

Socialist Republic of Viet Nam
Ministry of Agriculture and Rural Development

Socialist Republic of Viet Nam
Project for Improvement of
Reliability of Safe Crop Production
in the Northern Region

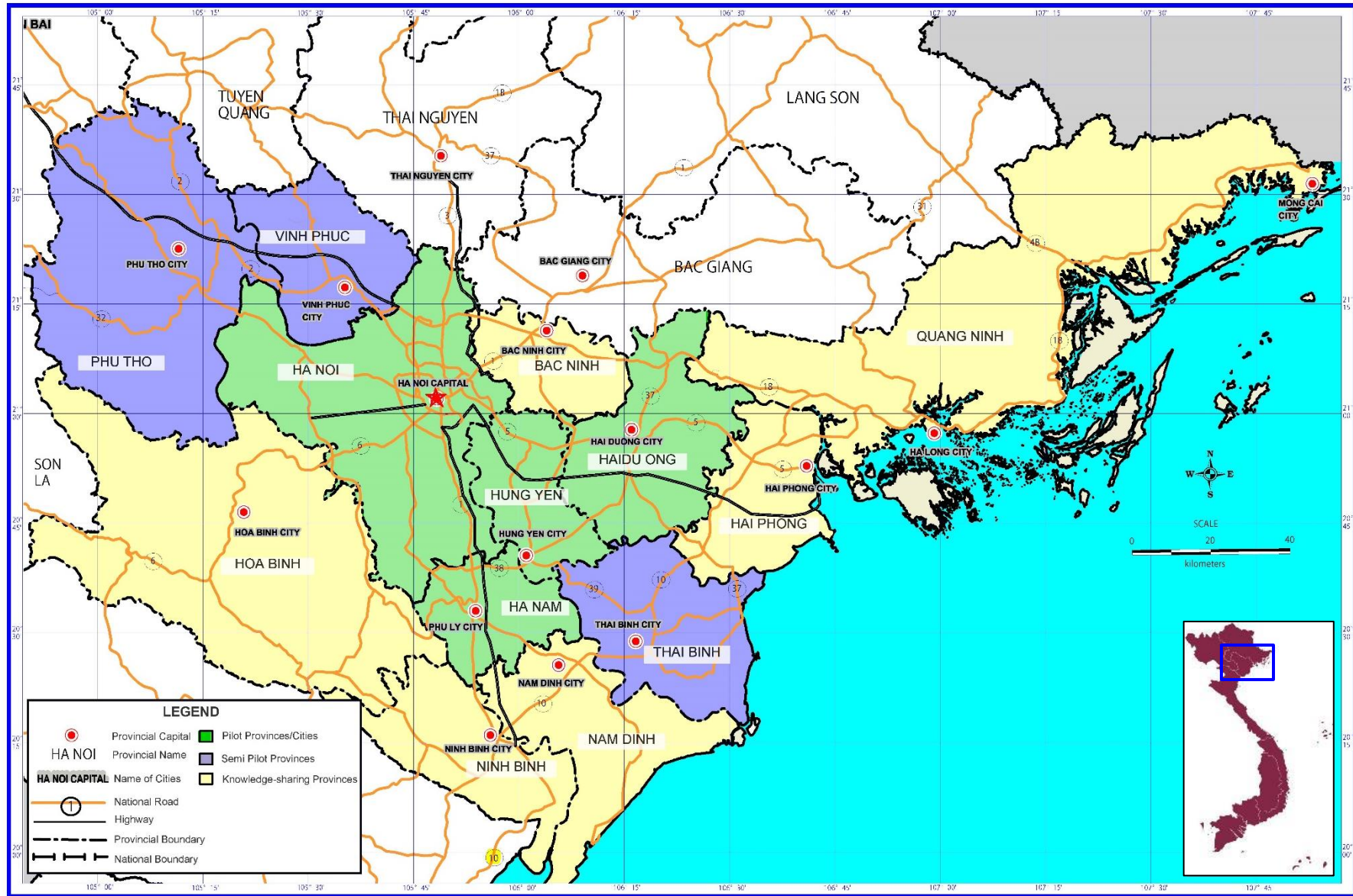
Project Work Completion Report

June 2021

Japan International Cooperation Agency (JICA)

Nippon Koei Co., Ltd.
Kaihatsu Management Consulting, Inc.

VT
JR
21-008



Location Map of the Target Area
Project for improvement of reliability of safe crop production in the northern region in Vietnam

Meetings



First JCC (Joint Coordinating committee) meeting (Hanoi, 17th April 2017)



CPMU's field visit to review project progress (Hai Duong, 22nd March 2018)



Second JCC (Joint Coordinating committee) meeting (Hanoi, 16th April 2018)



Third JCC (Joint Coordinating committee) meeting (Hanoi, 21st June 2019)



Fourth JCC (Joint Coordinating committee) meeting (Hanoi, 17th July 2020)



Fifth JCC (Joint Coordinating committee) meeting (Hanoi, 3rd February 2021)

Training in Japan



First training in Japan, visiting a model farm of JGAP institute (Ibaraki prefecture, 15th June 2017)



First training in Japan, visiting a food processing factory (Saitama prefecture, 14th June 2017)



Second training in Japan, visiting a vegetable production factory (Kumamoto prefecture, 22nd February 2019)



Second training in Japan, visiting a whole sale market (Kumamoto prefecture, 19th February 2019)



Third training in Japan, receive a guidance of chemical storing at a Global GAP certified farm (Chiba prefecture, 18th November 2019)



Third training in Japan, visiting a modernized greenhouse for tomato cultivation (Chiba prefecture, 20th November 2019)

Production Activities



Water sampling for analysis of safety in Hiep farm (Ha Ham, 18 August 2017)



TOT about Basic GAP for PPMU staff and leaders of target groups (Thai Binh, 5-6th September 2018)



Study tour to advanced model related to production method of safe crop (Da Lat city, Lam Dong province, 4th July 2017)



Establishment of cooperative management board and preparation of production plan in Cat Lai cooperative (Ha Nam, 1st October 2018)



Demonstration about new seedling production method in Tan Minh Duc cooperative (Hai Duong, 21 December, 2018)

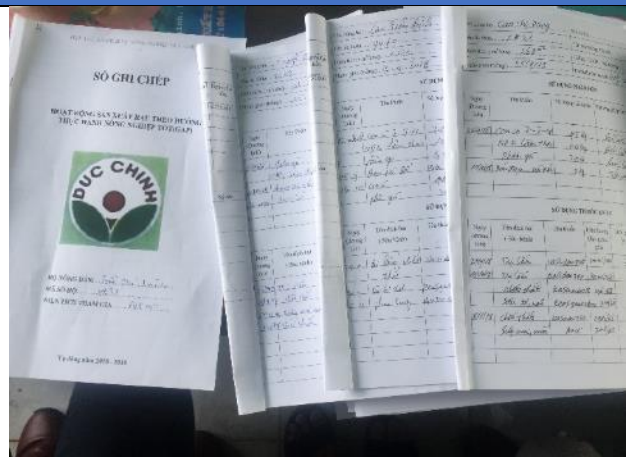


Demonstration about new agricultural material (Non-woven fabric) to produce safe vegetable in Yen Phu cooperative (Hung Yen, 14th November 2018)

Production Activities



Field instruction of record keeping to apply Basic GAP in Tan Minh Duc cooperative (Hai Duong, 18th October 2018)



Field diary which were prepared by producers for record keeping in Duc Chinh cooperative (Hai Duong, 4th December 2018)



Field instruction and installation of garbage bin for agrochemical package to apply Basic GAP in Quynh Hai cooperative (Thai Binh, 29th January 2019)



Technical assessment for upgrading conditions of post-harvesting facility in Ha Vy cooperative (Ha Nam, 27th November 2018)



Upgraded facilities and equipment for post-harvesting in Yen Phu cooperative (Hung Yen, April 2018)



Agrochemical residue check by using quick test kit by PPMU staff in Lua farmer group (Hai Duong 15 November, 2018)

Production Activities



Upgrade of pre-processing house, Vinh Phuc cooperative (Vinh Phuc 12th March 2020)



Upgrade of pre-processing house, Cat Lai cooperative (Ha Nam, 16th July 2020)



Study tour for Moc Chau, Son La province to learn cultivation techniques and marketing (Son La, 11st November 2020)



TOF conducted by PPMU staff (Hung Yen, 29th May, 2020)



Witness of internal audit by PPMU staff providing a guidance of safety control (Hai Duong, 26th March 2021)



Trial of digital recording with Japanese company to improve the traceability (Hai Duong, 17th November 2020)

Marketing Activities



Market survey in Hai Duong province in November 2016



Visiting a supermarket at TOT marketing in February 2017



Pre-processing activities to supply for VinEco in Yen Phu cooperative (Hung Yen, 14 November 2017)



Matching Big C with Yen Phu (Hung Yen, 01 December 2017)



Matching between producers and buyers at the 2nd safe vegetable business forum (Hanoi, 25 December 2017)



Matching between producers and buyers at the 3rd safe vegetable business forum (Hanoi, 12 September 2018)

Marketing Activities



Quynh Hai cooperative visited Tanh Minh Duc cooperative to learn their experiences (Hai Duong, 22 November 2018)



Hanoi Women Consumer Club visited Tanh Minh Duc Cooperative (Hai Duong, 28 November 2018)



Trade fair organized by Hai Duong PPMU (Hai Duong, 10 December 2018)



Demonstration of new variety Chinese cabbage at the fourth safe vegetable business forum (Hanoi, 11 December 2018)



Stakeholder meeting between Visa cooperative and Viet Harvest (Vinh Phuc, 16 January 2019)



Stakeholder meeting between Lua farmers group and Hung Viet company (Hai Duong, 19 February 2019)

Marketing Activities



Support TOF marketing at Vinh Phuc cooperative (Vinh Phuc, 6th June 2019)



Matching support for Lien Hiep cooperative with Vingroup (Ha Nam, 4th July 2019)



Organizing the 5th Safe Crop Business forum (Ha Noi, 13th September 2019)



Support Target Groups in Ha Nam to attend OCOP at Big C (Ha Noi, 8th November 2019)



Organizing a customer visit of Yen Phu cooperative (Ha Noi, 7th October 2020)



Organizing the 6th Safe Crop Business Forum (Ha Noi, 6th November 2020)

Communication Activities



Meeting with urban school districts representatives to explain school program from DARD, DOET, and Project Team (Hanoi, 27th September 2017)



Orientation of school education and poster festival to Ha Dong District primary school principals (Ha Noi, 29th September 2017)



Instruction given by a teacher to study safe vegetable leaflet at primary school (Hanoi, October 2017)



Poster drawing activities at primary school. (Hanoi, October 2017)



Award winning posters: The furthest right is the Gold Prize Winner (Hanoi, 3rd November, 2017)



HPA website for safe crop producers, traders and consumers (<https://nongsanantoanhanoi.gov.vn/>)

Communication Activities



Visit non-woven fabric trial field in Japan Vietnam company (Hung Yen, October 2018)



Visiting safe vegetables booths in Big C (Hanoi, October 2018)



Slideshow selection committee: Hanoi PPMU's introduction (Hanoi, 29th October 2018)



Slideshow Festival Award Ceremony at Nguyen Thi Minh Khai High School (Hanoi, 12th November 2018)



Slideshow Festival Award Ceremony at Nguyen Thi Minh Khai High School. 900 students in audience (Hanoi, 12th November 2018)



AEON Mall Long Bien Slideshow Exhibition Most LIKEd Award Ceremony. Speech from CPMU. (Hanoi, 16th December 2018)

Communication Activities



Introduction of HPA Website at Promotion Skill Training for Cooperatives (Hanoi, 23rd August 2019)



In-Class school program at Lê Quý Đôn School (Hanoi, 16th September 2019)



In-Class school program at Lê Quý Đôn School (Hanoi, 16th September 2019)



Facebook page of communication activities with latest event information (Hanoi, October 2019)



Poster evaluation committee members with award winning posters (Hanoi, 23rd October, 2019)

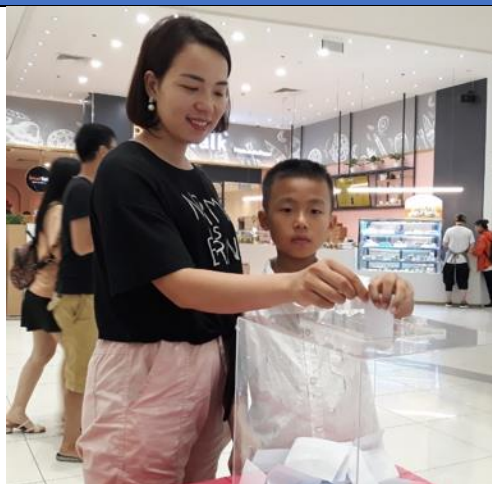


Grand Finale Award Ceremony with 30 finalists' paintings at Le Quy Dong Secondary School (Hanoi, 1st November, 2019)

Communication Activities



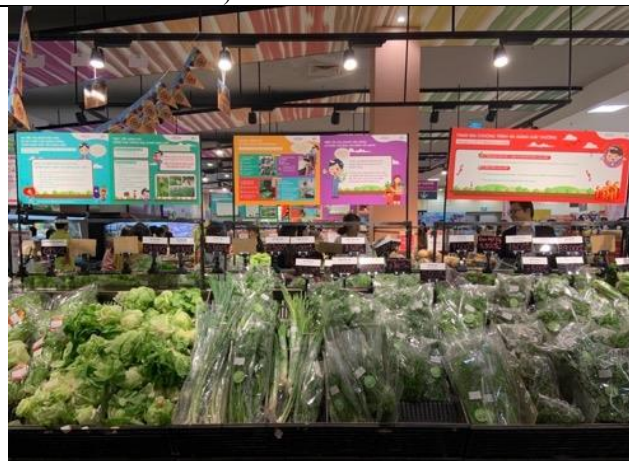
Visitors' interaction with 30 finalists posters exhibited at West Court, AEON MALL Long Bien (Hanoi, 9 -17 November 2019)



Customer voting for Most LIKEd Award of exhibited posters at West Court, AEON MALL Long Bien (Hanoi, 9 -17 November 2019)



Kewpie safe vegetables tasting booth at AEON MALL Poster Exhibition, West Court, AEON MALL Long Bien (Hanoi, 9 -17 November 2019)



Display to exhibit supermarkets' safety management of vegetable Section, AEON VIETNAM In-store Promotion (Hanoi, 9-17 November 2019)



Kewpie Tasting Booth at Poster Exhibition, AEON MALL Ha Dong (Hanoi, 19-23 November 2020)



Award Ceremony at AEON MALL Ha Dong (Hanoi, 19-23 November 2020)

Socialist Republic of Viet Nam
Project for Improvement of Reliability of Safe Crop Production
in the Northern Region

Project Work Completion Report

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Abbreviations

Abbreviation	Full Form
C/P	Counterpart
A Com	Agriculture company
Coop	Agriculture Cooperative
CPC	Commune People' s Committee
CPMU	Central Project Management Unit
DARD	Department of Agriculture and Rural Development
DCP	Department of Crop Production
DG	Director General
DOET	Department of Education and Training
DOH	Department of Health
DOIT	Department of Industry and Trade
DPC	District People's Committee
FB	Facebook
FG	Farmer Group
GAP	Good Agriculture Practice
GDP	Gross Domestic Product
HH	Household
HPA	Hanoi Promotion Agency
ICT	Information and Communication Technology
IT	Information Technology
JCCs	Joint Coordinating Committees
JGAP	Japan GAP
JICA	Japan International Cooperation Agency
MARD	Ministry of Agriculture and Rural Development
MOET	Ministry of Education and Training
MOH	Ministry of Health
MOIT	Ministry of Industry and Trade
MRL	Maximum Residue Level
NAFIQAD 1	National Agri-Forestry-Fisheries Quality Assurance Department- region 1
NGO	Non Governmental Organization
NWT	Non-Woven Textile
OCOP	One Commune One Product
R/D	Record of Discussions
PDCA	Plan Do Check and Action
PDM	Project Design Matrix
PGS	Participatory Guarantee System
PHI	Pre-harvest interval

PO	Plan of Operation
PPC	Provincial People's Committee
PPMU	Provincial Project Management Unit
SEDS	Socio Economic Development Strategy
SNS	Social Networking Services
Sub-NAFIQUAD	Agro-Forestry-Fisheries Quality Assurance Sub-Department
SWOT	Strengths, Weaknesses, Opportunities, Threats
TCVN	Vietnam Technical Standard
TG	Target Group
TOF	Training Of Farmers
TOT	Training Of Trainers
URL	Uniform Resource Locator
USD	United States Dollar
VAT	Value Added Tax
VND	Vietnamese Dong

CHAPTER 1 PROJECT OVERVIEW

1.1 Background

Economy of Vietnam has grown even after becoming Middle Income Country, and Gross Domestic Product (GDP) per capita in Vietnam has reached 1,900 USD in 2013. Agriculture sector has steadily developed after Doi Moi of 1986, and the amount of agriculture production has increased, and food security has almost been achieved. Furthermore, export of major crops such as rice, vegetables and fruits has increased.

On the other hand, usages of pesticide and chemicals has increased with the expansion of agriculture production. This leads to decrease of food safety by presence of residual pesticides and bacteria etc. Vietnamese Government has recognized the importance of food safety. However, sufficient countermeasures have not been taken because it is required to improve not only production technology but also processing and transportation system/technology and to establish testing system of soil, water and agriculture products, etc.

According to the Socio Economic Development Strategy (SEDS) of Vietnam (2011-2020), integrated agriculture development featuring modernization, effectiveness, sustainability and improvement of connectivity among producers, processors and consumers (Value Chain) are targeted. In addition, according to the strategy of agriculture and rural development of Ministry of Agriculture and Rural Development (MARD) (2011-2020), it targets value added agriculture products, transparency of food transport, market-oriented agriculture and improvement of connectivity among producers, processors and consumers as well.

In 2008, MARD has established a technical guidance called VietGAP (Good Agriculture Practice) which has 65 criteria for ensuring safe crop cultivation. However, the criteria include not only food safety but also indirect items such as environmental protection, and it costs around 2,000 USD per year to acquire its certification. Therefore, it was difficult especially for low-income individual producers and groups to apply VietGAP.

Based on the above circumstances, MARD with support of JICA had implemented "Strengthen the Capacities for the Field of Management of Vietnam's Crop Production Sector for Improving the Productivity and Quality of Crop's Products in Vietnam" (So called "Safe Crop Project: SC Project") for 3 years and 6 months from July 2010. This aimed at raising awareness and improvement of cultivation technology. The SC Project designated Ha Nam Province, Hung Yen Province and Quang Ninh Province as pilot project sites and Hoa Binh Province, Thai Binh Province and Hai Phong City as semi-pilot project sites, and provided technical instruction of safe cultivation. Through the practical activities, the SC Project eventually developed "Basic GAP" which extracted only important 26 criteria relating to food safety out of 65 criteria of VietGAP. As the result, producers of supported by



Figure 1.1.1 Shipment of vegetable in field near Ha Noi City

the SC Project became able to know appropriate usage of agriculture inputs such as pesticides and chemicals by recording, which led to cost reduction of inputs. In accordance with the result of the SC Project, MARD officially approved Basic GAP as a technical procedure in July 2014.

With the above background, MARD requested Government of Japan to support "Project for Improvement of Reliability of Safe Crop Production in the Northern Region" which is positioned as Phase-2 of the SC Project for dissemination and expansion of Basic GAP procedure in the Northern Vietnam.

On the distribution side of agricultural products, reliability of consumers against the safety of vegetables is extremely low due to insufficient management not only in production but also in distribution, processing and selling process, such as a "mixed loading" during distribution. Price difference between vegetables and safe vegetables is also not usually borne, it affects to reducing willingness of producers against safe vegetable production. It is a big challenge to establish a distribution system of safe vegetables that can earn the trust of consumers by improving on processing and distribution process.

In addition, all the stakeholders of production, distribution, sales and consumers lack the correct knowledge and information on safety vegetables. Despite the various awareness activities related to the promotion of safe crop production have been carried out by the government and donors, the safety crop production area has not been expanded.

Recognizing safety vegetables and sharing information among all stakeholders from production, sales and consumption are the subjects through effective awareness activities based on the knowledge and awareness of the target.

1.2 Objective and Scope

(1) Project Objective

Over All Goal is "Agricultural products in the Northern Region (2 cities and 11 provinces) of Viet Nam are improved in term of safety and reliability", and Project Purpose is "Safe crop productions (safety vegetable) in target sites in the Northern Region (2 cities and 11 provinces) of Viet Nam are promoted".

(2) Related organization and Project Site

Vietnamese Related organizations are as follows:

Organization with primary responsibility	: MARD
Organization for project implementation	: MARD, Department of Crop Production
Pilot Province(s)/city	: Hanoi City, as consumption areas
Pilot Province(s)/city	: Hung Yen Province, Hai Duong Province, Ha Nam Province, as production area
Semi-Pilot Province(s)/city	: Thai Binh Province, Phu Tho Province, Vinh Phuc Province, as production area

Knowledge-sharing province(s)/city : Quang Ninh Province, Hai Phong City, Hoa Binh Province, Bac Ninh Province, Nam Dinh Province and Ninh Binh Province

Japanese Related organizations are as follows:

Organization for project implementation : JICA Viet Nam Office, JICA Long-term experts for the project

Project sites are total 2 Cities and 11 Provinces mentioned above.

(3) Project Period

Five years from July 2016, from 1st arrival of JICA Long-term experts in Viet Nam.

1.3 Outputs and Activities

Overall goal, project purpose, outputs and activities for each output are designed in the table below and referred to Annex1.

Table 1.1 Project Outputs and Activities

<p>Over All Goal: Agricultural products in the Northern Region (2 cities and 11 provinces) of Viet Nam are improved in term of safety and reliability *Improvement of products in term of safety and reliability, thereby, it enables to promote cultivation of safe crops paid much more attention and achieve the promotion of related industries.</p>	
<p>Project Purpose: Safe crop productions (safety vegetable) in target sites in the Northern Region (2 cities and 11 provinces) of Viet Nam are promoted. * Promotion of safe crop production, then, channel of the value chain is promoted.</p>	
<p>Output 1) The capacity of monitoring and management on safe crop production for relevant organization (DCP/MARD, DARD in respective province city/district, and commune) is improved.</p>	
<p>Activities 1</p>	<p>1.1 To create unit of CPMU (Central Project Management Unit) within DCP/MARD in order to manage and implement of the Project effectively in central level 1.2 To create PPMU (Provincial Project Management Unit) within the respective province selected as “Pilot province(s)/city” and “Semi Pilot province(s)” in order to manage and implement of the Project effectively in local level * The PPMU is consisted with relevant sub-department(s) in DARD as well as collaboration with other departments/centers which is necessary to implement the Project effectively. 1.3 To review/analyze and identify bottlenecks in the existing situation and problems for safe crop production in the Pilot province(s) and Semi Pilot province(s) 1.4 To select the target groups (=Agriculture production entities; Agriculture Cooperative, Agriculture Production company/enterprises, and Farmer Groups) in the Pilot province(s) and Semi Pilot province(s) 1.5 To collect relevant documents, materials and data on safe crop production including GAP, training materials, brochures 1.6 To design crop production systems in order to ensure quality and safety * “Crop production system” includes the activities, such as format of record keeping, method of record confirmation, scientific pesticide residue testing, PGS (participatory Guarantee System, and introduction of ICT (Information and Communication Technology), etc. 1.7 Based on the systems designed in the Activity 1.6 above, to introduce the system as trial activities in the pilot province(s) by joint collaboration between CPMU and PPMU 1.8 Based on the trial Activities 1.7 above, to modify and improve the systems in order to make the system workable</p>

	<p>1.9 Against PPMU in the respective “Semi Pilot province(s)”, to conduct workshop/seminars regarding to the system constructed in the Activity 1.8 above by CPMU</p> <p>1.10 To introduce the system above even in the “Semi Pilot province(s)” under the guidance and instruction by CPMU</p> <p>1.11 In the Pilot province(s) and Semi Pilot province(s), to summarize the results of trial activities carried out, and then to formulate action plans (including activities and budget) which enable MARD/DARD to continue the Project activities even after the termination of the Project</p> <p>* For the above-mentioned Activity 1, the “Knowledge-sharing province(s)/city” are also participating as appropriate, to share information about the progress and results of activities in the Pilot province(s) and Semi Pilot province(s), even to share the experience each other.</p>
<p>Output 2) The good patterns as model on safe crop production (safety vegetable) following GAP (Basic GAP/VietGAP/Global GAP) with supply chain is proposed.</p>	
	<p>Activities 2</p> <p>2.1 To conduct survey on “Market (value chain) analysis” (such as “Market Trends & Competitiveness”, “Value Chain Mapping/Diagram”, “Constraints & Opportunities”, “Stakeholders’/ Actors’ relationship” and “Governance Structures & Public-private relations”)</p> <p>2.2 In conjunction with the Activity 1.4, and also based on the results of Market analysis survey above, to identify the potential buyers of the agricultural products produced by target groups (product processing entity, distribution entity and sales entity) in the Pilot province(s) and Semi Pilot province(s) or large consumption areas (Hanoi, etc.)</p> <p>2.3 Together to provide the results of the Market analysis survey to the producers in the respective province, to conduct sales promotion activities on safe crops (in particular, vegetables follow GAP), making contract and planning collection and delivery activities based on the requests by processing and sales entity</p> <p>* ”Promotion activities on safe crop production” is called as Matching activities like market/price information sharing and supports of business opportunities between producers and buyers</p> <p>2.4 To examine the trial activities of collection, pre processing and delivery in Pilot provinces.</p> <p>2.5 To introduce the trial activities of collection, pre processing and delivery above even in the “Semi Pilot province(s)” under the guidance and instruction by CPMU</p> <p>2.6 In the Pilot province(s) and Semi Pilot province(s), to summarize the results of trial activities carried out, and then to formulate action plans (including activities and budget) which enable MARD/DARD to continue the Project activities even after the termination of the Project</p> <p>* For the above-mentioned Activity 2, the “Knowledge-sharing province(s)/city” are also participating as appropriate, to share information about the progress and results of activities in the Pilot province(s) and Semi Pilot province(s), even to share the experience each other.</p>
<p>Output 3) Awareness of relevant organization/people, mainly producer and buyers (consumer and traders; such as wholesalers and retailers) on safe crop production and food safety is raised.</p>	
	<p>Activities 3</p> <p>3.1 To review and analyze past experiences of promotion activities on safe crop production and food safety, and draw good practices and lessons learned.</p> <p>3.2 To implement raising awareness activities on safe crop production and food safety, focusing on human health, environment and agricultural promotion toward customers (buyers/consumers) through mass media in nationwide.</p> <p>* Awareness activities = such as awareness raising campaign event, utilization of social media</p> <p>3.3 To implement specific raising awareness activities on safe crop production and food safety toward the target groups and organization related to the Activity 1 and Activity 2</p> <p>3.4 To grasp the consumers’ voice/opinion and support activities on communication and information given by Vietnamese government</p>

CHAPTER 2 PROJECT ACTIVITIES

Common Task through Project Period

2.A Preparation of Monitoring Sheet

2.A.1 Preparation of Monitoring Sheet Ver.01

The JICA Project Team drafted the project monitoring sheet ver.01 by 31 October 2016 and organized a CPMU meeting on 4 November 2016. In the CPMU meeting, JICA Project Team presented the work plan and project monitoring sheet ver.01, and explained the necessity of revision of PDM ver.0 prepared on R/D. After the presentation by JICA Project Team, the participants discussed the followings.

