
FOR
THE PUBLIC-PRIVATE PARTNERSHIP PROJECT FOR THE IMPROVEMENT OF THE AGRICULTURE PRODUCT MARKETING AND DISTRIBUTION SYSTEM
IN
THE REPUBLIC OF INDONESIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") has been implementing the Public-Private Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System in the Republic of Indonesia (hereinafter referred to as "the Project") based on the Record of Discussions signed between JICA and the Ministry of Agriculture of the Republic of Indonesia on 25th September in 2015.

The Ministry of Agriculture and JICA convened the sixth Joint Coordination Committee (hereinafter referred to as "JCC") on 18 September 2020 via online to report the progress of the Project activities in 2020 and the results of the Joint Terminal Evaluation of the Project. The 6th JCC was conducted with the presence of the representatives from JICA Headquarter, JICA Indonesia Office, the Embassy of Japan in Indonesia, the Ministry of Agriculture, West Java Province, Bogor City, Bogor District, Sukabumi City, Sukabumi District, Cianjur District, West Bandung District, and Bandung District.

As a result of the discussions, both parties agreed on the points stipulated in the attached documents.

Jakarta, 18 September 2020

Ms. Keiko MIZOE	Ms. Dr. Ir. Retno Sri Hartati Mulyandari, M.Si.
Director	Executive Secretary
Agricultural and Rural Development Group 1,	Directorate General of Horticulture
Economic Development Division	Ministry of Agriculture
Japan International Cooperation Agency	The Republic of Indonesia

The Attached Document

1. Progress of the Project Activities in 2020

JICA Expert Teams presented the progress of the Project activities in 2020, namely the results of the trail project for the rainy season 2019-2020 attached as ANNEX I. The Expert team also presented the plans for the last trial project in rainy season 2020.

JCC agreed on the plan for the last trial project as explained by the Expert Team.

2. Joint Terminal Evaluation

JICA and the Ministry of Agriculture conducted the Joint Terminal Evaluation from 31 August to 18 September 2020. The Joint Terminal Evaluation Team, which consists of members from the Japanese Team and the Indonesian Team, was organized for conducting the Joint Terminal Evaluation.

After reviewing and analyzing the activities and achievements of the Project, the Joint Terminal Evaluation Team prepared the Joint Terminal Evaluation Report attached as ANNEX II, which was presented at the 6th JCC meeting. JCC accepted the Report and agreed on the recommendation as follows.

(1) Categorize the Project's target farmer groups by their characteristics and identify patterns and good practices

The target farmer groups of the Project were very diverse in their size, markets and productive capacities. To analyze the activities of the Project, the Joint Terminal Evaluation Team requests the Project expert team to categorize the Project's target farmer groups, especially those who participated in the trial projects in 2019-2020, by their size, geographical advantages/ disadvantages, organizational structures, cultivation capacities, total production and sales structures, and target markets.

This information will be a useful guidance to identify good practices and lessons learned from the Project.

(2) Support farmer groups in conducting cost-benefit analysis on agricultural inputs

It is important for farmer groups to acquire skill to conduct accurate cost-benefit analysis in order to make production and marketing strategies according to the market needs. In this regard, the Joint Terminal Evaluation Team suggests the Project expert team to support farmer groups in conducting cost-benefit analysis of each crops based on the current level of production. Cost-benefit analysis could be introduced especially when expanding the size of the production beyond the sites of trial projects (100 m^2).

(3) Jointly with DINAS, review and propose the indicators for the overall goal and specify the target farmer groups

An overall goal is to be achieved by the Indonesian side after three years from the end of the Project. As explained previously, the only difference between the project purpose and the overall goal of the Project is the scalability – scope of the beneficiary farmers in the model sites. However, since the indicators of the overall goal do not define the scope of the target farmer groups, they could be read as to empower the "entire" farmer groups at the model sites.

Therefore, the Joint Terminal Evaluation Team suggests that the Indonesian side and the Project expert team propose more clear indicators, if necessary.

(4) Establishing a plan to disseminate good practices to other farmer groups

It is expected that DGH and DINAS will take a leading role in disseminating good practices identified through the implementation of the Project to other farmer groups who did not participate in the Project. Continued implementation of the follow-up activities such as supporting farmer groups' trial projects would be a valuable support to expand the impacts of the Project beyond the target farmer groups.

The Joint Terminal Evaluation Team suggests, especially to DINAS, to consider creating a plan, with budget allocation, to disseminate good practices to achieve overall goal of the Project.