(1) Work Plan

Regarding the work plan, the participants discussed the project approach proposed by JICA Project Team and accepted it as a desirable approach to execute in this project. The participants agreed on the work plan for phase 1.

(2) Project Monitoring Sheet Ver.01

Regarding the project monitoring sheet ver.01, the participants noted the work progress and delay of work schedule due to delay of approval of project document. Representative of CPMU answered that DCP/MARD would make necessary actions to implement the project without any delay.

Representative of CPMU also answered CPMU and PPMU with support of JICA Project Team would execute the necessary roles to maintain the monitoring sheet. Representative of CPMU also acknowledged there was a need to modify the work schedule on PO according to the draft work plan prepared by JICA Project Team. Finally, the participants agreed on the project monitoring sheet ver.01.

(3) Revision of PDM

Representative of CPMU answered that there was no action to be taken on the inception meeting, but acknowledged the importance of revision of PDM. Representative of CPMU also answered to take necessary action to revise PDM as version 1 by the time of JCC meeting.

2.A.2 Review and Update Monitoring Sheet Every 6 Months

The JICA Project Team reviewed periodically the overall progress of the project activities and updated as monitoring sheet. The results of submission of monitoring sheets are shown in the table below;

Table 2.A.1 Result of Submission of Monitoring Sheets

Version	Date of Submission	Annex
Monitoring Sheet Ver.01	31 October 2016	- Annex I Project Monitoring Sheet I (Revision of Project Design Matrix) - Annex II Project Monitoring Sheet II (Revision of Plan of Operation)
Monitoring Sheet Ver.02	15 May 2017	- Annex I Project Monitoring Sheet I (Revision of Project Design Matrix) - Annex II Project Monitoring Sheet II (Revision of Plan of Operation) - Annex III List of Temporary CPMU and PPMU - Annex IV List of Target groups

Monitoring Sheet Ver.03	20 November 2017	<ul style="list-style-type: none"> - Annex I Project Monitoring Sheet I (Revision of Project Design Matrix) - Annex II Project Monitoring Sheet II (Revision of Plan of Operation) - Annex III List of Temporary CPMU and PPMU - Annex IV List of Target Groups - Annex V Baseline and Gender Survey - Annex VI Report for Training in Japan - Annex VII Pilot Project Implementation Plan - Annex VIII Project Progress for CPMU Meeting on 9th November 2017 - Annex IX Market and Consumer Survey
Monitoring Sheet Ver.04	30 November 2018	<ul style="list-style-type: none"> - Annex I Project Monitoring Sheet I (Revision of Project Design Matrix) - Annex II Project Monitoring Sheet II (Revision of Plan of Operation) - Annex III List of CPMU and PPMU - Annex IV Minutes of Meeting (Supplemental documents for the 2nd JCC meeting) - Annex V Pilot Project Implementation Plan for 2nd Term (From September 2018 to May 2019) - Annex VI Project Progress for CPMU
Monitoring Sheet Ver.05	11 March 2020	<ul style="list-style-type: none"> - Annex I Project Monitoring Sheet I (Revision of Project Design Matrix) - Annex II Project Monitoring Sheet II (Revision of Plan of Operation) - Annex III List of CPMU and PPMU - Annex IV Minutes of Meeting (3rd JCC meeting) - Annex V Operation Manual for Production Management System for GAP Promotion (Draft) - Annex VI Supply Chain Development Manual (Draft) - Annex VII Training Record - Annex VIII Pesticide residue check record
Monitoring Sheet Ver.06	16 March 2020	<ul style="list-style-type: none"> - Annex I Project Monitoring Sheet I (Revision of Project Design Matrix) - Annex II Project Monitoring Sheet II (Revision of Plan of Operation) - Annex III List of CPMU and PPMU - Annex IV Training Record - Annex V Pesticide residue check record
Monitoring Sheet Ver.07	16 December 2020	<ul style="list-style-type: none"> - Annex I Project Monitoring Sheet I (Revision of Project Design Matrix) - Annex II Project Monitoring Sheet II (Revision of Plan of Operation) - Annex III List of CPMU and PPMU - Annex IV Training Record - Annex V Pesticide residue check record

Source: JICA Project Team

2.B Assist Holding of JCC Meeting

2.B.1 1st JCC meeting

JICA Project Team assisted to hold JCC meeting at least once a year and participated in the meeting to report the project progress and to make consensus of project approaches.

The first JCC meeting was held on 17 April 2017 for the purpose of introducing background of the project formulation, overview and progress of the project, reporting summary of the baseline survey, market survey and consumer survey, and seeking for an approval for the selection of the target groups, revision of the Project Design Matrix (PDM) ver.01 and pilot project implementation plan. The meeting also discussed about preparation of fund for the Project activities. As a result of the meeting, the Vietnamese side and Japanese side shared common understanding of the matters.

2.B.2 2nd JCC meeting

The 2nd JCC meeting was held on 16 April 2018 to report the evaluation result of the trial activities after one year implementation, the progress of pilot and semi-pilot city/provinces and to discuss about

the proposed recommendations and related issues among all stakeholders for the improvement of trial activities. As a result of the meeting, the Vietnamese side and Japanese side shared common understanding of the matters.

2.B.3 3rd JCC meeting

The 3rd JCC meeting was held on 21 June 2019. After opening remarks and welcome address the following contents were presented: project progress by CPMU, a report from pilot province regarding the result and lessons of project activities by Hai Duong PPMU, result and lessons of communication activities by Hanoi PPMU, project implementation plan from April 2019 to July 2021 by JICA Project team. As the matters requiring resolution, CPMU addressed revision of PDM, preparation of the Action Plan to replicate the trial activities even after the termination of the Project in pilot provinces, and activities in knowledge sharing provinces. Through the discussion among participants, JCC recognized and approved the matters.

2.B.4 4th JCC meeting

The 4th JCC meeting was held on 17 July 2020. After opening remarks and welcome address the following contents were presented: project progress by CPMU, a report from pilot province regarding the result and lessons of project activities by Hai Duong PPMU, result and lessons of communication activities by Hanoi PPMU, a report from knowledge sharing province regarding the result and lessons of project activities by Bac Ninh PPMU, and project implementation plan from August 2020 to July 2021 including the target safe vegetable production area to be achieved for project purpose by JICA Project team. As the matters requiring resolution, CPMU addressed Action Plan to replicate the trial activities even after the termination of the Project in pilot and semi pilot provinces, changing of a target group in Hung Yen province, way of compilation of two manuals (production management system manual and supply chain development manual), revision of PDM (if required), and project implementation plan for pilot and semi-pilot provinces and for knowledge sharing provinces. As the result of the meeting, the JCC approved no revision of the current PDM as appropriate one, and also approved the other matters.

2.B.5 5th JCC meeting

The 5th JCC meeting was held on 3 February 2021. After opening and introduction of participants the following contents were presented: a report of project progress by CPMU, a report and recommendation from the joint terminal evaluation mission by the terminal evaluation team. Mr. Cuong, project director of CPMU and Director General of DCP, MARD chaired and invited all participants for open discussion the major issues recommended in the terminal evaluation report. As the result of the meeting, the Vietnamese side and Japanese side shared common understanding upon the matters and achieved a consensus on coping with recommendations made by the terminal evaluation team and reflecting the lessons learnt to the next project.

2.C Training in Japan

2.C.1 1st Training in Japan

1st Training in Japan namely “Establishment of Safe Vegetable Supply Chain” was conducted in June 2017 for 7 nominated staff from CPMU and PPMUs of pilot provinces. Outline, list of participants and training schedule of 1st training in Japan were described in Tables 2.C.1 to 2.C.3.

Table 2.C.1 Outline of 1st Training in Japan

Title	Establishment of Safe Vegetable Supply Chain
Period	2017/6/12 to 2017/6/21 (10 days)
Number of Trainee	7
Purpose	To learn system of production and distribution of safe vegetable in Japan
Expected output	1) To understand activities by public sector for production and distribution of safe vegetable 2) To understand activities by producer for production of safe vegetable 3) To understand activities by buyer for distribution of safe vegetable

Source: JICA Project Team

Table 2.C.2 List of Participants of 1st Training in Japan

Name	Position/Organization*
Mr. TRAN Xuan Dinh	Deputy Director General, Department of Crop Production, MARD, Director of CPMU
Mr. NGUYEN Hoang Viet	Chief of Administrative Office of Department of Crop Production, MARD, member of CPMU
Mr. NGUYEN Van Dan	Officer of Food Crop Production Division, Department of Crop Production, MARD; Secretary of CPMU
Mr. NGUYEN Van Doanh	Director of Hung Yen Agriculture and Rural Development Department, Director of Hung Yen PPMU
Ms. VU Thi Ha	Deputy Director of Hai Duong Agriculture and Rural Development Department, Deputy Director of Hai Duong PPMU
Ms. NGUYEN Thi Thoa	Head of Crop Production Division, Ha Noi Department of Agriculture and Rural Development, member of Ha Noi PPMU
Ms. TRAN Thi Nga	Vice Head of Sub-Department of Plant Protection, Ha Nam Agriculture and Rural Development Department, coordinator of Ha Nam PPMU

Remark: Position and organization of each participant are at the time of event.

Source: JICA Project Team

Table 2.C.3 Training Schedule of 1st Training in Japan

Date	Time	Type	Theme	Trainer
13-Jun	~		Trip (Hanoi -> Tokyo (Narita), JL752)	-
	13:30 ~ 15:30	Lecture	Briefing and courtesy call of representative from JICA Tsukuba	JICA Tsukuba
14-Jun	10:00 ~ 12:00	Field Visit	Activity of Agricultural Corporate to produce safe vegetable	Agricultural Corporate Sawara Agricultural Products Supply Center
	15:00 ~ 17:00	Field Visit	Activity of "Sanchi" management, Distribution and Selling of Safe Agricultural Products (Example of Pal System)	GPS Co., Ltd./ Head of Business Division
15-Jun	9:00 ~ 12:00	Lecture	Activity and Current situation of JGAP (Japan GAP)	Asia GAP Research Institute, Certificated Specified Nonprofit Corporation/ Managing director
	14:30 ~ 17:00	Field Visit	Case study of JGAP introduction	Limited company Union farm / President

16-Jun	9:30 ~ 10:30	Lecture	Establishment of safe and secure food "Sanchi" by Japan Agricultural Cooperatives	Japan Agricultural Cooperatives Chiba Midori
	10:30 ~ 11:00		Transportation	
	11:00 ~ 12:00	Field Visit	Case study of safe and secure food "Sanchi" by Japan Agricultural Cooperatives	Asahi Collecting and Shipping Center
	14:00 ~ 15:00	Field Visit	System of Farmers' Store/ Direct selling store	Roadside Station "Kirari Asahi"
17-Jun	9:00 ~ 17:00		Preparation of Report	Trainees themselves/ Supervisor
18-Jun	9:00 ~ 17:00		Free day	
19-Jun	9:30 ~ 12:00	Lecture	Activity of stable supply of safe vegetable thorough establishment of "Sanchi", by public sector	Independent administrative Agency: Agriculture & Livestock Industries Corporation, Vegetable Department / Section manager
	14:00 ~ 15:30	Lecture	Activity to establish Global Food Value Chain by public sector	Ministry of Agriculture, Forestry and Fisheries, International Affairs Department, Overseas Investment and Cooperation Division
20-Jun	10:00 ~ 11:45	Field Visit	Activity for Production and distribution of Safe vegetable, for dissemination of JGAP	Japan Agricultural Cooperatives, Central Union of Ibaraki, Center of Agricultural Extension Support, Vice-Director of the Center
	13:30 ~ 14:20	Field Visit	Activity to produce safe vegetable by producers group	Japan Agricultural Cooperatives "Yawaraka" Green Onion producer group/ Representative
	15:00 ~ 15:50	Field Visit	Activity to produce safe vegetable by seed production company	Yanagawa Seed Production Research Co., Ltd.
21-Jun	9:30 ~ 12:00		Evaluation session, Presentation of action plan to replicate the good practices learned from training in Japan	-
	~		Trip (Tokyo (Narita) -> Hanoi, JL751)	

Source: JICA Project Team

2.C.2 2nd Training in Japan

2nd Training in Japan was originally planned in June 2018. However, the training course was cancelled due to unavailability of acceptance of trainees by JICA. Thinking of the importance of the training, JICA long term experts conducted supplemental training by business trip base in February 2019 instead.

2.C.3 3rd Training in Japan (as 2nd Training in Japan)

The 3rd Training in Japan was conducted in February 2019 as the 2nd Training. 7 staff from PPMUs of pilot and semi-pilot provinces were nominated. Outline, list of participants and training schedule of 2nd training in Japan are described in Tables 2.C.4 to 2.C.6.

Table 2.C.4 Outline of 2nd Training in Japan

Title	Establishment of Safe Vegetable Supply Chain
Period	2019/2/18 to 2019/2/23 (6 days)
Number of Trainee	7
Purpose	To learn system of production and distribution of safe vegetable in Japan
Expected output	1) To understand activities by public sector for production and distribution of safe vegetable 2) To understand activities by producer for production of safe vegetable 3) To understand activities by buyer for distribution of safe vegetable

Source: JICA Project Team

Table 2.C.5 List of Participants of 2nd Training in Japan

Name	Position/Organization*
Mr.CAO Duy Hoa	Deputy Head of crop production division of Sub-Department of Crop Production and Plant Protection, Vinh Phuc Agriculture and Rural Development Department, member of Vinh Phuc PPMU
Ms.VU Thanh Quynh	Officer of Planning and Financial Division, Hanoi Agriculture and Rural Development Department, member of Hanoi PPMU
Ms.NGUYEN Thi Them	Deputy Head of Crop Production Division, Thai Binh Agriculture and Rural Development Department, member of Thai Binh PPMU
Mr.TRAN Duc Nhan	Head of agro-forestry-fisheries quality control division of Sub-Department of Agro-Forestry-Fisheries Quality Assurance, Hung Yen Agriculture and Rural Development Department, member of Hung Yen PPMU
Mr.NGUYEN Xuan Nam	Technical staff of Hai Duong Agriculture and Rural Development Department, member of Hai Duong PPMU
Mr.NGUYEN Tien Dinh	Deputy Head of crop production division of Sub-Department of Crop Production and Plant Protection, Ha Nam Agriculture and Rural Development Department, member of Ha Nam PPMU
Ms.NGUYEN Thi Thu Huong	Deputy Head of Legislation Division, Phu Tho Agriculture and Rural Development Department, member of Phu Tho PPMU

Remark: Position and organization of each participant are at the time of event.

Source: JICA Project Team

Table 2.C.6 Training Schedule of 2nd Training in Japan

Date	Time	Type	Theme	Trainer
18-Feb	1:45 ~ 7:20	-	Trip (Hanoi -> Fukuoka, VN356)	-
	10:00 ~ 12:00	Other	Briefing	Training supervisor
	12:00 ~ 12:30	Other	Meeting about flight information	JCT Service Co., Ltd
	13:30 ~ 14:30	Other	Program orientation	JICA Kyusyu/ Assistant Chief of Training Program Division
	15:30 ~ 17:00	Site Visit	Safety control in the food processing factory of cut vegetable	Fukuren Co., Ltd, Factory in Miyata/ Factory director
19-Feb	7:00 ~ 9:00	Site Visit	Logistics and sales of safety crops in wholesaler market	Fukuoka Daido Seika Co., Ltd./ Manager
	10:00 ~ 12:45	Site Visit	Sales of crops in the retail shop (Aeon Fukuoka)	Nippon Koei Co., Ltd./ The project expert
	14:00 ~ 16:00	Site Visit	Production of the safety crops	Agripro Co., Ltd./ President
20-Feb	9:00 ~ 11:00	Lecture	Promotion of safe crop production by local government	Kumamoto prefecture, Department of Agriculture, Forestry and Fisheries/ Director General
	13:30 ~ 15:30	Site Visit	Crop production by company which has GAP certification	Eco farm Tachiishi Sales Cooperative Limited Liability Company/ Director

21-Feb	9:30 ~ 11:30	Site Visit	Development of "Sanchi" (large production area) which are introduced GAP	Kumamoto prefecture, Regional Development Bureau/ Director General JA Kumamoto Uki, Ogawa Ginger Group/ Deputy Director
	13:00 ~ 14:45	Site Visit	Activity of local production for local consumption (Market which producers can directly sell crops)	Kumamoto prefecture, Department of Agriculture, Forestry and Fisheries/ Director General
22-Feb	8:00 ~ 10:00	Site Visit	Cultivation methods and agricultural materials for safe crop production without agrochemical usage	Mitsubishi Chemical Agri Dream Co., Ltd./ Group Manager New Agri Kumamoto Co., Ltd/ Leader
	13:30 ~ 16:00	Other	Preparation of action plan to replicate the good practices learned from training in Japan	Trainees themselves/ Supervisor
	16:00 ~ 17:15	Presentation	Presentation of action plan	Trainees themselves/ Supervisor
	17:15 ~ 17:30	Other	Evaluation of the training	JICA Kyusyu/ Assistant Chief of Training Program Division
	17:30 ~ 18:00	Other	Closing ceremony	JICA Kyusyu/ Manager of Training Program Division
23-Feb	9:00 ~ 17:00	-	Trip (Fukuoka -> Hanoi)	-

Source: JICA Project Team

2.C.4 4th Training in Japan (as 3rd Training in Japan)

The 4th Training in Japan was conducted in November 2019 as the 3rd Training. Total 6 members consisting of 1 staff from CPMU, 3 staff from PPMUs of pilot provinces and 2 farmers representing from target groups were nominated. Outline, list of participants and training schedule of 3rd training in Japan are described in Tables below.

Table 2.C.7 Outline of 3rd Training in Japan

Title	Establishment of Safe Vegetable Supply Chain
Period	2019/11/18 to 2019/11/24 (7 days)
Number of Trainee	6
Purpose	To learn system of production and distribution of safe vegetable in Japan
Expected output	1) To learn about the production and distribution system of safe vegetables in Japan 2) To learn about the experience of vegetable production area development in Japan 3) To promote the introduction of advanced technologies and materials of Japanese companies contributing for safe vegetable production and food value chain development in Vietnam

Source: JICA Project Team

Table 2.C.8 List of Participants of 3rd Training in Japan

Name	Position/Organization*
Mr.DUONG Van Dung	Official Staff, Food Crop Division, Department of Crop Production, Ministry of Agriculture and Rural Development
Mr.TRAN Nguyen Thap	Director, Sub Department of National Agro-forestry and Fisheries Quality Assurance, Department of Agriculture and Rural Development, Hung Yen Province
Mr.LE Thai Nghiep	Deputy Head of Crop Production Division, Department of Agriculture and Rural Development, Hai Duong Province

Mr.LE Van Diep	Deputy Head of Technical Division, Sub Department of National Agro-forestry and Fisheries Quality Assurance, Department of Agriculture and Rural Development, Ha Nam Province
Mr.NGUYEN Huu Hung	Director, YEN PHU Agriculture Service Cooperative
Ms.PHAM Thi Huyen Trang	Deputy Director (Marketing/Sales), THANH HA Safe Fruit and Vegetable One-Member Limited Company

Remark: Position and organization of each participant are at the time of event.

Source: JICA Project Team

Table 2.C.9 Training Schedule of 3rd Training in Japan

Date	Time		Type	Theme	Trainer	
17-Nov	24:20	~		Other	Trip (Hanoi -> Tokyo (Narita), VN310)	
18-Nov	7:00	~	10:30	Other	Narita International Airport -> JICA Tsukuba	
	11:00	~	12:00	Field Visit	Briefing & Explanation of Training in JICA Tsukuba	Mr. Kurokawa, JICA Tsukuba
	15:00	~	17:00	Field Visit	Activity in Farm Introducing GLOBAL GAP	Ms. Kobayakawa, AEON Agri Create Co, Ltd, Kashiwa Farm
19-Nov	10:00	~	12:00	Field Visit	Activity of Agricultural Corporate to Produce Safe Vegetable	Mr. Katori, Agricultural Corporate Sawara Agricultural Products Supply Center
	15:00	~	17:00	Field Visit	Activity of "Sanchi" management, Distribution and Selling of Safe Agricultural Products (Example of Palsystem)	Mr. Muto, GPS Co., Ltd./ Head of Business Division
20-Nov	10:00	~	12:00	Field Visit	Horticultural Crop Cultivation by Using Advanced Greenhouse	Mr. Uetake, Genki Nojyo, Watanabe Pipe Co., Ltd.
	14:30	~	16:00	Field Visit	Visit to Farmer Using Greenhouse	Mr. Nemoto, A greenhouse strawberry farmer
21-Nov	10:00	~	12:00	Lecture	Activity and Current Situation of JGAP (Japan GAP)	Mr. Takeda, Asia GAP Research Institute, Certificated Specified Non-profit Corporation/ Managing director
	15:00	~	17:00	Field Visit	Case Study of JGAP Introduction	Mr. Tamatsukuri, Unionfarm
22-Nov	12:00	~	13:00	Other	Greeting with a parliament member	Mr. Suzuki, Member of the House of Representatives
	15:00	~	16:30	Other	Activity of Vegetables Processing (Cut vegetables) by Agriculture Cooperative	Mr. Shibama, JA Yasato Vegetable Cut Center
	17:30	~	18:00	Other	Closing Ceremony	All participants
23-Nov	11:00	~	13:00	Field Visit	Food Service Using Safe Crops certified with GAP	Mr. Tomori, Grand Eat Ginza
	13:00	~	16:00	Other	Free Activities	
24-Nov	10:00	~	13:35	Other	Trip (Tokyo (Narita) -> Hanoi, VN311)	

Source: JICA Project Team

Phase 1 (October 2016 – March 2019)

2.1 Preparation and Discussion for Work Plan for Phase 1

JICA Project Team drafted the work plan for phase 1 consisting of basic approaches, methodologies and work process and organization structure, in consideration with annual work plans of CPMU and PPMU mentioned on R/D and activities of both pilot provinces and semi-pilot provinces through the discussion with CPMU and PPMU. The JICA Project Team organized a CPMU meeting on 4 November 2016. On the CPMU meeting, JICA Project Team presented the work plan followed by the discussion about the project approach proposed by JICA Project Team.