(5) Considering key points for further dissemination

Through the implementation of the Project, some important points were identified to increase the productive capacities and the marketing skills of farmer groups. The Team recommends DGH and DINAS to take into consideration the following points when implementing their own activities.

1) Successful cultivation techniques by some farmer groups should be showcased to other farmers to increase their motivation. Many farmers will only be convinced to try new techniques after confirming the results of such techniques.
2) Close monitoring of farmer groups by field staff/extension workers is required to increase their skills. One of the reasons for the success of the Project was the close monitoring conducted by the field staff, which contributed to the increased communication between the farmer groups and the Project team and resulted in quick responses to troubles such as pests and diseases. While limited number of extension workers is the common challenges in all DINAS, effort should be taken to mobilize the extension workers as much as possible.
3) Technical support to the farmer groups should be customized as much as possible since each farmer group has different capacity and needs for the assistance. Group trainings will be efficient but may not address diverse needs of farmer groups. In this regard, it would be useful to assess the capacity of the farmer groups and tailor the technical support to extent possible to maximize the impact. Categorization of the farmer groups mentioned in the recommendation (1) will be the useful inputs for such assessment.
4) Partnership with private sector should be explored not only for the marketing component but also for the cultivation techniques and access to finance. It would be useful to support leaders and selected members of relevant farmer groups to strengthen negotiation and financial skills such as accounting, since many farmers face difficulties in agreeing business terms with the private sector.
5) Cropping patterns and/or planting plans based on the market demands should be developed by farmers groups to supply products in continuous manner. The Project's activities in supporting target farmer groups to develop planting plans could provide useful inputs to DGH and DINAS to continue this activities in their own programs.

ANNEX I: Presentation by JICA Expert Team
ANNEX II: Joint Terminal Evaluation Report

The End of the Document

Participants List on the 6th JCC (online)

Date: Friday, 18 September 2020

Time: 8:30-11:20 (200 minutes)

Participants: 51 persons

No.	Name	Institution	Position
1	Ms. Dr. Ir. Retno Sri Hartati Mulyandari, M.Si.	Directorate General of Horticulture	Executive Secretary
2	Mr. Ir. Bambang Sugiharto, M.Eng.Sc.	Directorate of Processing and Marketing of Horticulture Product, DGoH	Director
3	Ms. Andi Arnida Massusungan	Directorate of Processing and Marketing of Horticulture Product, DGoH	Head of Sub-directorate for Marketing and Investment
4	Mr. Rico Simanjuntak, S.P., M.P.	Plan Division, Secretariat of DG of Horticulture	Head of Sub-Division of Cooperation
5	Ms. Nasyitha Rolles Bathman	Plan Division, Secretariat of DG of Horticulture	Staff of Sub-Division of Cooperation
6	Ms. Niza Arumta	Plan Division, Secretariat of DG of Horticulture	Staff of Sub-Division of Cooperation
7	Ms. Desi Puspitasari	Secretariat of DG of Horticulture	Staff of Sub-division of Law and Public Relations
8	Ms. Analia Purwitasari	Secretariat of DG of Horticulture	Staff of Finance and Equipment Section
9	Ms. Vellaningrum	Public Relation Division, Secretariat of DG of Horticulture	Staff
10	Mr. Aprizal	Directorate of Horticulture Seedling, DGoH	Plant Seed Supervisor
11	Mr. Dedy Rosandy	Directorate of Processing and Marketing of Horticulture Product, DGoH	Staff of Sub-directorate for Post Harvest
12	Ms. Farida Nuraini	Directorate of Fruits and Floriculture, DGoH	Head of Sub-directorate for Floriculture
13	Ms. Apriyanti Roganda	Directorate of Fruits and Floriculture, DGoH	Section Head of Floriculture Area Development
14	Ms. Siti Nurlaela Fauziah	Directorate of Horticulture Protection, DGoH	Staff
15	Ms. Eva	Directorate of Vegetables and Medicinal Plants, DGoH	Head of Sub-directorate of Medicinal Plants
16	Mr. Suharjon	Directorate of Vegetables and Medicinal Plants, DGoH	Staff, Sub-directorate of Medicinal Plants
17	Ms. Kartini	Bogor City Dinas	Staff of Food Crops and Horticulture
18	Ms. Dewi Asmaraningsih	Bogor District Dinas	Agriculture Produce Processing Section, Horticulture Division
19	Mr. Rifki Amrullah	Sukabumi City Dinas	Head of Food Crop, Horticulture and Plantation Production Section
20	Mr. Deni Ruslan	Sukabumi District Dinas	Head of Horticulture Division
21	Mr. Nurul Hikmat	Cianjur District Dinas	Head of Horticulture Division
22	Mr. Jumhana	Bandung District Dinas	Head of Horticulture Division
23	Ms. Renny Yuniasari	Bandung District Dinas	Section Head, Processing and Marketing of Horticulture Produce
24	Ms. Istini	West Bandung District Dinas	Head of Horticulture Seedlings, Protection and Production Section
25	Ms. Herniningsih	West Java Province Dinas	Head of Fruits and Ornamental Plants
26	Ms. Cordelia Ervina	International Cooperation Bureau, MoA	
27	Ms. Huda	International Cooperation Bureau, MoA	
28	Ms. Hapsari Sri Susanti	International Cooperation Bureau, MoA	
29	Ms. Ratna Juwita	International Cooperation Bureau, MoA	Staff
30	Ms. Khairunnisa	International Cooperation Bureau, MoA	
31	Ms. Rini Indiyati	Agency of Extension and Human Resource Development for Agriculture, MoA	Head of Sub-division of Cooperation
32	Ms. Aniek R Sulaeman	Agency of Extension and Human Resource Development for Agriculture, MoA	Staff of Sub-division of Cooperation
33	Ms. Siti Karimatun	Agriculture Training Center, MoA	Head of Cooperation Division
34	Mr. SHIMIZU Yusuke	Embassy of Japan	1st Secretary, Agriculture Attaché