2.2 Agreement on Project Approach

Project approach includes the detailed items such as, work flow, objective of each activity, role and frequency of stakeholders, selection criteria of target groups, crop production system, dissemination method and public relations. These detailed items of project approach were described in the work plan for phase 1 and discussed on the CPMU meeting held on 4 November 2016. CPMU recognized the project approach as a desirable one to execute in the project and agreed on the work plan for phase 1.

< Activities for Output 1 >

2.3 Establishment of CPMU and PPMU

Due to the delay of approval of project document, DCP/MARD and DARDs of pilot and semi-pilot city/provinces had been unable to establish CPMU and PPMU. Therefore, DCP/MARD established CPMU and issued a letter to request related city/provinces to establish temporary PPMU. Then the temporary PPMUs were established in pilot and semi-pilot city/provinces. In 2017, DCP/MARD and DARDs of related city/provinces exercised availability of allocation for the necessary budget from annual budget plan.

Pursuant to the Decision No. 2355/QĐ-BNN-HTQT on 19 June 2018, signed by the Deputy Minister of MARD on approving the Project, DCP/MARD officially reformed CPMU on 9 August 2018.

DCP/MARD issued the letter No.1061/TT-ĐAJC dated 10 September 2018 requesting DARDs of pilot and semi-pilot city/provinces to issue (or submit to PPC to issue) the Decision on consolidating the PPMU of the Project. DARDs of pilot and semi-pilot city/provinces have established PPMUs except for Hanoi city.

2.4 Survey for Safe Crop Production and Selection of Target Groups

2.4.1 Basic Data Collection

The JICA project team conducted basic data collection by questionnaire survey to pilot city/provinces and semi-pilot provinces. The contents of basic data collection were finalized according to the discussion with CPMU and PPMU as described below.

Basic Information

- 1) Natural environment
- 2) Social economic condition
- 3) Social infrastructure
- 4) Provincial budget
- 5) Agricultural specification
- 6) Agricultural distribution
- 7) Farmer organization
- 8) Agricultural financing
- 9) Test and inspection institution
- 10) ICT use

Information regarding safe crops

- 11) Policy and guidance about safe crop promotion of government and each target province
- 12) Law and regulation about safe crop production
- 13) Certification system of safe vegetable production area (zone)
- 14) Production situation by BasicGAP, VietGAP and organic certification
- 15) Current status of agricultural extension
- 16) Awareness of producers for food safety and safe crop production

Awareness of buyers and consumers

- 17) Identification of buyers of safe crops
- 18) Reputation and evaluation of buyers and consumers about safe crop
- 19) Awareness of consumers for food safety and safe crop production

The summary of collected basic data is shown in Attachment 1.

Out of the items above, 10) ICT use and 17) Identification of buyers of safe crops were conducted under baseline survey and market survey representatively.

2.4.2 Selection of Target Groups

(1) Selection of Target Groups for 1st batch

1) Confirmation of selection criteria for target groups

7 Criteria were applied according to Record of Discussion, and specific indicators for each criterion were proposed by the JICA Project team and approved by CPMU as shown below. The JICA Project team also emphasized that the target group which holds strong willingness and eagerness should be selected as a model in connection with sustainability.

Table 2.4.1 Selection Criteria for Target Group

No	Item	Evaluation Criteria		Indicator
1	Target area/zone	Vegetable production area (ha)	1-1	Specialized vegetable area/zone
			1-2	Land area is more than 1ha.
2	Location and environment	Favorable natural environment	2-1	Land is certified as safe production area
		Economic and social environment	2-2	There is no existence of chemical industry nearby

		Suitable area for safe vegetable	2-3	Suitability of land condition (Field observation)
3	Knowledge and techniques	Knowledge and techniques of Basic GAP and/or other safe crop production	3-1	Basic GAP and/or VietGAP is applied.
			3-2	Farming practice (Field observation)
4	Number of farmer group and production volume	Certain number of farmer groups members	4-1	No. of farmers for safe crop production is more than 5.
5	Willingness and eagerness	Willingness and eagerness of producers	5-1	Leadership and independency (Field observation)
6	New model	Desirable new agriculture cooperative model	6-1	New model group
7	Vegetable production	Safe vegetable production and distribution	7-1	Experience of market channel development

Source: JICA Project Team

2) Nomination of candidate target groups for 1st batch

The JICA Project team requested PPMUs of pilot provinces to nominate the candidate target groups and PPMUs submitted the list as shown in the table below.

Table 2.4.2 Nominated candidate target groups from pilot provinces

No.	Group Name	Type	Member ship	Vegetable area	Safe area
Ha Nam					
HN-N1	Phu Van agriculture product cooperative	Coop	11	1	1
HN-N2	Thanh Tuyen agriculture service cooperative	Coop	35	3	3
HN-N3	Ha Vi agriculture service cooperative	Coop	20	11.4	5
HN-N4	Cat Lai agriculture service cooperative	Coop	48	30	6
HN-N5	Trac Van agriculture service cooperative	Coop	40	23	5
HN-N6	Duc Huy service cooperative	Coop	12	5	5
HN-N7	Pham Hoang Hiep farmers group	FG	3	2.5	2.5
HN-N8	Tran Thi Lieu farmers group	FG	3	0.3	0.1
Hai Duong					
HD-N1	Tan Minh Duc agriculture service cooperative	Coop	168	27	27
HD-N2	Pham Kha agriculture service cooperative	Coop	200	25	25
HD-N3	Tam Ky agriculture service cooperative	Coop	28	25	25
HD-N4	Thanh Ha safe fruit and vegetable company	A Com	59	20	20
HD-N5	Duc Chinh Agriculture service cooperative	Coop	1,636	360	200
HD-N6	Green Farm Vegetable and fruit production company	A Com	2	1.8	1.8
Hung Yen					
HY-N1	Trung Nghia agriculture service and trading cooperative	Coop	62	10	10
HY-N2	Japan-Vietnam fruit and vegetable cooperative	A Com	5	1	1
HY-N3	Nguyen Thi Thanh safe vegetable production team	FG	8	0.7	0.7
HY-N4	Yen Phu agriculture service cooperative	Coop	197	15.5	15.5
HY-N5	Phu Thinh trading and safe vegetable cooperative	Coop	21	5	5

Remarks: Coop= Agriculture Cooperative, FG= Farmer group, A Com= Agriculture company

Source: JICA Project Team

3) Selection of target groups for 1st batch

The JICA Project team conducted baseline survey and collected information of each candidate. The result of baseline survey is summarized in 2.4.3 Baseline Survey. According to the selection criteria, 7 groups from 3 pilot provinces were identified as the promising target groups and approved on 1st JCC

meeting held on 17 April 2017. The evaluation procedure of candidate target groups and the details of selected target groups were shown in Attachment 2. The summary of selected target groups are shown in the table below. The number of members and size of safe production area at the time of 1st JCC meeting are listed below.

Table 2.4.3 Selected target groups for 1st Batch

No.	Group Name	Group Type*	Membership**	Safe Production area (ha)**
Ha Nam				
HN-N3	Ha Vi agriculture service cooperative	Coop	20	5
HN-N7	Pham Hoang Hiep farmers group	FG	3	2.5
Hai Duong				
HD-N1	Tan Minh Duc agriculture service cooperative	Coop	168	27
HD-N4	Thanh Ha safe fruit and vegetable company	A. Com	59	20
HD-N5	Duc Chinh Agriculture service cooperative	Coop	1,636	200
Hung Yen				
HY-N2	Japan-Vietnam fruit and vegetable cooperative	A. Com.	5	1
HY-N4	Yen Phu agriculture service cooperative	Coop	197	15.5
Total			2,088	271

Remarks: * Coop= Agriculture Cooperative, FG= Farmer group, A Com= Agriculture company

** Figures in the table are at the time of 1st JCC meeting.

Source: JICA Project Team

(2) Selection of target groups for 2nd batch

1) Confirmation of selection criteria for target groups

Same criteria were applied for the selection of target groups for 1st batch were applied for 2nd batch.

2) Nomination of candidate target groups for 2nd batch

The JICA Project team requested PPMUs of semi-pilot provinces to nominate the candidate target groups and requested PPMUs of pilot provinces to nominate the additional candidate target groups. PPMUs submitted the list of candidate target groups as shown in the table below.

Table 2.4.4 Nominated candidate target groups from semi-pilot provinces

No.	Group Name	Type	Member ship	Vegetable area	Safe area
Phu Tho					
PT-N1	Huong Nhon Agriculture Service Cooperative	Coop.	7	13.8	3.2
PT-N2	Văn Phú – Sai Nga craft village for safe vegetable growing	FG	199	12	12
PT-N3	Lô River Agriculture Cooperative	Coop.	43	3	3
PT-N4	Vegetable production service Cooperative in Tan Duc commune	Coop.	270	14	14
PT-N5	Agriculture Service Cooperative in Truong Thinh Ward	Coop.	19	24	12
Vinh Phuc					
VP-N1	Visa Safe Vegetable Cooperative	Coop.	8	5.23	5.23
VP-N2	Đại Lợi Safe Vegetable Cooperative	Coop.	14	10.1	10.1
VP-N3	An Hòa Agroproduct production and trading cooperative	Coop.	57	5.5	5.5
VP-N4	Thanh Hà Safe vegetable cooperative	Coop.	25	4.6	4.6
VP-N5	Vân Hội Xanh Safe vegetable cooperative	Coop.	27	10	10
VP-N6	Vĩnh Phúc Safe vegetable cooperative	Coop.	50	4.78	4.78
Thai Binh					

TB-N1	Đoàn Trường Vinh	Household	5	8.3	0
TB-N2	Quỳnh Hải Agricultural production and service cooperative	Coop.	7	200	8
TB-N3	Thanh Tân agricultural production and service cooperative	Coop.	7	180	6
TB-N4	Đức Nam Export – Import Company	A Com	3	3	0

Remarks: Coop= Agriculture Cooperative, FG= Farmer group, A Com= Agriculture company

Source: JICA Project Team

Table 2.4.5 Nominated additional candidate target groups from pilot provinces

No.	Group Name	Type	Member ship	Vegetable area	Safe area
Hai Duong					
HD-N1	Gia food joint stock Company	A Com	14	5.3	5.3
HD-N2	Green farm vegetables production group	A Com	17	5.1	5.1
HD-N3	Lua farmers group	FG	143	28.7	27.5
HD-N4	V-Phuc Green agriculture Cooperative	Coop.	14	10	0
HD-N5	Viet A Chau Cooperative	Coop.	28	13	0
Ha Nam					
HN-N1	Thanh Son Cooperative	Coop.	50	12	5
HN-N2	Cat Lai Cooperative	Coop.	30	47.25	4
HN-N3	Thanh Tan Cooperative	Coop.	6	12	1
Hung Yen					
HY-N1	Chien Thang Safe vegetable Cooperative	Coop.	27	5	5
HY-N2	Phu Cu New style cooperative	Coop.	16	5	5
HY-N3	TTM FARM Investment and Development Company	A Com	41	5	5

Remarks: Coop= Agriculture Cooperative, FG= Farmer group, A Com= Agriculture company

Source: JICA Project Team

3) Selection of target groups for 2nd batch

The JICA Project team conducted baseline survey and collected information of each candidate group. The result of baseline survey is summarized in 2.4.3 Baseline Survey. According to the selection criteria, 8 groups in 3 semi-pilot provinces and 6 groups from 3 pilot provinces were identified as the promising target groups and approved by Chairman of JCC on 6 September 2018. The evaluation procedure of candidate target groups and the details of selected target groups were shown in Attachment 3. The summary of selected target groups are shown in the tables below.

Table 2.4.6 Selected target groups for semi-pilot provinces

No.	Group Name	Group Type*	Member ship**	Vegetable area**	Safe area**
Phu Tho					
PT-N1	Huong Non Agriculture Service Cooperative	Coop	86	13.8	3.2
PT-N5	Truong Thinh Agriculture Service Cooperative	Coop	19	24	12
Vinh Phuc					
VP-N1	Visa Safe Vegetable Cooperative	Coop	300	21	21
VP-N2	Dai Loi Safe Vegetable Cooperative	Coop	60	25	10.1
VP-N6	Vinh Phuc Safe Vegetable Cooperative	Coop	50	35	4.78
Thai Binh					
TB-N2	Quynh Hai Agricultural Production and Service Cooperative	Coop	800	200	8

TB-N3	Thanh Tan Agricultural Production and Service Cooperative	Coop	20	180	6
Total			1,335	498.8	65.08

Remarks: * Coop= Agriculture Cooperative

** Figures in the table are at the time of minutes of meeting signed on 11 Sep. 2018.

Source: JICA Project Team

Table 2.4.7 Selected additional target groups for pilot provinces

No.	Group Name	Group Type*	Member ship**	Vegetable area**	Safe area**
Hai Duong					
HD-N1	Gia food joint stock Company	A Com	14	5.3	5.3
HD-N2	Green farm vegetables production group	A Com	17	5.1	5.1
HD-N3	Lua farmers group	FG	143	28.7	27.5
Ha Nam					
HN-N2	Cat Lai Cooperative	Coop	30	47.25	4
HN-N3	Thanh Tan Cooperative	Coop	6	12	1
Hung Yen					
HY-N1	Chien Thang Safe vegetable Cooperative	Coop	27	5	5
Total			237	103.35	47.9

Remarks: * Coop= Agriculture Cooperative, FG= Farmer group, A Com= Agriculture company

** Figures in the table are at the time of minutes of meeting signed on 11 Sep. 2018.

Source: JICA Project Team

(3) Summary of target groups in pilot and semi-pilot provinces

As the results of two times of target group selection, the following figures increased from 1st selection to 2nd selection:

- Target provinces : from 3 to 6 provinces
- Number of target groups : from 7 to 20 groups
- Total membership : from 2,088 to 3,568 members
- Vegetable area : from 437.4 to 1,041.6 ha
- Safe production area : from 271 to 421.1 ha

Summary of target groups for 1st batch is shown in Table 2.4.8 and cumulative summary of target groups for 1st and 2nd batch is shown in Table 2.4.9.

Table 2.4.8 Summary of target groups for 1st batch (since April 2017)

Province	No. of groups	Membership	Vegetable area	Safe area
Hai Duong	3	1,863	407	247
Ha Nam	2	23	13.9	7.5
Hung Yen	2	202	16.5	16.5
Total	7	2,088	437.4	271

Source: JICA Project Team

Table 2.4.9 Cumulative summary of target groups for 1st and 2nd batch (since September 2018)

Province	No. of groups	Membership	Vegetable area	Safe area
Hai Duong	6	2,037	446.1	284.9
Ha Nam	4	59	73.2	12.5
Hung Yen	3	229	23.5	23.5
Sub-Total (pilot provinces)	13	2,325	542.8	320.9

Phu Tho	2	105	37.8	15.2
Vinh Phuc	3	410	81	35.8
Thai Binh	2	820	380	14
Sub-Total (semi-pilot provinces)	7	1,335	498.8	65.1
Total	20	3,660	1,041.6	386

Source: JICA Project Team

2.4.3 Baseline Survey

(1) Baseline survey for 1st batch

1) Objective

The objectives of baseline survey was to understand the actual condition of crop production of candidate target groups and to fix the indicators and measuring method for Project Design Matrix (PDM).

2) Methodology

Baseline survey was conducted by two types of interviews: group interview for candidate target groups and individual interview with each farmer. For effective and efficient data collection, both interviews were conducted with questionnaire format and sufficient number of surveyors were recruited directly by JICA project team.

For group interview, 19 groups were selected based on the nominated list of candidate target groups: 8 groups from Ha Nam, 6 groups from Hai Duong, 5 groups from Hung Yen province. For the individual interview, 300 farmers were selected; 100 samples per province and 20 farmers per group.

Table 2.4.10 Outline of baseline survey for 1st batch

Item	Details
Objective	To understand the actual condition of crop production of candidate target groups To fix the indicators and measuring method for Project Design Matrix (PDM)
Method	Questionnaire and workshop
Surveyor	Local staff and surveyors recruited by JICA project team
Target	For group interview: 19 groups in 3 provinces For individual interview: 300 samples in 3 provinces (100 samples for each province, 20 samples for each group)
Schedule	November – December 2016
Survey Item	For group leaders 1) group outline (registration (Agricultural Cooperatives and company, etc.), name of representatives, number of members, the sex ratio and the activity contents of a group) 2) facilities (washing place, trash can and collection and distribution space) 3) agricultural production (cultivation crops, production area and production volume) 4) cultivation of safe crop (cultivation crops, production area and production volume of safe crop) 5) attendance on agricultural extension and training about safe crop (attendance record on BasicGAP and VietGAP trainings, attendance per gender) 6) joint purchase (record of joint purchase, purchased material, supplier name and the price) 7) joint sales (record of joint sales, name of crop sold, sale destination, distribution channel and selling price) For individual farmer 8) household information (number of people, engagement in farming, income sources, farmland area and the cultivation area) 9) farming situation (cultivation crop, planting record, selling price and sales income)

	<p>10) cultivation situation of safe crop (cultivation crop, planted acreage, selling price and sales income)</p> <p>11) input material (use situation, procurement source, name, purchase price and amount of consumption of seed, fertilizer and agricultural chemicals)</p> <p>12) agricultural extension (attendance of training, training contents, source of trainer, training record of safe crop production, BasicGAP and VietGAP)</p> <p>13) agricultural distribution and marketing (Sale destination and sale methods (sales on farm, joint sales, and own transport, etc.))</p> <p>14) acquisition method of market information</p> <p>15) agricultural financing (used financial institution and the present loan amount)</p> <p>16) women participation (roles of women in farming activity)</p> <p>17) ICT use (usage of smart phone and educational level of ICT)</p>
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Source: JICA Project Team

3) Survey Results

Survey result is summarized in Attachment 4, and the main topics regarding food safety are described below:

- Group size is rather big in old style cooperative (commune cooperative) compared with new style cooperative, agriculture company and farmers group.
- Average age of farmers is 52-54 years. Young generations are rare in field.
- Average agriculture land area per farmer is around 2,100 – 3,600 m².
- Vegetable cultivation area is more in Hai Duong (7,400 m²) than in others.
- Target groups cultivate leafy vegetables especially in winter, compared with fruit and root vegetables.
- Recording is not practiced well even in VietGAP groups. How to regularize such practices is one of major challenges.
- Safe vegetable is recognized as a valuable product in the market
- Participation of joint sales is low in Ha Nam and Hung Yen, because of low price, limited demand and coordination problems.
- As individual sales, farmers mainly sell to collectors.
- Farmers pay attentions to the buyers on regular trading, sales amount, quick payment, and keeping promise with conditions like price, amount, and quality.
- Farmers are not satisfied with the conditions of Joint Sales because of low price, limited demand, limited Information of buyer and spending time to coordination with buyer.
- Creation of new market channel is the challenge internally and externally
- Most of farmers have experiences to receive any kind of training.
- Most of trainings received focus on production side, marketing training is provided to limited farmers.
- Private companies are providing trainings actively in Hai Duong.
- 7-22% of farmers access to financial institutions, mainly agricultural bank and social policy bank.
- Smart phone holders in interviewees are limited (6-10%), spending VND 13,000 – 15,000 /month on average.

(2) Baseline Survey for 2nd batch

1) Objective

The objectives of baseline survey was to understand the actual condition of crop production of candidate target groups of 2nd batch.

2) Methodology

Baseline survey was conducted by group interview for candidate target groups. For effective and efficient data collection, both interviews were conducted with questionnaire format and sufficient number of surveyors were recruited directly by JICA project team.

For group interview, 15 groups were selected based on the nominated list of candidate target groups; 5 groups from Phu Tho, 6 groups from Vinh Phuc, and 4 groups from Thai Binh province.

Table 2.4.11 Outline of baseline survey for 2nd batch

Item	Details
Objective	To understand the actual condition of crop production of candidate target groups
Method	Questionnaire and workshop
Surveyor	Local staff and surveyors recruited by JICA project team
Target	For group interview: 15 groups in 3 semi-pilot provinces
Schedule	August 2017 – April 2018
Survey Item	For group leaders 1) group outline (registration (Agricultural Cooperatives and company, etc.), name of representatives, number of members, the sex ratio and the activity contents of a group) 2) facilities (washing place, trash can and collection and distribution space) 3) agricultural production (cultivation crops, production area and production volume) 4) cultivation of safe crop (cultivation crops, production area and production volume of safe crop) 5) attendance on agricultural extension and training about safe crop (attendance record on BasicGAP and VietGAP trainings, attendance per gender) 6) joint purchase (record of joint purchase, purchased material, supplier name and the price) 7) joint sales (record of joint sales, name of crop sold, sale destination, distribution channel and selling price)

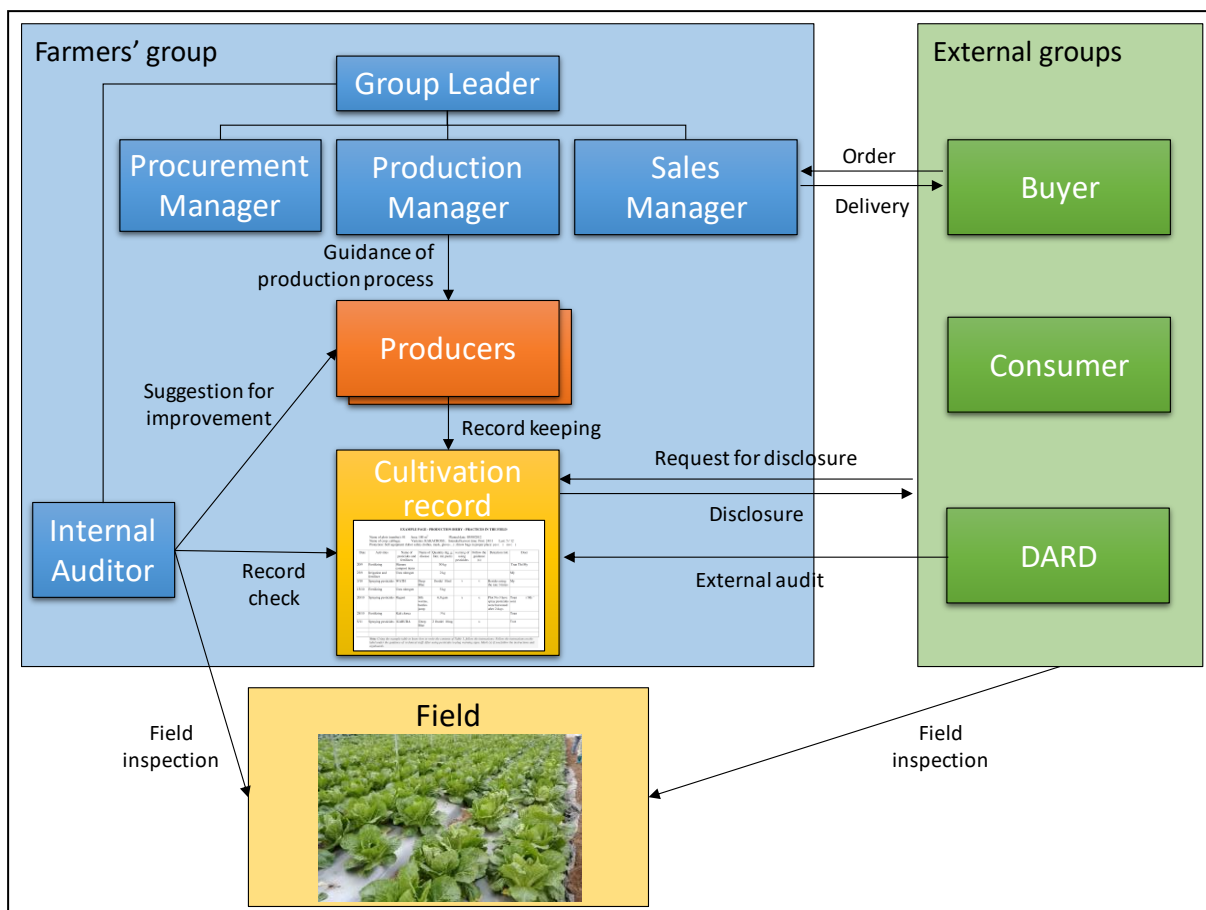
Source: JICA Project Team

Survey result is summarized in Attachment 4.

2.5 Design of “Crop Production System”

2.5.1 Basic Concept

Crop production system to be introduced in the project is the system to secure the safety of crop production. The system should be sustainably used continuously by both producers and government officers even after completion of the trial activity. Therefore, the JICA project team proposes to introduce the crop production system with focus on two points; 1) for producers, the system should be easy to use and be able to realize the benefits, and 2) the roles of government officers should be clear and feasible to execute. The conceptual image of crop production system is shown in the figure below.



Source: JICA Project Team

Figure 2.5.1 Conceptual Image of Crop Production System

(1) Crop Production System for Producers

Crop production system for producers consists of two components; “BasicGAP-based production” and “Cultivation method for safe vegetables”. Those components assist producers to realize benefit through BasicGAP.

1) BasicGAP-based Production

Good Agriculture Practice-GAP is defined as the method of process management of whole agricultural production procedures by continuous improvement activities of exact implementation, recording, inspection and evaluation according to the related safety standards and regulations. BasicGAP is the appropriate technical criteria for safe vegetable production, and it fits with the general condition of Vietnamese farmers since it does not require for farmers to apply powerful and advanced criteria with high certification cost such as VietGAP. Therefore, the JICA project team basically applies BasicGAP as the technical criteria for this project and utilizes BasicGAP manual developed by the previous JICA project “The project for strengthening the capacities for the field of management of Vietnam’s crop production sector for improving the productivity and quality of crop’s products”.

For introduction of BasicGAP, it is necessary to introduce the importance and procedures of BasicGAP to producers simply and easily. Therefore, the JICA project team prepares the “Quick guidance for BasicGAP” based on the existing documents. The guidance complements the existing

manual by telling the importance and benefits of BasicGAP application such as improvement of farm economy and pricing of safe vegetables compared with normal ones.

2) Cultivation method for safe vegetables

It is difficult practically to sell safe vegetables in higher prices than normal ones by just applying BasicGAP. It is important to apply practical cultivation methods according to the cropping pattern of each crop. It is said that there are more than 40 kinds of vegetables in and around Hanoi city, best cultivation timing and cultivation methods differ among those vegetables. Even for each vegetable, the cultivation methods depend on variety, soil, climate and etc. Therefore, the JICA project team prepares a guidance book for cultivation method per each target crop. The guidance assists not only to prepare cropping pattern but also to calculate necessary amount of fertilizer and agro chemicals according to each crop's requirement.

(2) Crop Production System for Government Officers

Expected roles of government officers in safe vegetables are as follows:

- Confirmation of safety of production area
 - Soil and water analysis according to government safety standard
- Regular visit to producers' group to monitor and guide in:
 - Plan: Confirmation of check list (26 items) among group members
 - Do: Cultivation based on the requirements of BasicGAP
 - Record: Recording on work diary and management book
 - Check and Evaluation: Self check and evaluation by group members
- Inspection of products
 - Pesticide residue inspection (sampling inspection)

The JICA project team prepares "Manual for establishment of crop production system" in order to assist implementation of trial activities. The manual is updated as the roles of government officers and is verified through trial activities.

(3) Monitoring and Evaluation

The objective of monitoring and evaluation is to verify the efficiency of crop production system through trial activity. CPMU and PPMU with support of JICA project team monitors and evaluate the trial activities of both producers and government officers. On evaluation, overall activities are reviewed to update manual for establishment of crop production system.

(4) Cultivation Planning based on Market Requirement

The following system is introduced on the above crop production system in order for producer groups to upgrade the activities. The timing and target groups to introduce the system is carefully assessed according to the progress of group activities, technical level of farmers and etc.

Cultivation planning is very essential to do cooperative purchase and cooperative sales per producers' group. The producers' group can purchase necessary agriculture inputs jointly if the group prepares a cultivation plan. The group also can sell the products jointly with lowering the transportation cost. The cooperative sales realize to make a contract with bigger buyers such as supermarket.

The JICA project team prepares “the guidance for cultivation planning” to assist the group how to make plan of cultivation in a group. The guidance and consist of the objectives, points and procedure of planning with planning sheets to fill in, the contents should be simple in order for producers to refer easily.

2.5.2 Detailed Procedure of Crop Production System

JICA Project team designed the detailed procedure of crop production system as below, based on the basic concept described in 2.5.1.

(1) Confirmation of the safety of production area

In the below cases, soil and water sampling tests shall be carried out to confirm the safety of the area.

- The certificate of safe production area has been expired or to be expired during the project period.
- The production area is not certified yet as the safe production area.
- The production area is extended as the new project site.
- Changing in irrigation water sources and any polluted contamination risk are observed.
- An inspection conducted by DARD and/or any relevant institution reports a suspicion of heavy metal residue from the sample products produced at the project site.

Soil and water tests shall be exercised according to the following procedures.

- PPMU appoints a collector of soil and water samples. It is recommended the collector shall be nominated from the authorized department from DARD, such as sub-NAFIQAD.
- The inspector shall collect samples and sends them to a qualified laboratory for testing of heavy metals (As, Cu, Pb, Cd, Zn) on soil and heavy metals (Hg, As, Cd, Pb,) and E. coli on irrigation water.
- The inspector shall prepare a sampling equipment correctly and follow the procedure according to the guidance from MARD to ensure a sampling error is minimized.
- DARD shall issue the certificate when the safety of the sampling area is confirmed.

(2) Training for Basic GAP

There are three types of training shall be provided for Basic GAP application.

- TOT (Training Of Trainers) on Basic GAP
- TOF (Training Of Farmers) on Basic GAP
- Post-harvest training

1) TOT (Training Of Trainers) on Basic GAP

TOT training on basic GAP shall be organized and conducted by JICA Project team with assistance of CPMU. The expected participants are the technical staff of PPMU members and the representatives of target groups.

(i) Objective

To provide PPMU technical staffs and managers of target groups with necessary knowledge of Basic GAP, skills, tools and expertise in order for them to be capable of planning and delivering of TOF training.

(ii) Target participants

The expected participants are the technical staff of PPMU members (e.g. Provincial and District extension officers) and the group leader and technical inspectors (internal auditor) of the target groups. Expected number of participants is 20 persons/class in each province.

(iii) Training schedules

Trainings are expected to be conducted in April - May 2017 tentatively. One training course consists of 2 days program, including lecture of Basic GAP knowledge as well as field visit.

In addition, a follow-up course is planned in June 2018.

(iv) Trainers are GAP and technical experts with assistance of JICA Project Team

2) TOF (Training Of Farmers) on Basic GAP

TOF training on basic GAP shall be organized and conducted by PPMU members who participate into TOT training as the trainers with assistance of JICA Project team. PPMU applies Basic GAP as the technical procedures for the project and utilizes the “Basic GAP manual” developed by the previous JICA project.

(i) Objective

To enable participants to be aware of necessity of corrective action to keep safety and reliability of vegetable production according to the basic GAP.

To enable participants to understand and implement the procedures of production and post-harvesting according to the requirement of basic GAP in order to produce vegetables with satisfaction of hygienic and safe requirements.

(ii) Target participants

The expected participants are the group leader, technical inspector(s) and farmers participating in production, harvest and handling of vegetables. Expected number of participants are 20 – 25 persons/class.

(iii) Training schedules

Trainings are expected to be conducted in April - May 2017 tentatively. One training course consists of 2 half-day program.

In addition, a follow-up course is planned in June 2018.

(iv) Trainers are PPMU technical staffs who participate into TOT training with assistance of JICA Project Team

3) Post Harvest Training

Training on good post harvest handling practice/ hygiene condition on packaging and transportation for farmers, workers who work at vegetable packing place, selling points. The training contents focus on some crucial steps of post harvest such as water used for washing vegetables and hygiene assurance of working conditions in packing house.

(i) Objective

To enable participants (the persons involved in post harvest handling activities) to understand and implement post harvest handling properly to ensure food safety.

(ii) Target participants

The expected participants are the owner of handling house and the workers who are directly involved in vegetable handling. Expected number of participants are 20 – 25 persons/class

(iii) Training schedules:

Training is expected to be conducted in September 2017 tentatively. One training course is a half- day in each province.

In addition, a follow-up course is planned in September 2018.

(iv) Trainers are technical experts with assistance of JICA Project Team

(3) Cultivation Planning based on Market Demand

1) Formation of safe vegetable production group

The target group shall setup a safe vegetable production group with assistance of JICA project team and PPMU. Number of participant farmers for the safe vegetable production is expected around 20 farmers as one unit for effective group management. Number of units shall be increased as number of participated farmers increases. Selected farmers shall be registered as the member of safe production groups with information of address, farm land size.

2) Preparation of production and harvesting planning

Based on market demand acquired through discussion with potential buyers, target group shall prepare production plan with assistance of JICA project team and PPMU. Production plan consists of target crop name, production area, number of farmers, sowing time, harvesting time with estimated volume of harvest, and expected buyers.

(4) Cultivation Method for Safe Vegetables

1) Installation of pilot farm

The purpose of pilot farm is to demonstrate the cultivation method for safe vegetable production introduced by JICA project team. Each target group shall select one person in charge of cultivation and install one pilot farm to demonstrate cultivation method. The unit size of pilot farm shall be 360 m² (1 sao). The farmer in charge of pilot farm shall cultivate under technical assistance from JICA project team.

2) Contents of cultivation method

The contents of cultivation method for safe vegetable production introduced by JICA project team are as below.

- Introduction of soil improvement methods
 - Composting method
 - Soil sterilization method
- Introduction of new variety seeds
 - Heat tolerance variety
 - Disease tolerance variety
 - Marketable quality variety
- Introduction of new seedling methods
 - Introduction of seedling with sponge tray
 - Introduction of grafting method

- Introduction of new agricultural materials
 - Introduction of functional mulch sheet
 - Introduction of non-woven textile

Those above items were identified through field assessment by vegetable production expert as the most crucial methodologies to improve safe vegetable production.

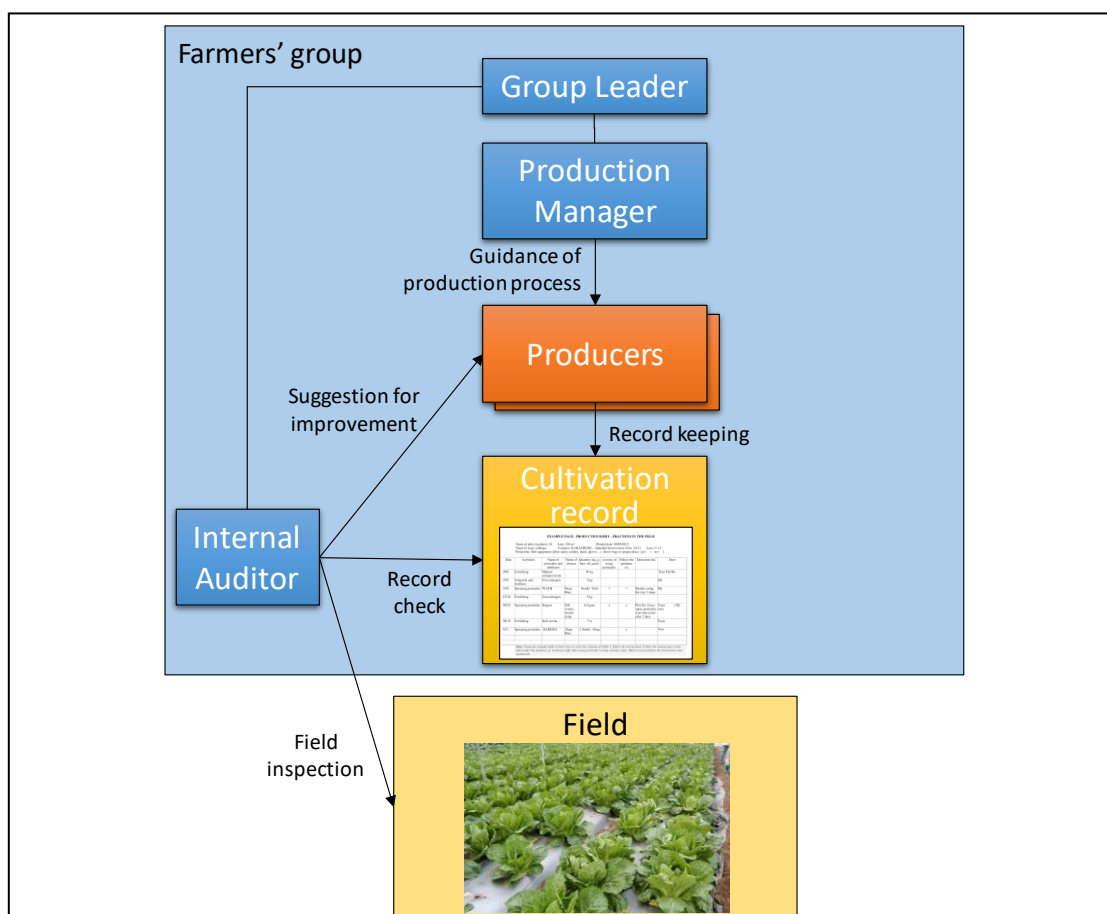
3) Evaluation of cultivation method

At the end of season, target group shall organize an evaluation meeting to evaluate the results and discuss solutions. JICA project team shall assist the group to prepare production plan for next season according to the results of the meeting.

(5) On-field instructions applying Basic GAP

1) Establishment of Internal Quality Management System

JICA Project team and PPMU assist target groups in establishment of Internal Quality Management System applying Basic GAP. Internal Quality Management System is the internal structure to ensure the safety of agricultural products produced by target groups in accordance with Basic GAP and the structure is shown in the figure below.



Source: JICA Project Team

Figure 2.5.2 Internal Quality Management System

Internal Quality Management System is maintained by the following three members, who are appointed with guidance of PPMU and JICA Project team.

- Group leader/ Head of Internal quality management
- Production Manager(s)
- Internal Auditor(s)

2) On field instruction applying basic GAP

The internal auditor together with production manager who receive TOF training shall instruct farmers how to maintain record and how to apply basic GAP focusing on some crucial steps on cultivation, harvest and post harvest based on the checklist (26 items). The production manager(s) assists farmers for self-check of their own practices and guide correct actions.

PPMU's technical officer in charge visits target group regularly to check the record keeping and field practice in accordance with Basic GAP, and provide technical advice to internal auditor, production manager and farmers in case of any detection or error on practice.

3) Internal monitoring of farmers' activities

Internal meeting should be regularly organized once a month with participation of production manager, internal auditor, member farmers and PPMU technical officer to share experiences and give guidance of application of basic GAP.

4) Internal audit

Internal audit shall be conducted twice a year using internal audit sheet.

(6) Upgrading Conditions to Ensure Food Hygiene and Safety

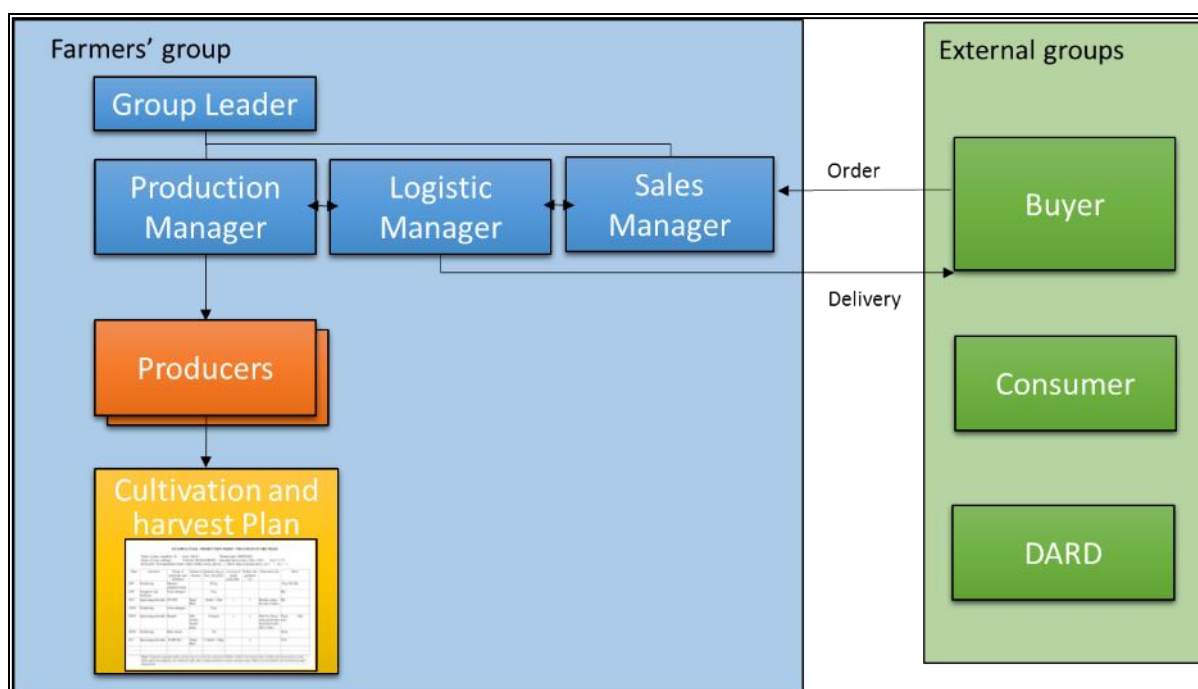
With consideration of market requirement, JICA Project team and PPMU conduct a technical assessment to upgrade the conditions to ensure food hygiene and safety in production area, pre-processing place and outlets. JICA Project team and PPMU develop an upgrading plan and draft a list of necessary equipment and materials with budget estimate.

JICA Project team and PPMU also supervise the installation and operation in line with the upgrading plan. PPMU shall evaluate the usage of the installed facilities and the improvement of the condition compared with the previous conditions in terms of food hygiene and safety.

(7) Post harvest and distribution

PPMU with help of JICA project team assists in implementation of collection and delivery trial activities of target groups.

Each target group assign a logistic manager and a sales manager. The sales manager is responsible for marketing, all the communication with buyers including claims and settling payment with buyers. The logistic manager is responsible all the internal preparation for collection and delivery including adjustment of harvest, checking products if they satisfy the buyer's criteria, preprocessing, arranging logistic and ensuring no mixing happening in the consignment.



Source: JICA Project Team

Figure 2.5.2 Implementation structure for collection and delivery activities

The target group is expected to record collecting products and payment using the format instructed by JICA project team. PPMU officer checks the record book when crops are collected and delivered by following the pre-agreed standard. PPMU collects information of each product volume and sales amount and report in monitoring report.

(8) External Inspection and Auditing

1) Pesticide residue check

Pesticide residue check is essential to monitor safety of the products at the time of harvesting and/or delivery to the buyers. JICA Project team propose dual approaches of pesticide residue check: (i) quick sampling test and (ii) laboratory test, in consideration of accuracy of the test as well as cost efficiency.

(i) Quick Sampling Test

Quick sampling test shall be conducted by PPMU inspector (representatively a staff from sub NAFIQAD) by using a quick tool kit in order to measure the pesticide residue of sample products on farm. The results of the quick tests shall be shared among target groups, PPMU and JICA Project team for auditing purpose only and shall not be disclosed to the public.

(ii) Laboratory Test

Laboratory test shall be arranged by PPMU inspector together with JICA Project team. PPMU inspector collects samples and send them to a qualified laboratory for testing heavy metals, pesticides residues and microbiological respectively if necessary. The results of laboratory test shall be disclosed to the public and utilized for marketing purpose as the evidence of safety of products.

2) External audit

At the end of cultivation season, PPMU with assistance of JICA Project team shall assess the implementation of the trial activities in line with Basic GAP by using the checklist of Basic GAP. A respective staff who are trained on monitoring and inspection shall be appointed by PPMU to conduct the assessment. An audit report shall be prepared and submitted to PPMU and JICA Project team after the audit.

2.5.3 Approval of crop production system

Crop production system was approved on the first JCC meeting held on 17th April 2017, as one of components in the pilot project implementation plan which was combined with marketing activities described in Section 2.9 and 2.10.

2.6 Implementation of Trial Activities

2.6.1 Basic Concept of trial activities

(1) Objective of implementation of trial activities

The objective of implementation of trial activities is to ensure the good responsiveness and application of basic GAP, cultivation techniques and supply chain development in the context of Northern Vietnam. Application of the basic GAP with introduction of cultivation techniques is expected as an effective way to reduce the microbiological and chemical contamination of vegetables requiring government regulations and to supply consumers with safe and quality products according to market requirement. Each trial activity covers not only production but also whole value chain from producers to consumers.

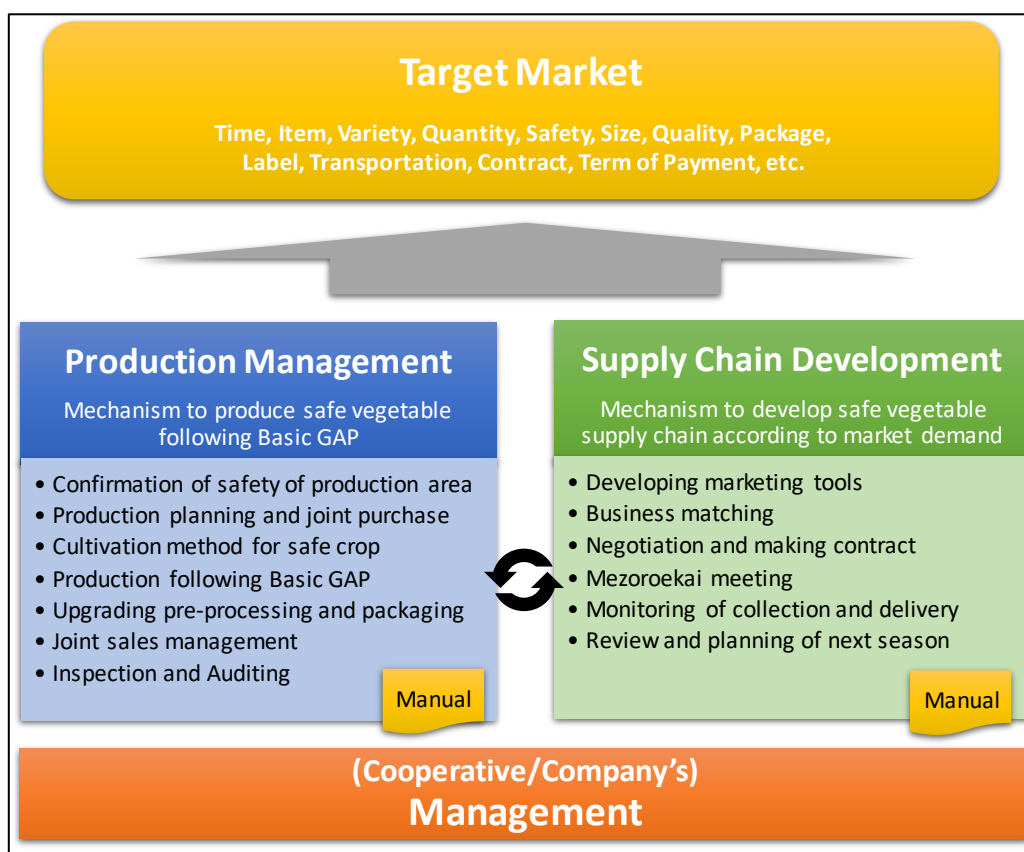
To exercise safe crop production and distribution in accordance with Good Agricultural Practices (basic GAP/ VietGAP), small-scale trial activities in pilot provinces shall be implemented with selected target producers' groups. The detailed objectives are listed below:

- Introduce, monitor and evaluate application and efficiency of basic GAP and/or VietGAP for respect of procedures.
- Support improved agricultural practices and technology for safe fresh vegetable products.
- Enable supply chains for safe vegetables (basic GAP, certified VietGAP) by implementing and monitoring Good harvesting and post harvest handling practices.
- Monitor and evaluate the quality and safety of targeted products in different steps of production and distribution channels.
- Build the capacity of individuals, group and relevant government organizations to acquire different skills in development, experimentation, follow-up and support of GAPs.
- Assure economic return to producers.