35	Ms. MIZOE Keiko	JICA Headquarter	Director, Agricultural and Rural Development Group 1, Economic Development Department *Team leader of Final evaluation team
36	Dr. KAMIDOHZONO Akira	JICA Headquarter	Senior Advisor, Economic Development Department
37	Ms. SAITO Mihoko	JICA Headquarter	Agricultural and Rural Development Group 1, Economic Development Department *Final evaluation team
38	Mr. YAMAGUCHI Atsumu	JICA Headquarter	Agricultural and Rural Development Group 1, Economic Development Department *Final evaluation team
39	Ms. MATSUURA Wakako	JICA Headquarter (Evaluation Consultant)	Evaluation Consultant *Final evaluation team
40	Mr. ITAGAKI Keishiro	The Nippon Foundation	Advisor *Final evaluation team
41	Mr. ITAGAKI Masaki	JICA Indonesia Office	
42	Ms. Nindita	JICA Indonesia Office	Staff
43	Mr. NISHIMURA Tsutomu	IJHOP4 Project	Team Leader
44	Mr. YAMAZAKI Masaru	IJHOP4 Project	Expert
45	Ms. KAJITA Mio	IJHOP4 Project	Expert
46	Mr. SUENAGA Jumpei	IJHOP4 Project	Expert
47	Ms. Dina Ratih Sari	IJHOP4 Project	Project Staff
48	Ms. Desti Rahmaniar	IJHOP4 Project	Project Staff
49	Ms. Gita Maiza	IJHOP4 Project	Project Staff
50	Mr. Masato Kitano	IJHOP4 Project	
51	Mr. Tasfan	Interpreter	

MINUTES OF MEETINGS
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
MINISTRY OF AGRICULTURE OF THE REPUBLIC OF INDONESIA
FOR AMENDMENT OF THE RECORD OF DISCUSSIONS
ON
THE PUBLIC-PRIVATE-PARTNERSHIP PROJECT FOR THE IMPROVEMENT OF THE AGRICULTURE PRODUCT MARKETING AND DISTRIBUTION SYSTEM
IN
THE REPUBLIC OF INDONESIA

The Japan International Cooperation Agency (hereinafter referred to as "JICA") and the Ministry of Agriculture of the Republic of Indonesia hereby agree that the Record of Discussions on the Public-Private-Partnership Project for the Improvement of the Agriculture Product Marketing and Distribution System (hereinafter referred to as "the Project") signed on 25 September 2015, and amended on 25 October 2016, 12 July 2018, 11 October 2019 and 5 May 2020, will be amended as follows;