(2) Trial Activity Structure

The trial activity consists of two parts; production management and supply chain development. Production management is the mechanism to produce safe vegetable following Basic GAP. Supply

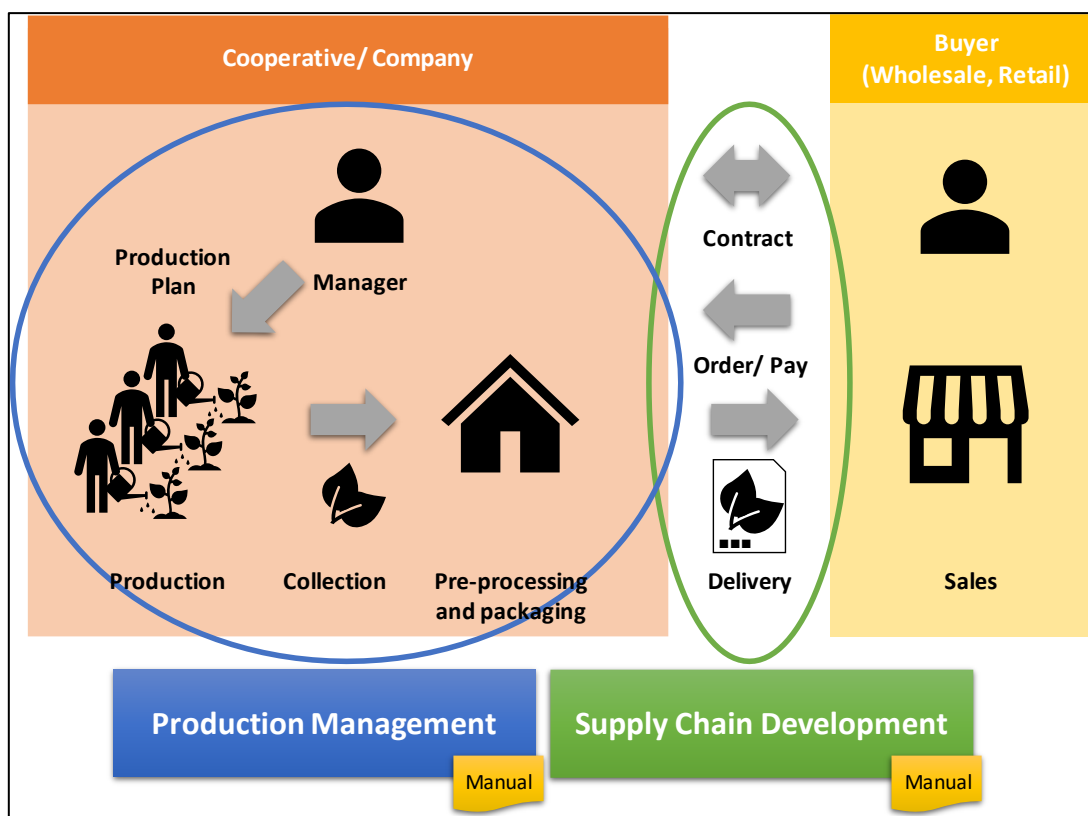
chain development (marketing) is the mechanism to develop safe vegetable supply chain according to market demand. Both components closely link each other. For example, market demand captured in supply chain development component is reflected to production planning in production management. Target market or buyer's demands, such as time, item, variety, quantity, safety, size, etc. are achieved by these two components with cooperative/company's management. Trial activity structure is shown in the figure below.



Source: JICA Project team

Figure 2.6.1 Conceptual image of trial activity structure-1

The two components of trial activity; production management and supply chain development (marketing) are also explained as shown in the figure below.



Source: JICA Project team

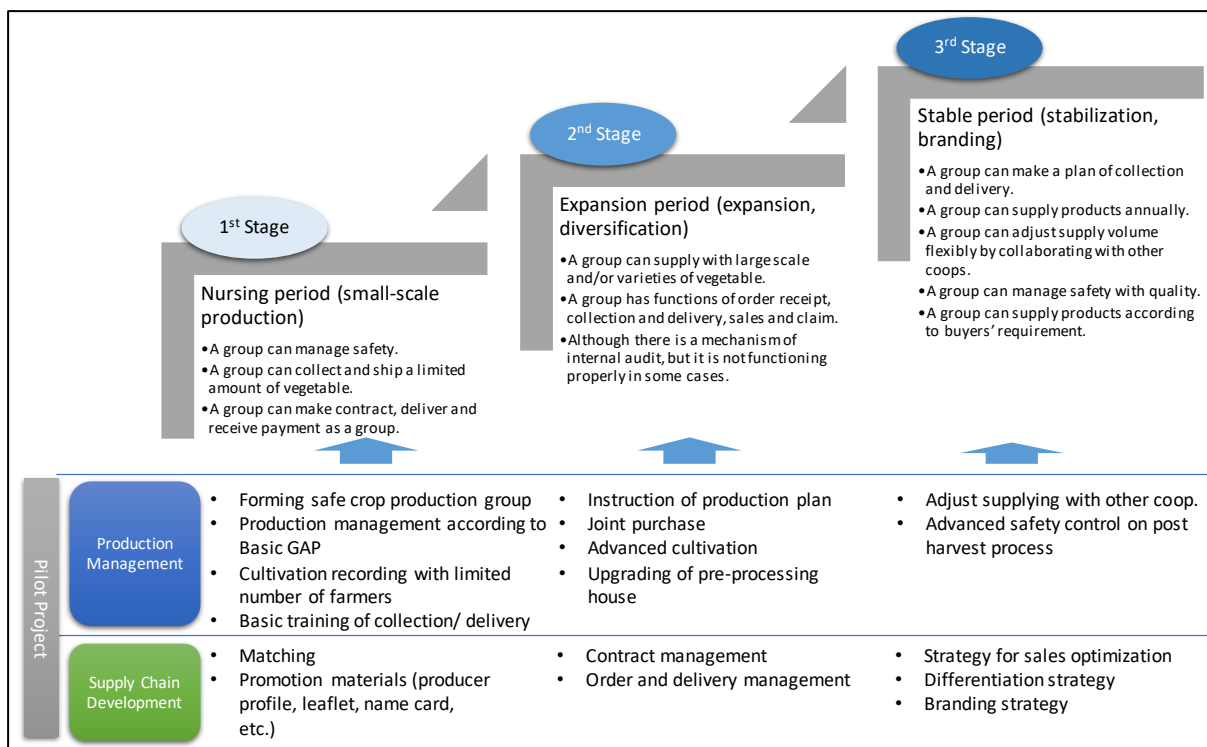
Figure 2.6.2 Conceptual image of trial activity structure-2

- Production management (crop production system) focuses mainly on internal activities of cooperative/ company.
- Supply chain management (marketing, and collection and delivery) focuses mainly on external activities between cooperative/ company and buyer.

Production management mainly covers internal activities of cooperative/ company, such as production planning, production according to Basic GAP, collection, pre-processing and packaging. Supply chain management, in turn, covers external activities between cooperative/ company and buyer, such as contract, order, delivery and payment. Production management and supply chain development are not workable independently from each other, but both are closely linked with each other. For example, production plan is prepared based on the demand from buyers, and safe vegetables are produced according to production management and supplied to buyers.

(3) Stage-wise Approach

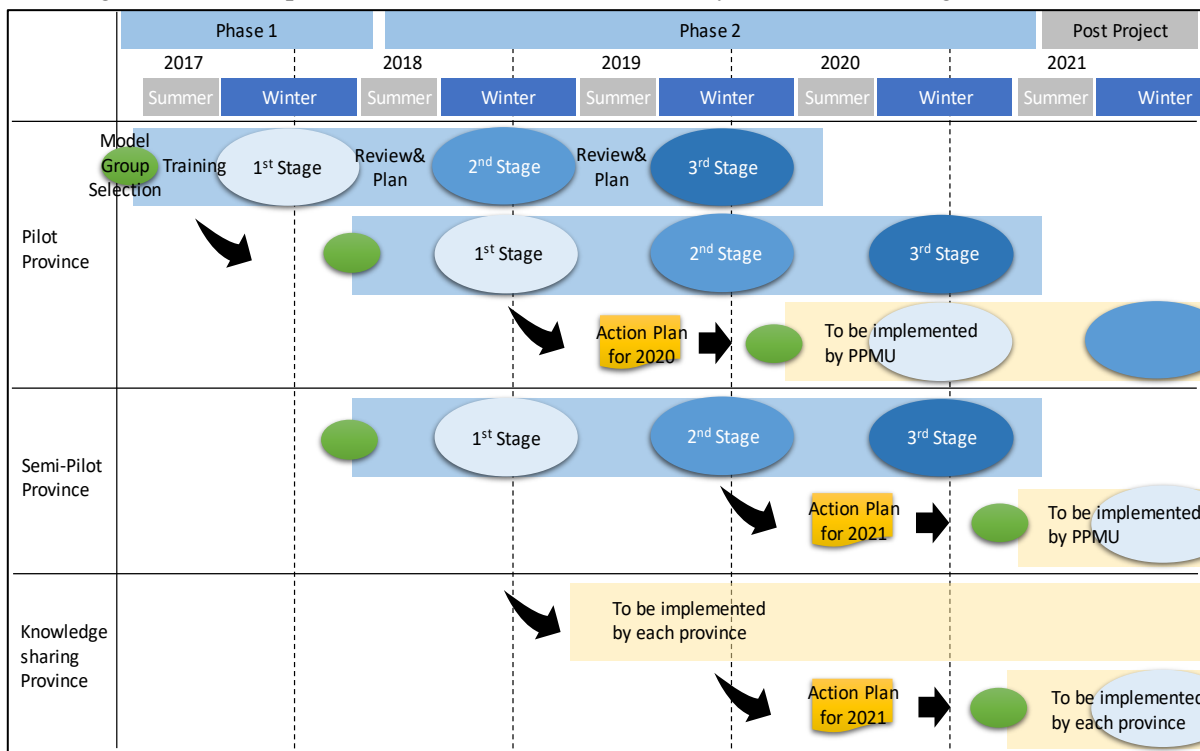
Each target group shall be developed in three years by stage-wise approach. Initially, the trial activity starts with a small-scale production and sales, then gradually expand the scale, stabilize and diversify the production. If a group already meets 1st Stage requirements, it can also be started from 2nd Stage according to the capacity of the group.



Source: JICA Project team

Figure 2.6.3 Stage-wise Approach on Trial Activity

The image of overall implementation schedule of trial activity is shown in the figure below.



Source: JICA Project team

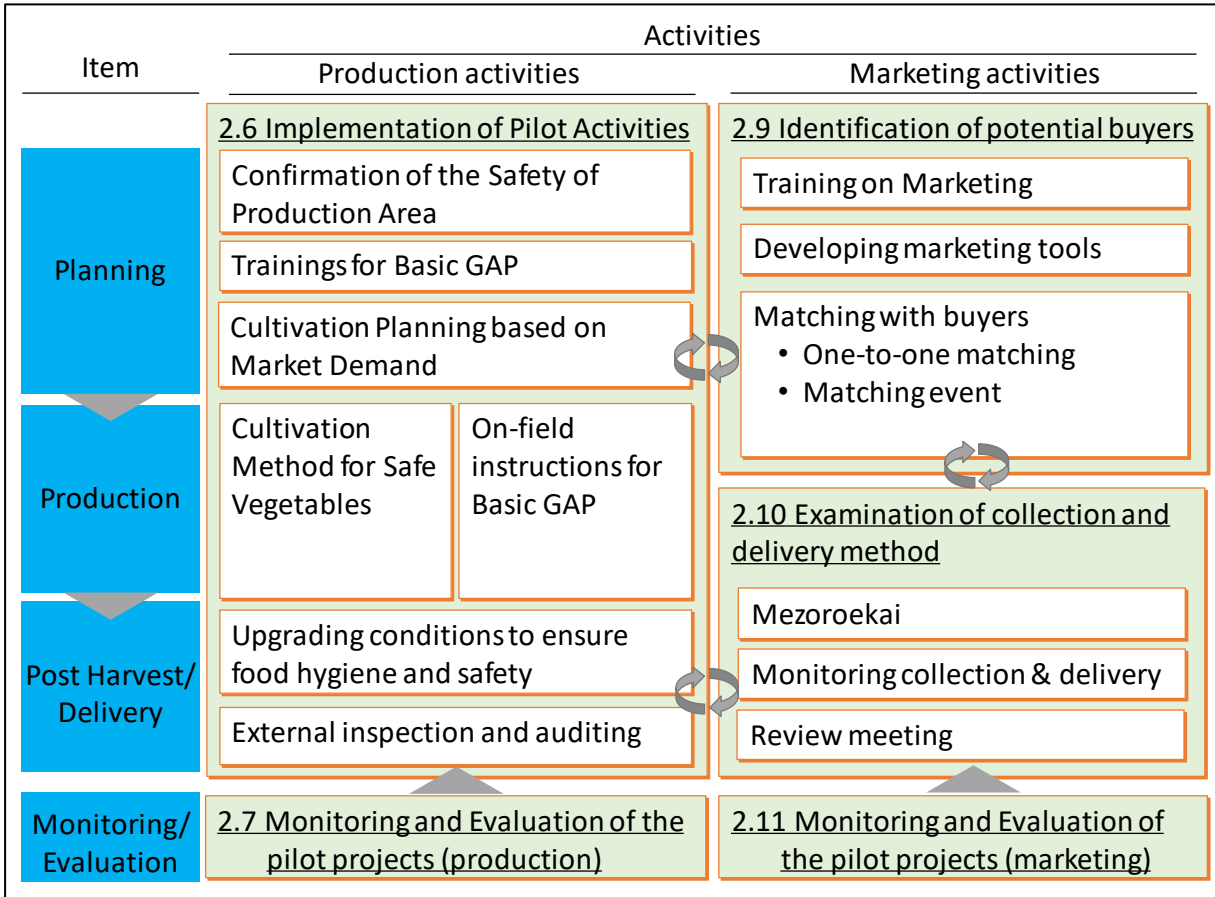
Figure 2.6.4 Flow Chart of Trial Activity Implementation

Each PPMU of pilot provinces and semi-pilot provinces is expected to carry out the trial activity. In phase 1 (from April 2017 to September 2018), initial 7 target groups were selected in 3 pilot provinces and trial activity was implemented for 7 groups intensively. In phase 2 started since October 2018, trial activity was expanded from initial 7 groups to 20 groups including 6 additional target groups in 3 pilot provinces and 7 new target groups in 3 semi-pilot provinces.

Each PPMU of pilot provinces and semi-pilot provinces is expected to prepare the Action Plan based on the experience of trial activities. The objective of the Action Plan is to continue the project approach developed in this project even after project termination. The Action Plan shall be prepared by PPMU referring the manuals of production management system and supply chain development developed through trial activity implementation. The Action Plan consists of contents, implementation structure, schedule and budget estimate and PPMU is required to secure necessary personnel and budget according to the Action Plan.

(4) Detailed contents of trial activity

The detailed contents of trial activity are shown in the figure below.



Remarks: Numbers from 2.6 to 2.11 reflects the number of sections in this report.
Source: JICA Project team

Figure 2.6.5 Detailed contents of trial activity

Trial activity of production is implemented jointly with marketing activities. Therefore, the following sections including this section are linked each other.

- Production activity
 - 2.6 Implementation of trial activities
 - 2.7 Monitoring and Evaluation of the trial activities (production)
- Marketing activity
 - 2.9 Identification of potential buyers
 - 2.10 Examination of collection and delivery method
 - 2.11 Monitoring and Evaluation of the trial activities (marketing)

(5) Responsibility of stakeholders in trial activity

1) DARD/PPMU

DARD establishes PPMU to conduct trial activities for safe vegetables at provincial level, including providing technical officers of suitable professions for the production, inspection and monitoring of food safety. PPMU dispatches a production staff for each target group, who takes responsible for implementing field activities, giving instructions and monitoring activities of target group.

2) JICA Project Team

JICA project team provides technical supports to PPMU staff and target groups by technical trainings of Basic GAP and marketing, field instruction on cultivation method and on food safety inspection and monitoring. JICA project team also assists PPMU staff to implement TOF training, field instruction to farmers, assessment of harvesting and post-harvest conditions and sampling test for pesticide residue.

3) Target group

Target group is responsible for instruction of farmers to practice Basic GAP, preparation of production plan, monitoring of field record by farmers, maintaining records of collection and joint sales, carrying out of internal meeting and audit.

4) Members of safe crop production group

Member farmers are responsible for participating of trial activities, practice of Basic GAP in compliance with requirement.

5) Buyers participating into the trial activity

Buyers are responsible for participation of activities held in the trial activity, ensuring safe vegetable trades with keeping traceability, collaboration with relevant stakeholders to carry out the trial activities and provision of relevant information on safe vegetables.

(6) Detailed schedule of trial activity

Detailed schedule of trial activity for phase 1 is shown in figure 2.6.6.

Project Work Completion Report

No.	Activity	Organizer	2017												2018									
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
			Winter			Spring-Summer						Winter			Spring-Summer						Winter			
1	Selection of Target Groups																							
1-1	Selection of target groups	JICA Project team																						
2	Confirmation of the safety of production area																							
2-1	Review of the safety of production area	PPMU, JICA Project team																						
2-2	Soil and water testing (when necessary)	PPMU, JICA Project team																						
2-3	Issue of certificate of safe production area by DARD	PPMU																						
3	Trainings for basic GAP																							
3-1	TOT for basic GAP	CPMU, JICA Project team																						
3-2	TOF for basic GAP	PPMU, JICA Project team																						
3-3	Training for post harvesting	PPMU, JICA Project team																						
4	Dialogue with Market																							
4-1	Preparation of marketing tools (Producer & buyer profiles)	JICA Project team																						
4-2	Confirmation of Initial Interest of Potential Buyers	CPMU, JICA Project team																						
4-3	TOT for Marketing	PPMU, JICA Project team																						
4-4	TOF for Marketing strategy development	PPMU, JICA Project team																						
4-5	Producer & Buyer Dialogue	PPMU, JICA Project team																						
4-6	Making agreement	PPMU, JICA Project team																						
5	Cultivation Planning based on Market Demand																							
5-1	Set-up a "Safe Crop Production Group"	Farmers group																						
5-2	Preparation of production and shipping planning	Farmers group																						
5-3	Preparation of cultivation calendar	JICA Project team																						
5-4	Procurement of materials	Farmers group																						
6	Cultivation method for Safe Vegetable																							
6-1	Installation of pilot farm	JICA Project team																						
6-2	Production of safety crops	JICA Project team																						
6-3	Evaluation of Production Activity	JICA Project team																						
7	On field instruction for basic GAP application																							
7-1	Establishment of internal quality management unit	Farmers group																						
7-2	Instruction of application of basic GAP	PPMU																						
7-3	Internal meeting	Farmers group																						
7-4	Internal audit and evaluation	Farmers group, PPMU																						
8	Upgrading conditions to ensure food hygiene and safety																							
8-1	Technical assessment for upgrading conditions	PPMU, JICA Project team																						
8-2	Draft a list of necessary equipments and materials	PPMU, JICA Project team																						
8-3	Preparation of equipments and materials	PPMU, JICA Project team																						
9	Post Harvest and Distribution																							
9-1	Establishment of Stakeholder meeting	PPMU, JICA Project team																						
9-2	TOF for collection and delivery activity planning	PPMU, JICA Project team																						
9-3	Pre Processing (washing, sorting, packing)	Farmers group																						
9-4	Shipping (mode of transport, form of packaging)	Farmers group																						
9-5	Handling complaints	Farmers group																						
9-6	Review of supply chain and feedback	PPMU, JICA Project team																						
10	External inspection and auditing																							
10-1	Designing of external audit and sampling testing plan	JICA Project team																						
10-2	External audit (by Gov. officer and JICA Project team)	PPMU, JICA Project team																						
10-3	Preparation of audit report	PPMU																						
10-4	Pesticide residue check (quick test)	PPMU																						
10-5	Pesticide residue check (laboratory test)	PPMU, JICA Project team																						
11	Monitoring and Evaluation																							
11-1	Preparation of monitoring and evaluation plan	JICA Project team																						
11-2	Monitoring	PPMU																						
11-3	Evaluation	CPMU																						
-	Project Management																							
	Update of Monitoring Sheet	CPMU, PPMU																						
	JCC meeting	CPMU																						

Source: JICA Project team

Figure 2.6.6 Detailed schedule for Phase 1 (April 2017 to September 2018)

In phase 1, both production and marketing activities were combined in one schedule table since both were closely linked. However, the schedule table for the extended period of phase 1 were divided separately as the schedule in phase 1 was complicated for monitoring purpose. Detailed schedule of trial activity for the extended period of phase 1 is shown in figure 2.6.7.

Project for Improvement of Reliability of Safe Crop Production in the Northern Region

No.	Activity	Implementation by	Support by	2018					2019																
				Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May										
Dissemination works to 6 Knowledge Sharing City/Provinces																									
0 Preparation of dissemination works to 6 Knowledge Sharing City/Provinces																									
0-1	To organize workshops/meetings on dissemination*	CPMU	JICA Project team																						
0-2	To evaluate and select 1 City/Province**	CPMU	JICA Project team																						
0-3	To submit basic information of selected city/province	K/S city/prov.	CPMU																						
0-4	To prepare a pilot implementation plan	K/S city/prov.	CPMU																						
1 Selection of Target Groups in the Selected City/Province																									
1-1	Nomination of candidate target groups	PPMU	JICA Project team																						
1-2	Implementation of baseline survey	PPMU	JICA Project team																						
1-3	Selection and Confirmation of 1 target group	PPMU	JICA Project team																						
* The workshop/meeting aims for dissemination of project activities to 6 Knowledge Sharing City/Provinces																									
** The selected city/province should be able to organize PPMU and pilot activity by their own budget																									
Safe Crop Production Management System																									
2 Confirmation of safety of production area																									
2-1	Review of the safety of production area	PPMU	JICA Project team																						
2-2	Soil and water sampling and testing	PPMU	JICA Project team																						
2-3	Issue of certificate of safe production area by DARD	PPMU	JICA Project team																						
3 Trainings for basic GAP																									
3-1	TOT for basic GAP	JICA Project team	PPMU																						
3-2	TOT for cultivation method	JICA Project team	PPMU																						
3-3	TOF for basic GAP	PPMU	JICA Project team																						
3-4	Post harvest training	JICA Project team	PPMU																						
3-5	Technical assessment for safety conditions	PPMU	JICA Project team																						
3-6	TOT Follow-up training	JICA Project team	PPMU																						
3-7	Study tour to advanced model	JICA Project team	PPMU																						
3-8	Exposure visit among target groups	JICA Project team	PPMU																						
4 Formulation of safe crop production group																									
4-1	Nomination of management board members	PPMU	JICA Project team																						
4-2	Confirmation of agreement among group members	PPMU	JICA Project team																						
4-3	Formulation of Safe Crop Production Group	PPMU	JICA Project team																						
5 Cultivation Planning based on Market Demand																									
5-1	Preparation of production planning	PPMU	JICA Project team																						
5-2	Procurement of materials (joint purchase)	PPMU	JICA Project team																						
6 Cultivation method for Safe Vegetable																									
6-1	Planning of demonstration farm	JICA Project team	PPMU																						
6-2	Implementation of demonstration	JICA Project team	PPMU																						
	Soil improvement by compost	JICA Project team	PPMU																						
	Introduction of new variety seeds	JICA Project team	PPMU																						
	Seedling improvement	JICA Project team	PPMU																						
	New agriculture materials (non-woven fabric, etc.)	JICA Project team	PPMU																						
6-3	Field visit on demonstration farm	JICA Project team	PPMU																						
7 On field instruction for basic GAP application																									
7-1	Field instruction of application of basic GAP	PPMU	JICA Project team																						
	Instruction on record keeping	PPMU	JICA Project team																						
	Instruction on chemical application, etc.	PPMU	JICA Project team																						
7-2	Internal meeting	PPMU	JICA Project team																						
7-3	Internal audit	PPMU	JICA Project team																						
8 Upgrading conditions to ensure food hygiene and safety																									
8-1	Technical assessment for upgrading conditions	PPMU	JICA Project team																						
8-2	Draft a list of necessary equipment and materials	PPMU	JICA Project team																						
8-3	Upgrading of facilities and equipment	JICA Project team	PPMU																						
9 Joint sales management																									
9-1	Establishment of joint sales system	PPMU	JICA Project team																						
9-2	Field instruction for joint sales	PPMU	JICA Project team																						
10 External inspection and auditing																									
10-1	Guidance of sampling testing plan and external auditing	JICA Project team	PPMU																						
10-2	Pesticide residue check (quick test)	PPMU	JICA Project team																						
10-3	Pesticide residue check (laboratory test)	PPMU	JICA Project team																						
10-4	External audit (by Gov. officer and JICA Project team)	PPMU	JICA Project team																						
11 Monitoring and Evaluation																									
11-1	Review of pilot activities	PPMU	JICA Project team																						
11-2	Monitoring	PPMU	JICA Project team																						
11-3	Evaluation	CPMU	JICA Project team																						
12 Review of "Safe Crop Production Management System"																									
12-1	To extract lessons from pilot project activities	CPMU	JICA Project team																						
12-2	To review "Safe Crop Production Management System"	CPMU	JICA Project team																						

Source: JICA Project team

Figure 2.6.7 (1) Detailed schedule for the extended period of Phase 1 (October 2018 to March 2019)

No.	Activity	Implementation by	Support by	2018						2019					
				Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
				Summer			Winter			Summer					
Supply Chain Development System (Marketing)															
1 Dialogue with Market															
1-1	TOT and TOF on marketing														
	TOT marketing in Hanoi	JICA Project team	PPMU												
	TOF on marketing in each province	PPMU	JICA Project team												
1-2	Developing marketing tools	JICA Project team	PPMU												
1-3	Matching with buyers														
	One-to-one matching for each TG	PPMU	JICA Project team												
	Safe vegetable business forum in Hanoi	HPA	JICA Project team												
	Provincial safe vegetable business forum in each province	PPMU	JICA Project team												
	Trade fair in each province	PPMU	JICA Project team												
1-4	Assisting in making contract for each TG	PPMU	JICA Project team												
2 Post Harvest and Distribution															
2-1	Mezoroekai for each TG	PPMU	JICA Project team												
2-2	Monitoring of collection and delivery for each TG														
	Initial check by PPMU and TG	PPMU	JICA Project team												
	Random check by PPMU	PPMU	JICA Project team												
2-3	Review and planning next season for each TG														
	Review meeting for each TG	PPMU	JICA Project team												
	TOF on marketing action plan in each province	PPMU	JICA Project team												
3 Monitoring and Evaluation															
3-1	Monitoring	PPMU	JICA Project team												
3-2	Evaluation	CPMU	JICA Project team												
4 Review of "Supply Chain Development System"															
4-1	To extract lessons from pilot project activities	CPMU	JICA Project team												
4-2	To review "Supply Chain Development System"	CPMU	JICA Project team												
Communication															
1	To design and print leaflet for the elder and for the producers and traders	JICA Project team	Hanoi DARD												
2	To monitor the progress of school education program at 6 schools in Hanoi	Hanoi DARD	JICA Project team												
3	To monitor the progress of creating slideshow at 6 schools in Hanoi	Hanoi DARD	JICA Project team												
4	To monitor the selection of 2 best slideshows from each school (6 schools) in Hanoi	Hanoi DARD	JICA Project team												
5	To organize TG and FIVIMART study tour for 12 selected teams in Hanoi	Hanoi DARD	JICA Project team												
6	To receive finalized slideshows (2 teams per school) and collected homework paper (6 schools) in Hanoi	Hanoi DARD	JICA Project team												
7	To organize final selection meeting (evaluation committee) of slideshow in Hanoi	Hanoi DARD	JICA Project team												
8	To organize grand final slideshow awards festival in Hanoi	Hanoi DARD	JICA Project team												
9	To plan, organize, and monitor most "Like" voting on FB + @AEON Mall	JICA Project team	JICA Project team												
10	To hold slideshow exhibition at AEON Mall (including award ceremony of most "Like" award) in Hanoi	JICA Project team	Hanoi DARD												
11	To review activities in 2018 and discuss about 2019 plans with Hanoi DARD and DOET in Hanoi	Hanoi DARD	JICA Project team												
Project Management															
1	To restructure CPMU within DCP/MARD	CPMU													
2	To establish official PPMU in pilot provinces/city and semi pilot provinces	PPMU	CPMU												
3	Seminar on production management and supply chain development	CPMU	JICA Project team												
4	Monitoring Sheet	CPMU	JICA Project team												
5	JCC meeting	CPMU	JICA Project team												

Source: JICA Project team

Figure 2.6.7 (2) Detailed schedule for the extended period of Phase 1 (October 2018 to March 2019)

2.6.2 Implementation of Trial Activities in Phase 1 (April 2017 – September 2018)

(1) Confirmation of the safety of production area

Based on Circular 49/2013/TT-BNNPTNT stipulated for guideline for establishment of Safe Agriculture Production Zone, JICA Project team with PPMU conducted the assessment of safety of production area.

Table 2.6.1 Assessment of safety of production area before starting trial activity

Group Name	Certification of safe production area		Copy of soil and water testing results		DCP's Program for safe vegetable area		Recommendation for sampling and test
	Copy of certification	Validity date	Laboratory test for soil	Laboratory test for water	No. of Soil samples	No. of Water samples	
Ha Nam							

Ha Vi coop.	Yes	12/11/2018	None	None	None	None	No need, but requested by buyer
Hiep farmers group	Yes	26/12/2019	None	None	None	None	No need, but requested by buyer
Hai Duong							
Tan Minh Duc coop.	None		None	None	None	None	Required
Thanh Ha company	Yes	19/8/2019	Yes/Pass	Yes/Pass	None	None	No need, but required by buyer
Duc Chinh coop.	Yes	10/12/2019	None	None	None	None	No need
Hung Yen							
Japan-Vietnam company.	None		Yes/Pass (only for original 1ha)	Yes/Pass (only for original 1ha)	None	None	Required for new area (2ha)
Yen Phu coop.	Yes	20/5/2018	Yes/Pass	Yes/Pass	13	05	No need

Source: JICA Project team

According to the above result, it was recommended to conduct the soil and water sampling and testing for 5 target groups; Ha Vi cooperative, Hiep farmers group, Tan Minh Duc cooperative, Thanh Ha company and Japan Vietnam company.



The results of soil and water tests are shown in table below.

Table 2.6.2 Soil and water sampling test result

Group Name	Soil testing results		Irrigation water testing results	
	Number of Soil samples	Evaluation of testing results	Number of Water samples	Evaluation of testing results
Ha Nam				
Ha Vi coop.	02	Pass	02	Pass
Hiep farmers group	02	Pass	02	Pass
Hai Duong				
Tan Minh Duc coop.	02	Pass	01	Pass
Thanh Ha company	02	Pass	03	Pass
Duc Chinh coop.	None	-	None	
Hung Yen				
Japan-Vietnam company	02	Pass	02	Pass

Yen Phu coop.	None	-	None	-
Total No. of Sampling	10		10	

Source: JICA Project team

As the result of laboratory test, all the production area belonging to 5 target groups are confirmed as safe production area. Current condition on safety of production area is shown in the table below.

Table 2.6.3 Current condition on safety of production area (as of September 2018)

Group Name	Soil testing results		Water testing results		Certification of safe production area		VietGAP certificate	
	Copy of laboratory test	Evaluation	Copy of laboratory test	Evaluation	Copy of certification	Validity date	Copy of certification	Validity date
Ha Nam								
Ha Vi coop.	Yes	Pass	Yes	Pass	Yes	12/11/2018	None	
Hiep farmers group	Yes	Pass	Yes	Pass	Yes	26/12/2019	None	
Hai Duong								
Tan Minh Duc coop.	Yes	Pass	Yes	Pass	Yes	20/6/2020	Yes (27.2 ha)	21/12/2019
Thanh Ha company	Yes	Pass	Yes	Pass	Yes	19/08/2019	Yes (10.4ha)	03/03/2018
Duc Chinh coop.	None	-	None	-	Yes	10/12/2019	Yes (23.67 ha)	04/01/2020
Hung Yen								
Japan-Vietnam company	Yes	Pass	Yes	Pass	Yes	13/11/2020	Yes (1.0 ha)	23/10/2018
Yen Phu coop.	Yes	Pass	Yes	Pass	Yes	20/05/2018	Yes (15.5 ha)	17/03/2018

Source: JICA Project team

(2) Training for Basic GAP

At the beginning stage of trial activity, TOT for Basic GAP and post-harvest trainings were organized at each trial activity province and conducted by JICA Project team and TOF for basic GAP were conducted by PPMU. After completion of winter season 2017-18, Follow-up TOT for Basic GAP was conducted to review and share the experiences among stakeholders.

	
Post-harvest training in Hai Duong, discussing about market requirements on pre-processing, packing (Hai Duong, 12 October 2017)	Study and observe pre-processing, packing activities in Thanh Ha company (Hai Duong, 12 October 2017)

Summary of result of trainings are shown in the table below.

Table 2.6.4 Result of training for Basic GAP

Training	Location	Date	Participants
TOT GAP	Hai Duong	18-19/Apr/2017	28 (Gov. 12, Farmer 16)
	Ha Nam	25-26/Apr/2017	25 (Gov. 14, Farmer 11)
	Hung Yen	04-05/Apr/2017	33 (Gov. 24, Farmer 9)
TOF GAP	Hai Duong	25/May/2017 (TMD) 25/May/2017 (Duc Chinh) 26/May/2017 (Thanh Ha)	38 (Male 20, Female 18) 34 (Male 12, Female 22) 47 (Male 19, Female 28)
	Ha Nam	11/May/2017 (Hiep) 16/May/2017 (Ha Vy)	25 (Male 10, Female 15) 22 (Male 8, Female 14)
	Hung Yen	18/May/2017 (Yen Phu) Not conducted (Japan Viet)	32 (Male 22, Female 10) -
Post-harvest training	Hai Duong	12/Oct/2017	21 (Gov 6, farmers 15)
	Ha Nam	16/Nov/2017	20 (Gov 13, farmers 7)
	Hung Yen	17/Oct/2017	11 (Gov 4, farmers 7)
Follow-up TOT GAP	Hai Duong	21/Aug/2018	38 (Gov. 12, Farmer 26)
	Ha Nam	28/June/2018	44 (Gov. 26, Farmer 18)
	Hung Yen	20/Sep/2018	34 (Gov. 19, Farmer 15)

Source: JICA Project team

(3) Cultivation planning

1) Formulation of safe vegetable production groups

Seven target groups established a safe vegetable production group as below. All groups also established a management team consisting of; cooperative/company leader, production manager(s), logistic manager, sale manager and internal auditor.

Table 2.6.5 Safe vegetable production group

Province	Target groups	Area (ha)	Number of farmers
Ha Nam	Ha Vi Cop.	1.0	19
	Pham Hong Hiep farmer Group	2.5	13*
Hai Duong	Tan Minh Duc Coop.	7.5	32
	Thanh Ha Company	5.0	21
	Duc Chinh Cop.	30.0	278
Hung Yen	Japan Vietnam Company	1.7	5*
	Yen Phu Cop.	3.15	32
Total		50.85	400

Note: * Number of workers

Source: JICA Project team

2) Cultivation planning

Based on the market demand brought from marketing activity, production plan was prepared per safe vegetable production group of each target group with support of PPMU and JICA project team. The

summary of production plan for winter season 2017-18 is shown in the table below. The production plan for summer season 2018 was also prepared same procedure with winter season.

Table 2.6.6 Production plan of each target group (for winter season 2017-18)

Target group	Target crops	Group size	Sowing / Transplanting time	Start of Harvesting period	Expected target buyer
Tan Minh Duc coop	Cabbage	3.0 ha 30HH	Area 1: 30 Jul-10 Aug. Area 2: 20 Aug-5 Sep Area 3: 30 Oct -10 Nov	85.5 ton Area 1: 5-25 Nov 10.5 ton Area 2: 25 Nov-20 Dec 30 ton Area 3: 15 Feb -10 Mar 45 ton	Haru Midori, (VINECO)
	Kohlrabi	4.5 ha 30HH	Area 1: 30 Jul-10 Aug Area 2: 20 Aug-10 Sep Area 3: 5-15 Sep Area 4: 30 Oct -20 Nov	110 ton Area 1: 25 Oct-15 Nov 10 ton Area 2: 5-25 Nov 25 ton Area 3: 10 Nov-5 Dec 25 ton Area 4: 20 Jan -28 Feb 50 ton	(Big C) (VINECO)
Duc Chinh coop	Carrot	30ha, 278HH	1-5 Nov 2017	1,350 ton Feb-Mar 2018:	Kim Chinh (processing comp.)
Thanh Ha co.	Cabbage, Tomato, etc.	5ha, 11HH	10-20 Sep	60 ton 20 Nov -1 Dec	Existing buyers such as Big C, VINECO
Hiep farmers group	cabbage, tomato, etc.	2.5 ha 1 group	20/Oct/2017	30 ton 1/Dec/2017	Existing buyers (retailers in Ha Nam)
Ha Vi coop	Cabbage	0.78 ha, 15 HH	Group1: 20 Sep Group2: 20 Oct- 10 Nov	13 ton Group1 10-25 Dec: 3.5ton Group2 10 Dec- Jan: 9.62 ton	(VINECO)
	Broccoli	0.67 ha, 13 HH	7 Aug-Nov	9.4 ton 20 Nov :1.0ton, 12 Dec :1.5ton, Jan: 2.9 ton; Feb: 4.0 ton	(VINECO)
Yen Phu coop	Tomato	1.86ha, 22HH	Jul-Oct	200 ton, Oct :24.8 ton, Nov : 52.5 ton, Dec : 64.5 ton, Jan : 47.3 ton, Feb :12.2 ton	VINECO Hanoi Union Coop Safe Food 24
	Cabbage	1.28ha, 11HH	Aug	33.8 ton Oct: 28.9 ton, Nov: 4.9 ton	Safe Food 24 Coop Mart, VINECO
Japan-Vietnam co.	Tomato, cabbage, lettuce	1.9 ha 1 group	20/Aug/2017	83ton Sep : 8.3 ton ; Oct : 16.5 ton ; Nov : 16.5 ton ; Dec : 13.5 ton Jan : 13.15 ton ; Feb : 9.15 ton ; Mar : 6.45 ton	Oshitsu, VINECO

Source: JICA Project team

(4) Cultivation methods for safe vegetables

1) Da Lat technical study tour

In order to transfer knowledge and experience of advanced farmers in Vietnam, JICA project team organized a technical study tour as follows:

- Duration: 3-6/July/2017
- Location: Da Lat, Lam Dong province
- Participants: 26 (13 farmers, 7 PPMU staff, 6 JICA staff)
- Objective: to transfer knowledge and experience of advanced farmers in Vietnam

The participants visit advanced farmers in Lam Dong province such as Phong Thuy farm and Thien Sinh farm, and learned their technical practices of composting, seedling, post-harvest handling, packing.

	
Demonstration of composting method at Thien Shinh farm (Lam Dong, 4 July 2017)	New seedling method by using sponge tray at Thien Shinh farm (Lam Dong, 4 July 2017)
	
Demonstration of tomato grafting at Phong Thuy farm (Lam Dong, 5 July 2017)	Pre-processing and packing house at Phong Thuy farm (Lam Dong, 5 July 2017)

2) Introduction of composting method for soil improvement

Composting method was newly introduced for improvement of soil condition, which was designed as a cultivation method for safe vegetables shown in 2.5.2 Detailed Procedure of Crop Production System.

(i) Designing of demonstration farm

After returning from Da Lat technical tour, the target groups, PPMU staff and JICA project team discussed for designing the demonstration farm for composting, and implemented the activities as shown in the table below:

Table 2.6.7 Demonstration of newly introduced composting method

Location	Amount of Compost (Main Material)	Number of Participants	Period	
			Start	Complete
Tan Minh Duc Coop.	4 m ³ (Pig dung)	22	June 14, 2017	August 19, 2017
Duc Chinh Coop.	6 m ³ (Chicken dung ^{*1})	7	October 9, 2017	December 25, 2017
Thanh Ha Company	2 m ³ (Cow dung)	6	July 4, 2017	September 14, 2017
Japan-Vietnam Company	4 m ³ (Cow dung)	6	November 24, 2017	February 10, 2018
Yen Phu Coop.	5 m ³ (Cow dung)	4	June 10, 2017	August 27, 2017
Pham Hoang Hiep' Farm	2 m ³ (Cow dung)	2	June 9, 2017	August 12, 2017
Total	23 m ³	47	-	-

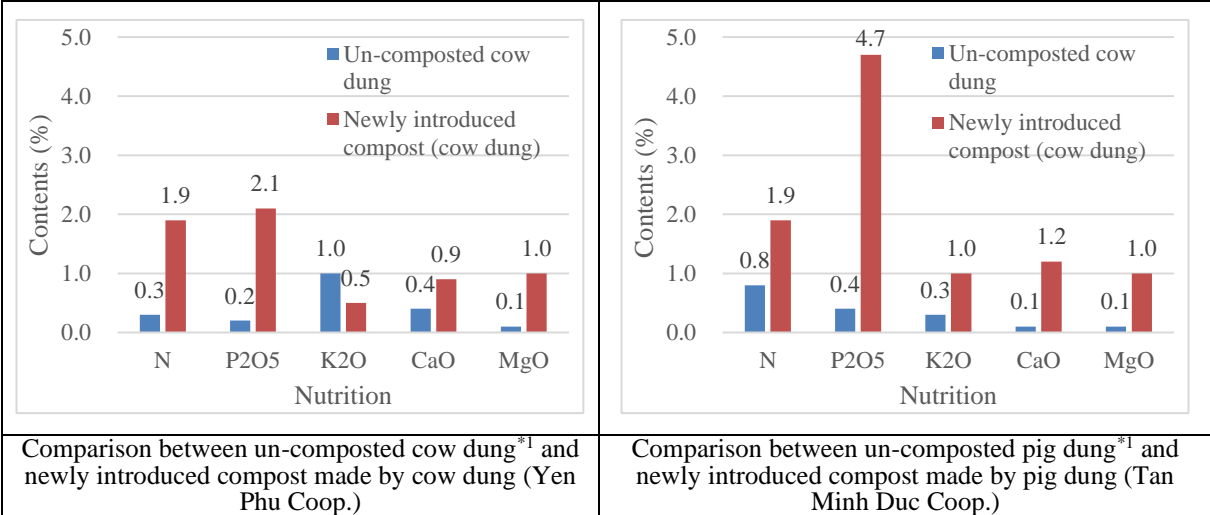
Remark: *1: Due to suitability to the target vegetable, chicken dung is selected since compost of cow dung and pig dung affect appearance of carrot.

Source: JICA Project Team

(ii) Evaluation

Indicator 1: Nutrition content

It is evaluated that the nutrition condition of the compost introduced by JICA project team was higher than un-compost dung.



*1: Nutrition content of un-composted dung is referred to GIA TIEU.COM (The market information page of pepper and black pepper): <http://www.giatieu.com/phan-chuong-cac-phuong-phap-u-phan/4102/>
 Source: JICA Project Team

Figure 2.6.8 Comparison of Nutrition Content between Un-Composted Dung and Newly-Introduced Compost

Indicator 2: Production cost of newly introduced compost

It is evaluated that the material cost of the newly introduced compost was 40% lower than that of vermicompost, the introduced compost is said as an easier method to install in terms of production costs.

Table 2.6.8 Comparison of Material Cost Between Newly-Introduced Compost and Existing Vermicompost

Compost Type	Cost per 1.0 kg (VND/kg)
Newly-introduced Compost	1,804
Vermicompost *1	3,000

Remark: *1: according to the interview to Japan-Vietnam Company
 Source: JICA Project Team

It is concluded that newly introduced compost is likely to disseminate in terms of higher nutrition with lower cost. In fact, some target groups have been already motivated to prepare newly introduced compost by their own budget. Two groups have already started composting.

- 3) Introduction of new variety seeds
 - (i) Designing of demonstration farm

Selection of variety which has resistance for diseases and insects is one strategy to reduce the amount of agrochemical application. Selection of varieties which have heat tolerance is also another strategy to extend the cultivation period leading to sell higher price than in main season. Target groups and JICA project team designed the demonstration farm for new variety seeds. The new varieties were provided by Japanese seed companies.

Table 2.6.9 Demonstration of new variety seeds

Location	Vegetable	Company Introduced*2	Number of Variety	Period	
				Started	Completed
Duc Chinh Coop.	Carrot	Futaba	1	5 Nov 2017	5 Feb 2018
Tan Minh Duc Coop.	Broccoli	Futaba	3	Not sowed *1	-
	Kohlrabi	Futaba	1	1 Oct 2017	24 Dec 2017
Thanh Ha Company	Cabbage	Futaba 7 YS 3	10	2 Nov 2017	18 Mar 2018
	Carrot	Futaba	1	Not sowed *1	-
	Chinese Cabbage	Futaba	2	Not sowed *1	-
	Leaf broccoli	Futaba	1	Not sowed *1	-
	Lettuce	Futaba	11	2 Nov 2017	Jan 2018
Japan-Vietnam Company	Cabbage	Futaba 7 YS 3	10	24 Nov 2017	28 Mar 2018
	Leaf broccoli	Futaba	1	17 Nov 2017	17 Jan 2018
	Lettuce	Futaba	12	31 Oct 2017	26 Feb 2018
	Pumpkin	YS	1	31 Oct 2017	20 Feb 2018
	Tomato	Futaba	3	30 Oct 2017	In Progress
Yen Phu Coop.	Chinese Cabbage	Futaba	2	1 Oct 2017	8 Dec 2017
	Tomato	Futaba	1	30 Oct 2017	In Progress
Ha Vi coop.	Broccoli	Futaba	4	12 Oct 2017	18 Jan 2018

*1: These varieties could not be sowed due to unfavorable climate condition (raining) or occupation of farmers' field by other vegetables. *2: 2 companies Futaba Seed and Yamato Noen (YS) participated in winter 2017-18. Source: JICA Project Team

(ii) Evaluation

6 indicators were applied for evaluation of new variety seeds; Germination, Insects damage, Diseases damage, Weight, Taste, and Willingness. In winter season 2017-18, 30 varieties were completed the trial. PPMU and JICA project team jointly conducted the evaluation according to the criteria reflecting farmers' opinions.

According to the evaluation of 30 varieties, 6 varieties (two varieties of Chinese cabbage and four varieties of lettuce) were identified as promising varieties and farmers expressed their interest to repeat cultivation in next season.

4) Introduction of new seedling method

(i) Designing of demonstration

Target groups and JICA project team designed the demonstration of new seedling method as below:

Table 2.6.10 Demonstration of new seedling method

Location	Name of Vegetable	Amount of Seeds	Number of participants	Period	
				Sow	Complete
Tan Minh Duc Coop.	Cabbage	3,000 seeds in 40 sponge trays	5	August 13, 2017	September 6, 2017

Thanh Ha Company	Kohlrabi (First trial)* ¹	1,200 seeds in 15 sponge trays	2	August 9, 2017	September 7, 2017
	Cabbage: (Second trial)* ¹	3,000 seeds in 40 sponge trays	2	September 11, 2017	October 23, 2017
Yen Phu Cooperative.	Cabbage (First trial)* ¹	3,000 seeds in 38 sponge trays	2	August 10, 2017	September 7, 2017
	Cabbage (Second trial)* ¹	7,000 seeds in 90 sponge trays	2	September 02, 2017	September 25, 2017
Ha Vi coop.	Cabbage	1,000 seeds in 12 spongy trays	4	August 17, 2017	September 14, 2017
Pham Hoang Hiep' Farm	Cabbage	1,000 seeds in 12 spongy trays	1	November 1, 2017	November 25, 2017
Total	-	19,200 seeds in 247 spongy trays	18	-	-

*1: Thanh Ha company and Yen Phu cooperative failed the new seedling production since they could not apply appropriate cultivation technique. Thus, they tried second trial, and they could produce the seedlings.

Source: JICA Project Team

(ii) Evaluation

Indicator 1: Uniformity of seedlings growth

Percentage of uniformed seedlings of new seedling method was 10-20% higher than that of conventional seedling method according to the results in Tan Minh Duc and Ha Vy.



Indicator 2: Root condition



The roots structures of seedlings of new method were strong, and 95% of roots were not broken when the seedlings were pick up from the spongy tray. On the other hand, the roots structures of seedlings of conventional method were weak, and only 2 % of roots structures were not broken when the seedlings were picked up from the nursery bed (98 % of roots structures were broken).

Indicator 3. Growth on transplanting

After transplanting, 93 % of seedlings of new method could grow immediately though only 8 % of conventional seedlings could grow.

Table 2.6.11 Comparison of root condition and growth on transplanting

	New seedling method	Conventional seedling method
Comparison of Root Condition		
Percentage of good root structure	95 % Root structures were well in most of seedlings.	2 % Root structures were broken in most of seedling.

Comparison on transplanting		
Percentage of healthy seedling on transplanting	93%	8%

Source: JICA Project Team

As the result of evaluation, it is concluded that this new seedling method is likely to disseminate for farmers in terms of higher uniformity, better root condition and better growth after transplanting.

5) Introduction of new agriculture materials

(i) Construction of greenhouse/ net house

Greenhouse/ net house is one of ideal solution to prevent insect and disease attack and even to refrain from rain water by covering roof top. Thanks to these functions farmers can produce quality seedling and products in greenhouse/ net house, it is very common to use for vegetable farming in advanced area like Da Lat. However, it is not yet common in Northern Vietnam mainly due to high initial cost for construction. Therefore, JICA project team considered to construct a greenhouse for demonstration purpose so that the surrounding farmers can realize the benefit from the facility.

JICA project team decided to construct a greenhouse in Thanh Ha company, where is most advanced group among target groups in terms of cultivation techniques and even has an own technical staff to acquire cultivation skill from the project staff.

In Thanh Ha company, the Japanese model greenhouse was constructed by sub-contracting to Watanabe Pipe Co. after selection of contractor. JICA project team also supported construction of greenhouses in Yen Phu cooperative and Hiep farm company by providing construction materials. Materials and construction cost of model greenhouses are summarized in the table below.