Annex 1: Project Design Matrix: PDM

Before	Amended Version
<Overall Goal> **Objectively Verifiable Indicators** 1. The number of the farmers' groups who sell safe & high-quality agriculture products at the model sites in West Java in 2023. 2. The number of farmers at the model sites (excluding the members of the trial project of the target farmers' groups at the model sites) who apply at their own farms in 2023 improved production and management techniques introduced by the Project.	<Overall Goal> **Objectively Verifiable Indicators** 1. 50% of the target farmer groups selected by DINAS at the model sites in West Java Province, as the target groups to achieve Overall Goal, sell agricultural products to modern markets through suppliers and/or by themselves in March 2024. 2. In March 2024, improved production and management techniques introduced by the Project are applied in; 1) 50% of non-participants' fields (farmers who did not join the trial projects in 2019-2020) at the model sites of West Java Province; and 2) 50% of the fields of target farmer groups' members, who are newly selected by DINAS as the target groups to achieve Overall Goal, at the model sites in West Java Province.
It was agreed during the 6th JCC held on 18 September 2020 to request the Project Team and DINAS to jointly clarify the scope of the indicators and the target farmer groups to achieve the Overall Goal, following the recommendations by the Joint Terminal Evaluation. In this regard, a meeting was held on 30 March 2021 among the Ministry of Agriculture, DINAS and JICA. At the meeting, all parties agreed the amended version of the objectively verifiable indicators of the Overall Goal, which would be used for the post-project evaluation.	

The list of target farmer groups selected by DINAS as the target groups to achieve Overall Goal is attached as Annex 3.

This amendment will become effective as of the date of the signing of this Minutes of Meetings.

Annex 1: Record of Discussions (signed on 25 September 2015)
Annex 2: Amendment of Record of Discussions (signed on 5 May 2020)
Annex 3: List of target farmer groups selected by DINAS as the target groups to achieve Overall Goal

Jakarta, 30 March 2021

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List of Participants on Final Meeting on Indicators of Overall Goal of PDM
30 March 2021

No.	Name	Institution
1	Mr. Bambang Sugiharto	DG of Horticulture
2	Ms. Retno Sri Hartati Mulyandari	DG of Horticulture
3	Ms. Mizoe Keiko	JICA
4	Ms. Saito Mihoko	JICA
5	Ms. Sri M.	Sukabumi City Dinas
6	Mr. Tommy Nugraha	Directorate of Vegetables and Medicinal Plants, DG of Horticulture
7	Mr. Dedih	Cianjur District Dinas
8	Mr. Deni S.	Secretariat, DG of Horticulture
9	Ms. Diah	Directorate of Fruits and Floriculture, DG of Horticulture
10	Mr. Asep Anwar	West Bandung District Dinas
11	Ms. Ida Sriwidaningsih	Bogor District Dinas
12	Ms. Farida	Directorate of Fruits and Floriculture, DG of Horticulture
13	Ms. Chakrawati	West Java Province Dinas
14	Ms. Huda Mahmuda	International Cooperation Bureau, Ministry of Agriculture
15	Ms. Nindita	JICA Indonesia
16	Ms. Nasyitha Rolles	Cooperation, DG of Horticulture
17	Ms. Niza	Cooperation, DG of Horticulture
18	Ms. Cordelia	International Cooperation Bureau, Ministry of Agriculture
19	Ms. Indri Cahya	DG of Horticulture
20	Ms. Martinawati	DG of Horticulture
21	-	Garut District Dinas
22	-	DG of Horticulture
23	Mr. Deni Ruslan	Sukabumi District Dinas
24	Ms. Renny Yuniasari	Bandung District Dinas
25	Mr. Rico Simanjuntak	Cooperation, DG of Horticulture
26	Ms. Santi	International Cooperation Bureau, Ministry of Agriculture
27	Mr. Deki	International Cooperation Bureau, Ministry of Agriculture
28		Sub-directorate of Orange, Herbs, and Trees
29	Ms. Wiwin Winarsih	Bogor District Dinas
30	Mr. Asril Tambunan	Bogor District Dinas
31	Mr. Nishimura Tsutomu	IJHOP4 Team
32	Ms. Kajita Mio	IJHOP4 Team
33	Ms. Desti Rahmaniar	IJHOP4 Team
34	Ms. Dina Ratih Sari	IJHOP4 Team

35	Ms. Gita Maiza	IJHOP4 Team
36	Mr. Ajat Sudrajat	IJHOP4 Team
37	Mr. Rony Ramdany	IJHOP4 Team
38	Mr. Ridwanulloh	IJHOP4 Team
39	Mr. Muhammad Hardiansyah	IJHOP4 Team
40	Mr. Risman Suryatman	IJHOP4 Team
41	Mr. Hisyam	IJHOP4 Team
42	Mr. M. Idris Bagoes	IJHOP4 Team