Table 2.6.12 Specification of model greenhouses

Item	Specification
Location	Thanh Ha company, Hai Duong
Size	5.4m x 31m = 167.4 m ²
Entrance height (roof top height)	2.0m (3.5m)
Material	Polyolefin film (roof) Insect net (side wall)
Contract amount (with VAT)	VND 98,937,000

Item	Specification
Location	Yen Phu Coop, Hung Yen province

Size	7.17m x 17m = 121.5 m ²
Entrance height (roof top height)	2m (5m)
Material	Steel pipe, polyethylene film (roof), insect net (side wall), concrete (foundation), shade cloth
Supported item by JICA project team	Steel pillar, polyethylene film (roof), insect net (side wall), shade cloth
Supported amount (with VAT)	VND 16,920,000

Item	Specification
Location	Lien Hiep Coop., Ha Nam province
Size	6m x 17m = 102 m ²
Entrance height (roof top height)	2m (5.5m)
Material	Steel pipe, polyethylene film (roof), insect net (side wall), sand (foundation), shade cloth.
Supported item by JICA project team	Steel pillar, polyethylene film (roof), insect net (side wall).
Supported amount (with VAT)	VND 16,994,000

Source: JICA Project Team



Source: JICA Project Team

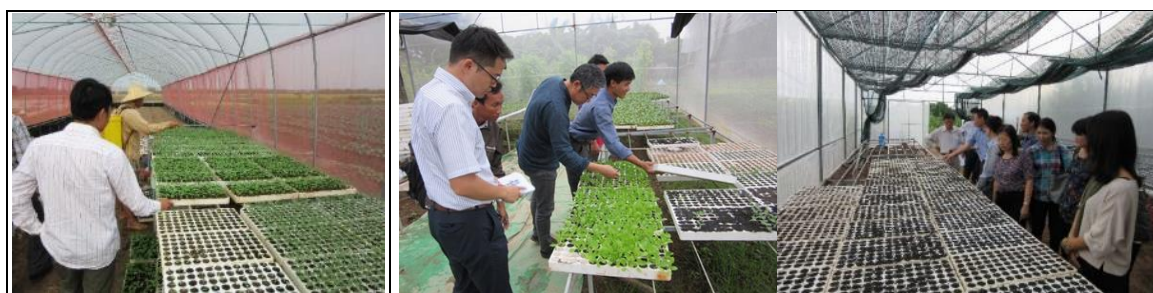
Construction of greenhouse/ net house is evaluated as good example in terms of construction quality and its effect as shown below;

Indicator 1: Quality of constructed facility

All of three greenhouses/ net houses were constructed completely with satisfaction of required design.

Indicator 2: Effect of greenhouse/ net house

The JICA project team monitor the quality of seedlings produced in constructed greenhouse/ net house. According to results of demonstration, the quality of seedlings was better than the one of conventional seedlings. One of considerable reasons was that water contents was controlled well inside the greenhouse by preventing direct rainfall.



Thanh Ha Company produced seedlings of Tomato, Kohlrabi and Cabbage, and cultivated Tomato	Yen Phu Coop produced seedlings of Tomato and Cabbage	Lien Hiep Coop produced seedlings of Tomato
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Source: JICA Project Team

(ii) Functional mulch sheet

In the project area, vegetable price is higher in spring or summer than in winter due to shortage of supply. However, the production in spring or summer is challenging since insect and disease increase under high temperature. One of solutions to mitigate insect and disease damage is to lower the temperature under soil. In Japan, white mulch sheet is one of popular items to lower soil temperature. Therefore, JICA project team decided to examine the effects of such functional mulch sheet in demonstration farm.

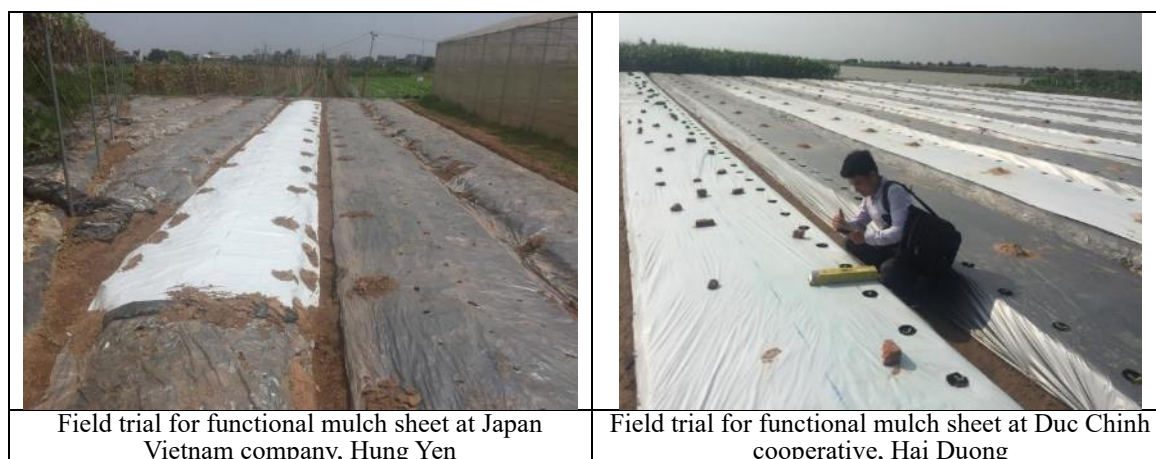
The target groups and the JICA project team designed the area for demonstration. The target groups also selected participants and implemented the demonstration farm activity as shown below.

Table 2.6.13 Demonstration of functional mulch sheet

Location	Area	Vegetable	Period	
			Start	Complete
Duc Chinh Coop.	315 m ²	Water Melon	October 9, 2017	December 25, 2017
Japan-Vietnam Company	12.8 m ²	Pear Shaped Melon	June 5, 2017	*1
Total	327.8 m ²	-	-	-

*1: Due to all plants were attacked by disease, the trial was terminated

Source: JICA Project Team



Field trial for functional mulch sheet at Japan Vietnam company, Hung Yen

Field trial for functional mulch sheet at Duc Chinh cooperative, Hai Duong

Functional mulch sheet was evaluated as described below.

Indicator 1: Soil temperature

The soil temperature under functional mulch sheet was 2 to 5 degrees lower than the one under local sheet. It is evaluated that the functional mulch can lower soil temperature.

Indicator 2: Growth condition

Regarding number of harvested fruits, volume of harvested fruits, disease damage of fruits, there was no significant difference between functional mulch and local mulch.

Indicator 3: Fruits size

Regarding fruit size and weight, there was also no significant difference between functional mulch and local mulch.

Indicator 4: Quality of fruits

Regarding quality of fruits, there are significant differences. De-colored area on fruit surface by functional mulch was reduced about 40% compared with the one by local mulch. Brix contents of fruits by functional mulch also increase 16% higher than that with local mulch.

(iii) Non-woven textile

Non-Woven Textile (NWT) is a thin fabric sheet, which is common material in Japan to protect insect damage by covering vegetable plants, instead of using insecticide.

The target groups and the JICA project team designed the demonstration of NWT. The target groups selected participants and implemented the activities as shown below.

Table 2.6.14 Demonstration of non-woven textile (NWT)

Target Group	Vegetable	Area ^{*1}					No. of Participants (farmers)	Period	
		With Japanese NWT (m ²)		With Vietnamese NWT (m ²)		Without NWT (m ²)		Started	Completed
		Direct Cover	Tunnel	Direct Cover	Tunnel				
Duc Chinh Coop.	Carrot	46	-	46	-	46	5	Oct 25, 2017	Mar 08, 2018
Japan-Vietnam Company	Green Mustard	48	48	48	12	50	6	Oct 17, 2017	Nor 11, 2017
	Lettuce	18	18	18	18	18	6	Nor 22, 2017	Jan 05, 2018
	Cabbage	39	39	39	39	39	6	Feb 09, 2018	Not completed
Total	-	151	105	151	69	153	23	-	-

*1: Two different materials (Japanese NWT and Vietnamese NWT) and two different installation methods (Direct covering or install with tunnel) were evaluated.

Source: JICA Project Team

Unit material costs of Japanese NWT and Vietnamese NWT are summarized in the table below.

Table 2.6.15 Comparison of unit material costs

Items	Unit Price	Direct cover		Tunnel	
		Quantity	Total (VND/ha)	Quantity	Total (VND/ha)
1. Japanese NWT					
1.1 NWT	2,000 VND/m ² ^{*1}	11,880 m ²	23,760,000	17,820 m ²	35,640,000
1.2 Metal pipe for tunnel	563 VND/kg ^{*2}	0 kg	0	2,592 kg	1,458,000
1.3 Sub Total	-	-	23,760,000	-	37,098,000
2. Vietnamese NWT					
2.1 NWT	750 VND/m ² ^{*3}	15,840 m ²	11,880,000	15,840 m ²	11,880,000
2.2 Metal pipe for tunnel	563 VND/kg ^{*2}	0 kg	0	2,592 kg	1,458,000
2.3 Sub Total	-	-	11,880,000	-	13,338,000

*1: 8,000 VND/m² is divided by 4 since expected usage times is 4.

*2: 13,500 VND/m² is divided by 24 since expected usage times is 24.



*3: 1,500 VND/m² is divided by 2 since expected usage times is 2.

Source: JICA Project Team

Evaluation was conducted per vegetable variety as below. There were positive results for leafy vegetable, however, there was a negative result for root vegetable (carrot).

Leafy vegetable (Green Mustard)



Positive results were obtained among three indicators by using NWT as follows: i) frequency of insecticide application was reduced from 1 time to 0, ii) percentage of damaged plants was drastically reduced from 100% to 5%, and iii) the yield was increased. Green mustard by using NWT is expected to have positive reaction from buyer and consumer since the appearance is improved.

	
<p>With NWT (by tunnel). Appearance is very good due to almost no insect damage</p>	<p>Without NWT. Appearance is bad due to huge amount of insect damages</p>

Source: JICA Project Team

Cabbage

Positive results were obtained among two indicators: i) frequency of insecticide application was reduced from 3 times to 0, ii) percentage of damaged plants was drastically reduced from 100% to 3-10 %.

	
<p>With NWT (by direct cover). Appearance is good due to almost no insect damage</p>	<p>Without NWT. Appearance is bad due to huge amount of insect damages</p>

Source: JICA Project Team

Carrot

There were both positive and negative results. Positive points were: i) frequency of insecticide application was reduced from 2 times to 0, negative points was, ii) yield was slightly reduced in the field of using NWT due to deduction of sunlight by covering NWT. According to farmers, field works such as removing old leaves increased since farmers had to open and close NWT when working. Therefore, application of NWT is recommended for leafy vegetable, but not for carrot.

(5) On field instruction for GAP application

1) Monitoring of record keeping

Each target group established an internal quality management system consisting of group leader, production manager and internal auditor, target group with support of PPMU and JICA project team. PPMU staff also provided field diary sheets to the target groups on TOF training for Basic GAP and started monitoring of record keeping by farmers. The number of farmers/ land plot for monitoring was total 407; 380 farmers and 27 land plots. Since Hiep farmers group and Japan Vietnam company had their own land, JICA project team counted the number of field diaries per land plot. The monitoring result of record keeping is shown in the table below.

Table 2.6.16 Monitoring result of record keeping of target groups (for winter 2017-18)

Target groups	Past recording experience	No. of farmers/ land plots	No. of farmers checked	No. of farmers not recording	No. of farmers found recording error
Tan Minh Duc Coop.	No	31	31	0	5
Duc Chinh Coop.	No	278	150	0	30
Thanh Ha Company	Yes	21	21	0	3
Hiep farmer Group	No	15*	15	0	0
Ha Vi Coop.	No	19	19	0	9
Yen Phu Coop.	Yes	31	31	0	5
Japan Vietnam Company	Yes	12*	12	0	0
Total		407	279	0	52

Note: * number of land plots

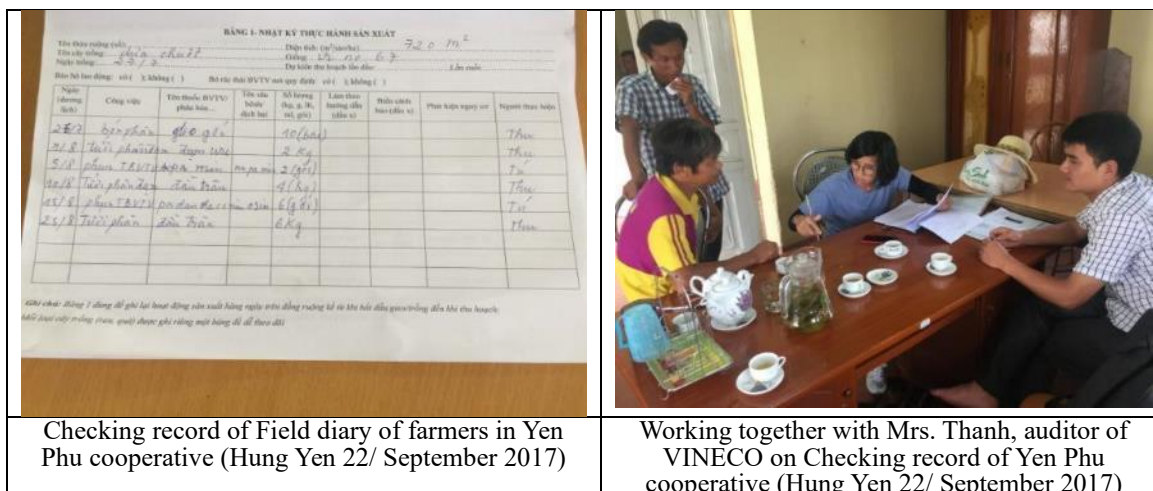
Source: JICA Project Team

Table 2.6.17 Monitoring result of record keeping of target groups (for summer 2018)

Target groups	No. of farmers/ land plots	No. of farmers checked	No. of farmers not recording	No. of farmers found recording error
Tan Minh Duc Coop.	36	36	0	0
Duc Chinh Coop.	278	185	0	73
Thanh Ha Company	10	10	0	0
Hiep farmer Group	45*	45	0	0
Ha Vi Coop.	23	23	0	3
Yen Phu Coop.	32	32	0	0
Japan Vietnam Company	30*	30	0	0
Total	454	361	0	76

Note: * number of land plots

Source: JICA Project Team



Checking record of Field diary of farmers in Yen Phu cooperative (Hung Yen 22/ September 2017)

Working together with Mrs. Thanh, auditor of VINECO on Checking record of Yen Phu cooperative (Hung Yen 22/ September 2017)

Source: JICA Project Team

According to the monitoring, the following facts were identified:

- All the farmers checked by PPMU or JICA project team recorded on the field diary.
- There was no farmer mistook of recording in two target groups; Hiep farmer group and Japan Vietnam company.
- There were few farmers mistook of recording in three target groups; Tan Minh Duc cooperative, Thanh Ha company and Yen Phu coop.
- 30 farmers out of 150 were found mistakes on record keeping in Duc Chinh cooperative.

JICA project team and PPMU shared the result of monitoring and instructed the member of internal quality management and farmers who mistook about proper recording.

2) Internal Audit

Internal audit shall be conducted by each target group by using 26 check points following Basic GAP technical guidance. PPMU technical staff was also advised to attend the internal audit to instruct target groups. The result of monitoring of internal audit was as follows:

Table 2.6.18 Monitoring of Internal Audit (as of Sep. 2018)

Target group	Viet GAP certificate	No. of internal audit conducted by target group	No. of internal audit attended by PPMU
Tan Minh Duc Coop.	Yes	2	1
Duc Chinh Coop.	(Yes*)	1	1
Thanh Ha Company	Yes	2	1
Hiep farmer group	-	1	1
Ha Vi Coop.	-	1	1
Yen Phu Coop.	Yes	3	1
Japan Vietnam Company	Yes	6	2
Total		16	8

Note: Duc Chinh cooperative acquired Viet GAP recently in Jan 2018.

Source: PPMU monitoring report

According to PPMU monitoring report, total 16 times of internal audit were held. 4 target groups; Tan Minh Duc, Thanh Ha, Yen Phu and Japan Vietnam conducted more than two times though other three groups conducted only once. One of reasons why four groups conducted as required is they were rather familiar with internal audit under VietGAP guidance compared with other groups.

Regarding the attendance of PPMU staff for internal audit, 8 out of total 16 internal audits were attended by PPMU staff and PPMU staff attended for all target groups at least one time. It is expected for PPMU staff to facilitate target groups to conduct internal audit at least twice a year then attend it to provide technical advice.

(6) Upgrading conditions to ensure food hygiene and safety

As of September 2018, all the 7 target groups completed technical assessment. Out of 7 groups, 5 groups, Tan Minh Duc, Duc Chinh, Hiep farm, Yen Phu and Japan Vietnam, completed preparation of upgrading plan and upgrading of facilities as shown in the table below.

Table 2.6.19 Progress of upgrading of pre-processing facility (as of Sep. 2018)

Target group	Technical Assessment	Upgrading planning	Upgrade of facilities
Tan Minh Duc coop	Done (30/Oct/2017)	Done (Nov/2017)	Completed
Duc Chinh coop	Done * (May/2018)	Done* (May/2018)	Completed
Thanh Ha company	Done (9/Dec/2017)	Not necessary	Not necessary
Hiep farmer group	Done (23/Jan/2018)	Done (Mar/2018)	Completed
Ha Vi coop	Done (May/2018)	On-going	-
Yen Phu coop	Done (14/Nov/2017)	Done (Dec/2017)	Completed
Japan Vietnam company	Done (29/Nov/2017)	Done (Dec/2017)	Completed

Note: * Duc Chinh cooperative uses a pre-processing facility run by a private company, then upgraded a fertilizer and agrochemical storage instead.

Source: PPMU monitoring report





Provided baskets for storing and shipping of packed vegetable (Yen Phu cooperative, Hung Yen)

Improved pre-processing room with installation of stainless tables (Yen Phu cooperative, Hung Yen)

Source: JICA Project Team

For Thanh Ha company, technical assessment was conducted and it identified that there was no big issue on pre-processing facility since they had installed necessary tools and equipment already.

Though the company had a proposal to develop a new pre-processing house, but JICA project team decided not to support for new housing at present since the proposal was not urgent matter and the existing house still had enough capacity to accommodate current processing amount.

For Ha Vi cooperative, technical assessment was delayed since the cooperative had no experience of joint sales and even had not utilized the existing pre-processing house constructed under the previous project. Therefore, JICA project team decided to encourage the group to establish joint sales system at first and monitor the utilization of pre-processing house. During winter season 2017-18 Ha Vi cooperative could not show any progress of joint sales, but they improved their performance of joint sales in summer 2018. Eventually JICA project team confirmed the usage of pre-processing house and conducted technical assessment in May 2018 and upgrading planning is going on as of September 2018.

(7) Joint sales

Joint sales system is established by each target group according to a sales contract or a purchase order from buyer. Number and percentage of farmers who join joint sales in winter season 2017-2018 are summarized in the table below.

Table 2.6.20(1) Percentage of Farmers who join Joint Sales (winter season 2017-18)

Target groups	No. of safe crop production group members	No. of farmers who join Joint Sales	Percentage (%)
Tan Minh Duc Coop.	36	28	78%
Duc Chinh Coop.	278	67	24%
Thanh Ha Company	12	12	100%
Hiep farmer Group	15*	15*	100%
Ha Vi Coop.	19	0	0%
Yen Phu Coop.	31	25	81%
Japan Vietnam Company	12*	12*	100%
Total	403	159	39%

Note: * number of land plots

Source: JICA Project Team

According to the result of monitoring, only 39% of farmers joined the joint sales of each target group. Especially in Ha Vy cooperative, there was no farmers involved in joint sales since they failed to find any buyer who purchase from cooperative and farmers sold vegetable individually. Duc Chinh cooperative also faced difficulty to find buyers to satisfy the production volume, only 24% of farmers joined the joint sales.

After finishing winter season 2017-18, JICA project team and PPMU staff had a review meeting with each target group how to improve joint sales. Target groups committed to find more buyers as well as to involve all members to join joint sales in next season. Progress of joint sales in Summer crops 2018 are shown in the tables below.

Table 2.6.20(2) Percentage of Farmers who join Joint Sales (summer season 2018)

Target groups	No. of safe crop production group members	No. of farmers who join Joint Sales	Percentage (%)
Tan Minh Duc Coop.	36	28	78%
Thanh Ha Company	10	10	100%
Duc Chinh Coop.	278	211	76%
Hiep farmer Group	(1 group)	(1 group)	100%
Ha Vi Coop.	18	16	89%
Yen Phu Coop.	32	30	94%
Japan Vietnam Company	(1 group)	(1 group)	100%
Total*	374	295	79%

Note: * Total numbers of farmers are counted excluding Hiep farm and Japan Vietnam company

Source: JICA Project Team

(8) External inspection and auditing

1) External audit

PPMU officer with assistance of JICA project team shall assess the implementation of the trial activity in line with 26 check points of Basic GAP at least twice a year. As of September 2018, 17 external audits were conducted shown in the table below.

Table 2.6.21 Record of External Audit/ Assessment

Province	Target group	Date	Objective
Hai Duong	Tan Minh Duc coop	31/Oct/2017	Technical assessment on food safety and hygiene conditions for harvesting, pre-processing, packing and supplying vegetable
Hung Yen	Yen Phu	14/Nov/2017	
Hung Yen	Japan Vietnam company	29/Nov/2017	
Ha Nam	Hiep farmer group	23/Jan/ 2018	
Hai Duong	Tan Minh Duc	21/Nov/2017	Technical assessment and monitoring the risk of contamination while harvesting and collection, sorting and packing vegetables
Hung Yen	Japan Vietnam company	18/Dec/2017	
Hung Yen	Yen Phu cooperative	18/Dec/2017	
Hai Duong	Thanh ha company	20/Dec/2017	
Ha Nam	Hiep farmer group	03/Jan/2018	
Hai Duong	Duc Chinh cooperative	01/Feb/2018	
Ha Nam	Ha Vy	03/Apr/2018	
Hung Yen	Japan Vietnam company	29/Nov/2017	External audit according to 26 check list under Basic GAP
Hai Duong	Tan Minh Duc coop	30/Nov/2017	
Hung Yen	Yen Phu coop	1/Dec/2017	
Ha Nam	Ha Vy coop	8/Dec/2017	

Ha Nam	Hiep farmer group	28/Dec/2017	
Hai Duong	Duc Chinh coop	28/Dec/2017	

Source: PPMU monitoring report and JICA Project Team

2) Pesticide residue check

(i) Results of quick tests

As the quick test tool, JICA project team selected “GT” quick test, which is easy to handle and gives result in field within 1.5 hours.

PPMU staff and target group managers received trainings from sales manager of GT test kit on TOT training organized by CPMU and JICA Project team on January 10, 2017 and from JICA project team, and conducted pesticide residue check in field.

105 vegetable samples in winter season 2017-18 and 31 samples in summer season 2018 were checked by quick tests in 7 target groups. The results are shown in the table below.

Table 2.6.22 Quick test results (winter season 2017-18)

Target group	No. of test	No. of not detected	No. of detected but safe	No. of detected unsafe
Tan Minh Duc cooperative	13	9	3	1*
Duc Chinh cooperative	14	13	1	0
Thanh Ha company	12	10	2	0
Hiep farmer group	12	11	1	0
Ha Vi cooperative	3	2	1	0
Yen Phu cooperative	16	12	3	1*
Japan Vietnam company	35	27	8	0
Total	105	84	19	2

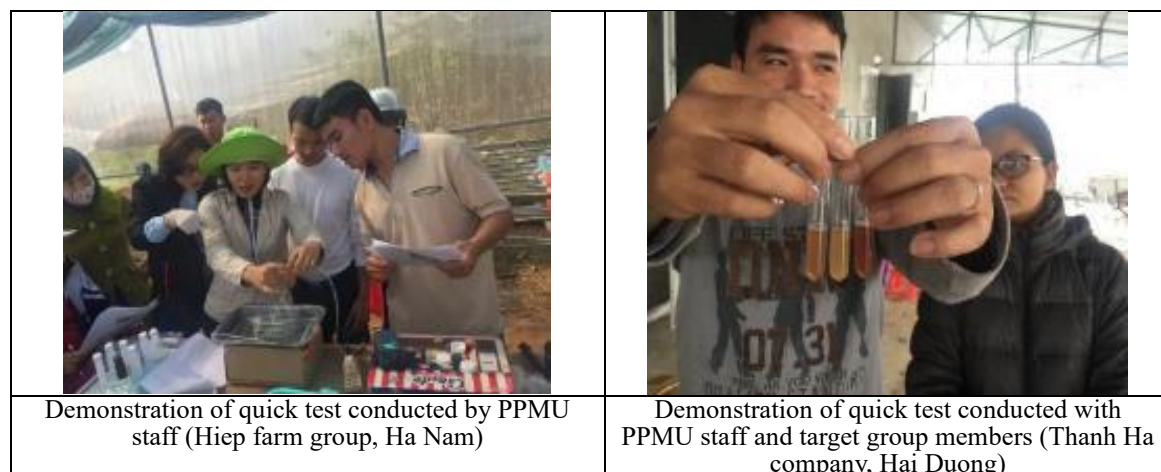
Noted: * control sample (Sample which was within pre-harvest interval PHI period was taken from field intentionally for demonstration purpose.)

Source: JICA Project Team

Table 2.6.23 Quick test results (summer season 2018)

Target group	No. of test	No. of not detected	No. of detected but safe	No. of detected unsafe
Tan Minh Duc cooperative	5	4	1	0
Duc Chinh cooperative	7	5	2	0
Thanh Ha company	6	6	0	0
Hiep farmer group	4	4	0	0
Ha Vi cooperative	3	3	0	0
Yen Phu cooperative	6	6	0	0
Japan Vietnam company	0	0	0	0
Total	31	28	3	0

Source: JICA Project Team



Source: JICA Project Team

According to the above results, the quick test did not detect any residue in 112 samples out of 136 though the test detected residue under MRL (maximum residue level) in 22 samples. The test also detected residue over MRL in 2 samples, but these were identified that the ones were within pre-harvest interval PHI period and taken from field intentionally by farmer to check the effectiveness of test kit.

(ii) Results of laboratory tests

PPMU technical staff took samples from fields of target groups and sent them to National Agri-Forestry-Fisheries Quality Assurance Department – region 1 LAS-NN 63 (NAFIQAD 1) for residue analysis of heavy metals, microbiological contamination and pesticides. 25 samples from 7 target groups were tested in winter season 2017-18. The results are shown in the table below.

Table 2.6.24 Laboratory test results (winter season 2017-18)

Target group	No. of samples	Heavy metals	E.Coli. Salmonella	Pesticides
Tan Minh Duc cooperative	3	0*/0**	0/0	0/0
Duc Chinh cooperative	5	5/0	0/0	4/1
Thanh Ha company	6	4/0	0/0	0/0
Pham Hong Hiep farmer group	3	0/0	0/0	0/0
Ha Vi cooperative	2	0/0	0/0	0/0
Yen Phu cooperative	3	3/0	0/0	1/0
Japan Vietnam company	3	3/1	0/0	0/0
Total	25	15/1	0/0	5/1

Note: * detected, ** detected over MRL

Source: JICA Project Team

Out of 25 samples, all samples had no microbiological contamination, and 10 samples had no residue on heavy metal nor pesticide. There were heavy metal or pesticide residues on 15 samples, but 13 samples were below MRL. 2 samples were found residues over MRL, therefore, JICA project team together with PPMU assessed the cause of residue and actions to be taken.

1 sample of carrot from Duc Chinh was found pesticide residue over MRL, “Propiconazole” and “Difenoconazole”. The reasons for residues of Propiconazole and Difenoconazole were assumed that vegetables were harvested before pre-harvesting interval and over dosage were applied. The advice for Duc Chinh cooperative was to check field diary recording carefully to ensure harvesting time after pre-harvesting interval of last pesticide application. PPMU is also advised to instruct and monitor farmers applying properly pesticides and pre-check pesticide residues before harvesting by using quick test kit.

1 sample from Japan Vietnam company was found heavy metal (Pb) residue over MRL. The sample was Morning glory. According to the inspection result, it was assumed that Pb residue in soil and chicken compost were main sources of contamination. Therefore, the advice for Japan Vietnam company was not to grow morning glory in the suspected land for contamination. It is also advised to re-consider applying chicken dung and replace to other materials such as compost made from cow dung or pig dung instead.

2.6.3 Implementation of Trial Activities in extension period of Phase 1 (October 2018 – March 2019)

(1) Confirmation of the safety of production area

Based on Circular 49/2013/TT-BNNPTNT stipulated for guideline for establishment of Safe Agriculture Production Zone, JICA Project team with PPMU conducted the assessment of safety of production area for new 13 target groups.

Table 2.6.25 Assessment of safety of production area

Group Name	Soil sampling test		Irrigation water sampling test		Certification of safe production area		Viet GAP certification	
	Copy of laboratory test	Evaluation	Copy of laboratory test	Evaluation	Copy of certification	Validity date	Copy of certification	Validity date
Hai Duong								
Gia gia company	Yes	Pass	Yes	Pass	Yes	14/02/2020	Yes (5ha)	21/12/2019
Green farm production group	None		None		None		Yes (5ha)	03/12/2020
Lua farmers group	Yes	Pass	Yes	Pass	-		Yes(27.5 ha)	21/12/2019
Ha Nam								
Cat Lai Coop.	None		None		Expired		None	
Thanh Tan group.	None		None		None		None	
Hung Yen								
Chien Thang Coop.	Yes	Pass	Yes	Pass	-		Yes (5ha)	18/07/2020
Phu Tho								
Huong Non Coop.	None		None		None		Yes(10.03 ha)	5/2/2017 (Expired)
Truong Thinh Coop.	None		None		Yes	21/12/2020	Yes(7.75ha)	30/12/2017
Vinh Phuc								
Visa Coop.	Yes	Pass	Yes	Pass	Yes	16/3/2021	Yes(5 ha)	21/11/2019
Dal Loi Coop.	Yes	Pass	Yes	Pass	Yes	09/05/2019	Yes(10.1 ha)	09/05/2018
Vinh Phuc coop.	Yes	Pass	Yes	Pass	Yes	05/05/2020	Yes(4.78 ha)	31/05/2019
Thai Binh								

Quynh Hai coop.	Yes	Pass	Yes	Pass	Yes(8 ha)	02/05/2021		
Thanh Tan coop.	Yes	Pass	Yes	Pass	Yes(6 ha)	13/03/2020		

Source: JICA Project Team

As the result, it is identified that 3 new target groups, Thanh Tan coop., Cat Lai coop. of Ha Nam province and Huong Non coop. of Phu Tho province needed to acquire certificate of safe production area through conducting soil and water sampling analysis as below.

Table 2.6.26 Proposed Plan of soil and water sampling and testing

Province	Target Group	Area (ha)	Number of samples	
			Soil sample	Water sample
Ha Nam	Thanh Tan Coop.	1.0	1	1
	Cat Lai Coop.	2.5	2	2
Phu Tho	Huong Non Coop.	3.2	2	2
Total:			5	5

Source: JICA Project Team

As the result of laboratory test of soil and water samples from 3 target groups, the production area of all 3 groups were confirmed as safe area. As of end March 2019, issuing of certificate of safe production area is going on.

Table 2.6.27 Current condition on safety of production area (as of end March 2019)

Province	Target groups	Soil/water sampling	Safe Production Area Certificate	VietGAP Certificate
Hai Duong	Tan Minh Duc coop.	Pass	Yes	Yes
	Thanh Ha company	Pass	Yes	Yes
	Duc Chinh coop.	-	Yes	Yes
	Gia gia company	Pass	Yes	Yes
	Green farm company	-	-	Yes
	Lua farmer group	Pass	-	Yes
Ha Nam	Ha Vi coop	Pass	Yes	Yes
	Hiep farm	Pass	Yes	Yes
	Cat Lai coop.	Pass	<i>To be issued by DARD</i>	-
	Thanh Tan group.	Pass	Yes	-
Hung Yen	Japan Vietnam company	Pass	Yes	Yes
	Yen Phu coop.	Pass	Yes	Yes
	Chien Thang coop.	Pass	Yes	Yes
Phu Tho	Huong Non coop	Pass	<i>To be issued by DARD</i>	Expired
	Truong Thinh coop	-	Yes	Expired
Vinh Phuc	Visa coop	Pass	Yes	Yes
	Dai Loi coop	Pass	Yes	Expired
	Vinh Phuc coop	Pass	Yes	Yes
Thai Binh	Quynh Hai coop	Pass	Yes	-
	Thanh Tan coop	Pass	Yes	-

Source: JICA Project Team

(2) Training for Basic GAP

1) TOT for Basic GAP

TOT for Basic GAP was conducted for target groups of semi-pilot provinces as shown below.

Table 2.6.28 Summary of TOT for Basic GAP for Semi-pilot provinces

Province	Target groups	Date	Participants
Phu Tho	Hương Nộn Coop. and Trường Thịnh Coop.	19-20/Oct/2017	18 (Gov. 7, Farmer 11)
Vinh Phuc	Visa Safe Vegetable Coop. and Vĩnh Phúc coop	24-25/Jul/2018	18 (Gov. 7, Farmer 11)
Thai Binh	Quỳnh Hải coop. and Thanh Tân coop.	5-6/Jul/2018	30 (Gov. 24, Farmer 6)

Note: In Vinh Phuc, there was no participant from Dai Loi coop. since they were busy on field work.

Source: JICA Project team

2) TOF for Basic GAP

TOF for Basic GAP was conducted by PPMU staff for all 20 target groups as shown below.

Table 2.6.29 Summary of TOF for Basic GAP in 2018

Province	Target groups	Date	Number of participants
Hai Duong	Tan Minh Duc coop.	23 Oct 2018	31
	Thanh Ha company	25 Oct 2018	33
	Duc Chinh coop.	25 Oct 2018	40
	Green farm company	21 Oct 2018	18
	Gia gia company	23 Oct 2018	25
	Lua farmers group	27 Oct 2018	20
Ha Nam	Ha Vi coop.	20 July 2018	38
	Hiep farmers group	24 July 2018	4
	Thanh Tan coop.	24 July 2018	8
	Cat Lai Coop.	27 Oct 2018	17
Hung Yen	Japan-Vietnam company	22 June 2018	15
	Yen Phu coop.	22 June 2018	53
	Chien Thang Coop.	26 Oct 2018	15
Phú Thọ	Hương Nộn Coop.	1 Nov 2018	28
	Trường Thịnh Coop.	1 Nov 2018	35
Vinh Phuc	Visa Safe Vegetable Coop.	15 Dec 2018	27
	Vĩnh Phúc coop	24 Oct 2018	42
	Đại Lợi Coop.	27 Oct 2018	14
Thai Binh	Quỳnh Hải coop.	6-Nov 2018	21
	Thanh Tân coop.	7-Nov 2018	23
Total			507

Source: JICA Project team

Total number of participants on TOF was 507 from 20 target groups. In TOF program, PPMU staff shared the lessons learned from previous trial activity and gave instructions according to Basic GAP guidance. JICA project team supported PPMU to prepare the training material.

3) Technical assessment for safety conditions on harvesting and post-harvest procedures Practical training and technical assessment for safety conditions on harvesting and post-harvest procedures were planned to conduct for 20 target groups. The objective is to assess the whole procedure from production to post harvesting to identify good practices and issues to be improved. The assessment result shall be reflected into field instruction and upgrading of safety conditions on production and post harvesting area. Progress of technical assessment is shown in the table below. 16

target groups completed the technical assessment. Out of 4 groups not conducted, Duc Chinh cooperative and Thanh Tan cooperative had no processing facility thus it was substituted by internal audit. 2 groups in Phu Tho were not mobilized as it was not arranged by PPMU.

Table 2.6.30 Summary of technical assessment for safety conditions in 2018 (as of end March 2019)

Province	Target groups	Processing facility	Date	Participants
Hai Duong	Tan Minh Duc coop.	Yes	27 Mar 2019	10
	Thanh Ha company	Yes	15 Mar 2019	7
	Duc Chinh coop.	No	<i>(substituted by internal audit on 7 Mar 2019)</i>	
	Gia Gia company	Yes	22 Jan 2019	8
	Green farm company	Yes	21 Nov 2018	10
	Lua farmer group	No	22 Dec 2018	7
Ha Nam	Ha Vi coop	Yes	29 Nov 2018	7
	Hiep farm	Yes	20 Feb 2019	6
	Cat Lai coop.	No	25 Feb 2019	8
	Thanh Tan coop.	No	19 Feb 2019	4
Hung Yen	Japan Vietnam company	Yes	04 Dec 2018	11
	Yen Phu coop.	Yes	05 Dec 2018	35
	Chien Thang coop.	Yes	04 Dec 2018	10
Phu Tho	Huong Non coop	No	<i>(not mobilized)</i>	
	Truong Thinh coop	No	<i>(not mobilized)</i>	
Vinh Phuc	Visa coop	Yes	25 Dec 2018	5
	Dai Loi coop	Yes	29 Dec 2018	5
	Vinh Phuc coop	Yes	25 Dec 2018	7
Thai Binh	Quynh Hai coop	Yes	24 Jan 2019	10
	Thanh Tan coop	No	<i>(substituted by internal audit on 14 Mar 2019)</i>	

Source: JICA Project team

4) Exposure visit among target groups

Exposure visit was planned as an opportunity for new target groups to visit initial target groups to share the experiences. New target groups are expected to learn safe vegetable production procedure according to Basic GAP and establishment of joint sales management system. Exposure visits were arranged for 6 target groups in Ha Nam, Phu Tho and Thai Binh. But it was not arranged for 5 groups in Hai Duong and Hung Yen since those groups had already visited to initial target groups by themselves. 3 groups in Vinh Phuc did not request the visit to target groups as they demanded to visit other advanced groups besides target groups.

Table 2.6.31 Summary of exposure visit (as of end March 2019)

Province	Target groups	Date No. of participants	Participants
Hai Duong	Gia company	<i>Not conducted since the groups have already visited by themselves.</i>	
	Green farm company		
	Lua farmer group		
Ha Nam	Cat Lai coop.	30 Nov 2018	15
	Thanh Tan coop.	Total 24 (PPMU 3)	6

Hung Yen	Chien Thang coop.	<i>Not conducted since the groups have already visited by themselves</i>	
Phu Tho	Huong Non coop.	21 Dec 2018	14
	Truong Thinh coop.	Total 30 (PPMU 3)	13
Vinh Phuc	Visa coop.	<i>Not conducted since the groups demand to visit other advanced groups besides target groups.</i>	
	Dai Loi coop.		
	Vinh Phuc coop.		
Thai Binh	Quynh Hai coop	22 Nov 2018	15
	Thanh Tan coop	Total 22 (PPMU 2)	5

Source: JICA Project team

(3) Cultivation planning

1) Formulation of safe vegetable production groups

20 target groups established a safe vegetable production group for winter season 2018-19 covering 106ha as shown below.

Table 2.6.32 Safe vegetable production group (winter season 2018-19)

Province	Target groups	Mgt. board members	Workers	Number of farmers	Area (ha)
Hai Duong	Tan Minh Duc coop.	5	-	51	9.65
	Thanh Ha company	5	10	10*	7.62
	Duc Chinh coop.	5	-	278	30.07
	Gia gia company	5	10	-	4.98
	Green farm company	3	10	-	2.48
	Lua farmer group	6	-	50	4.42
Ha Nam	Ha Vi coop	6	-	27	2.13
	Hiep farm	4	13	-	2.05
	Cat Lai coop.	4	-	16	2.35
	Thanh Tan coop.	6	-	6	1.01
Hung Yen	Japan Vietnam company	4	11	-	1.76
	Yen Phu coop.	4	-	32	4.54
	Chien Thang coop.	3	7	8*	4.85
Phu Tho	Huong Non coop	6	-	86	3.51
	Truong Thinh coop	5	-	42	2.12
Vinh Phuc	Visa coop	5	25	10*	2.96
	Dai Loi coop	4	-	14	10.03
	Vinh Phuc coop	5	-	42	5.32
Thai Binh	Quynh Hai coop	6	-	32	2.38
	Thanh Tan coop	4	10	-	2.36
Total	20 groups	95	96	696	106.61

Note: * Number of linkage farmers contracting with target groups

Source: JICA Project team

All target groups established a management team consisting of group leader, production manager, logistic manager, sales manager and internal auditor. Target groups also prepared production plan for winter season 2018-19 in cooperation with PPMU staff and JICA project team.

2) Joint purchase of agriculture materials

During the trial activity in Phase 1 (April 2017 – September 2018), JICA project team together with PPMU prepared the list of recommended pesticides for each vegetable. It is expected for target groups

to purchase pesticides based on the list for safe vegetable production. It is also beneficial for PPMU staff to make monitoring activity of record keeping easier if farmers choose the chemicals only from the list.

In winter season 2018-19, JICA project team nominated Duc Chinh cooperative to promote joint purchase of agriculture materials as following reasons:

- Duc Chinh cooperative produce only carrot in winter season, it is easy to monitor the chemical application.
- It is expected to utilize the cooperative storage for fertilizer and agrochemical which was supported for construction by JICA project team.

As of end March 2019, JICA project team together with PPMU have implemented the trial activity under the following steps:

Table 2.6.33 Progress of Establishment of Joint purchase System

Step	Activity	Status
(i) Legal status of cooperative business	Check Business license of cooperative	Confirmed
	Check Business license of sales manager	Confirmed
(ii) Selection of agrochemicals	Nomination of chemicals based on legal document (Check legal document 03/2018/TT-BNNPTNT, Plant protection department, MARD)	Completed
	Screening from aspect of safety based on Registered on 580/BVTV-QLT and Registered on 03/2018/TT-BNNPTNT	Completed
	Selection from aspect of effectiveness by Consultation of PPMU staff and interview with farmer	Completed
(iii) List of recommended agrochemicals	Add necessary information for farmers (PHI, dosage, and other specific information)	Drafted
(iv) Instruction to sales manager about proper application of agrochemical	Provide a list of recommended agrochemicals Provide a guidance to sales manager how to instruct farmers based on the list (inquiry of purpose of use, target vegetable and land area, and select proper chemical with guidance of dosage, timing of application, PHI)	Completed
(v) Establishment and monitoring of joint purchase and distribution system	To be implemented	

Source: JICA Project team

- (i) Confirmation of legal status of cooperative (business license of cooperative and sales manager)

JICA project team together with PPMU checked and confirmed business license of cooperative and business license of sales manager.

- (ii) Selection of agrochemicals

JICA project team together with PPMU nominated 30 candidate agrochemicals for long list based on legal document (03/2018/TT-BNNPTNT issued by MARD). We then screened from 30 candidate agrochemicals to 16 from aspect of safety by checking registration on 580/BVTV-QLT issued by Department of Plant Protection and on 03/2018/TT-BNNPTNT. Finally we selected 13 agrochemicals from aspect of effectiveness by Consultation of PPMU staff and interview with farmer.

Table 2.6.34 Selection of Legal Agrochemical for Carrot

Selection of Legal Agrochemical for Carrot							
The agrochemicals which farmers usually apply were listed up and the long list was prepared.							
From the aspects of Safety, the short list of the legal agrochemical was prepared based on following regulations:							
- 580/BVTV-QLT							
- 03/2018/TT-BNNPTNT							
razocid 720wp							
Diseases/Insects	Agrochemical which farmers often use		Selection of legal Plant Protection Drugs	Selection of Plant Protection Drugs which is allowed for Carrot			Note
	Commercial Name	Active Ingredient	Registered on 03/2018/TT-BNNPTNT: List of legal agrochemical	Registered on 580/BVTV-QLT: List which is allowed for all crops	Registered on 03/2018/TT-BNNPTNT: List which is allowed for specific crops	Selection of Chemical Plant Protection Drugs to control agrochemical residue	Effects
1) Black cutworm (<i>Agrotis ipsilon</i>) / Cotton leafworm (<i>Spodoptera litura</i>)	Actimax 50WG	Emamectin benzoate (Avermectin B1a 90% + Avermectin B1b 10%)	v				
	Brightin 1.8EC	Abamectin	v				
	Delfin WG (32 BIU)	<i>Bacillus thuringiensis</i> var.kurstaki	v	v		Biopesticide	
	Dylan 2EC	Emamectin benzoate	v				
	Emaben 2.0EC	Emamectin benzoate	v				
	Kuraba WP	Abamectin + <i>Bacillus thuringiensis</i> var.kurstaki	v				
	Match 050 EC	Lufenuron (min 96 %)	v		v	v	Contact
	Prevathon 5SC	Chlorantraniliprole (min 93%)	v	v		v	Contact/ Ingestion
	Radiant 60SC	Spinetoram (min 86.4%)	v	v		v	Contact/ Ingestion/ Translaminar
	Reasant 1.8EC	Abamectin	v				
	Sokupi 0.5SL	Matrine	v	v		Biopesticide	
	Susupes 1.9EC	Emamectin benzoate	v				
Tasieu 1.9EC	Emamectin benzoate	v					
2) Root rot (<i>Rhizoctonia solani</i>)	Daconil 75WP, 500SC	Chlorothalonil (min 98%)	v	v		v	Prevention (Contact)
	Kasumin 2 SL	Kasugamycin (2% w/w)	v		v	v	Prevention (Systemic)
	Moren 25WP	Penicuron (min 99%)	v	v	v	v	Prevention (Systemic)
	Score 250EC	Difenoconazole (min 96%)	v				
	Valdacin 5SL	Validamycin (Validamycin A) (min 40%)	v	v		v	Prevention/ Recovering (Systemic)
	Valivithaco 3SL	Validamycin (Validamycin A) (min 40%)	v	v		v	Same active ingredient of Valdacin 5SL
3) Downy mildew (<i>Phytophthora infestans</i>)	Biogreen 4.5SL	Chitosan	v	v			Undirect effect to diseases
	Daconil 75WP, 500SC	Chlorothalonil (min 98%)	v	v		v	Prevention (Contact)
	Forwanil 75WP	Chlorothalonil (min 98%)	v	v		v	Same active ingredient of Daconil
	Vimonyl 72WP	Mancozeb 64% + Metalaxyl 8%	v				
4) Soft rot (<i>Erwinia carotovora</i>)	Alfamyl 35WP	Metalaxyl (min 95%)	v	v		v	Prevention (Contact)
	DuPontTM Kocide 46.1WG	Copper Hydroxide	v	v		v	Same active ingredient of Daconil
	Kasumin 2 SL	Kasugamycin (2% w/w)	v		v	v	Prevention (Systemic)
	Kasuran 50WP	Copper Oxchloride 45% + Kasugamycin 5%	v				
	New Kasuran 16.6WP	Copper Oxchloride 16% + Kasugamycin 0.6%	v				
5) Herbicide	Antaco 500EC	Acetochlor (min 93.3%)	v				
	S -Metolachlor (min 98.3%)	Dual Gold @ 960 EC	v				
Legend:	Selected Plant Protection Drugs based on the aspect of safety						
	Selected Plant Protection Drugs to control agrochemical residue						

Source: JICA Project team

(iii) Listing of recommended agrochemicals

Based on 13 selected agrochemicals, JICA project team drafted a list of agrochemicals for carrot, by adding necessary information for farmers such as PHI, dosage, and other specific information.

Table 2.6.35 List of Agrochemicals for Carrot

This list of agrochemical was prepared by the Duc Chinh Cooperative. And this list was authorized by Hai Duong DARD								Agrochemicals are sold in the cooperative's shop Tel: xxxxxxxxxxxx Address: xxxxxxxxxxxx
Max volume of 1 bin is 16Lt								
Diseases/Insects	Agrochemical Information		Pre Harvest Interval (days)	Amount of agrochemical for 1 bin	Amount of water for 1 bin	Number of bin for 1 sao	Maximum application times in season	Note
	Commercial Name	Active Ingredient						
1) Black cutworm (<i>Agrotis ipsilon</i>) Cotton leafworm (<i>Spodoptera litura</i>)	Match 050 EC	Lufenuron (min 96 %)	7	20ml-40ml	16 lit	1 binh	3	After the worm appears 5-7 days. Splay to insects' body.
	Prevathon 58C	Chlorantraniliprole (min 93%)	3	15ml-20ml	12 lit	1 binh	3	Splay to insects' body
	Radiant 60SC	Spinetoram (min 86.4%)	3	15ml	16 lit	1 binh	3	After the worm appears 5-7 days. Splay to insects' body or to plants.
2) Root rot (<i>Rhizoctonia solani</i>)	Daconil 75WP, 500SC	Chlorothalonil (min 98%)	7	15g	10 lit	2 binh	3	Splay before disease appears as prevention.
	Kasumin 2 SL	Kasugamycin (2%/w/w)	7	50ml-60ml	16lit	1 binh	3	
	Moren 25WP	Pencycuron (min 99%)	10	20g	16lit	2 binh	3	Splay before disease appears as prevention or after appeared as recovering.
	Validacin 5SL	Validamycin (Validamycin A) (min 40%)	7	35ml-40ml	16lit	1 binh	3	
3) Downy mildew (<i>Phytophthora infestans</i>)	Daconil 75WP, 500SC	Chlorothalonil (min 98%)	7	15g	10lit	2 binh	3	Splay before disease appears as prevention.
	Forwanil 75WP *2	Chlorothalonil (min 98%)	7	40g	16lit	1 binh	3	
4) Soft rot (<i>Erwinia carotovora</i>)	Alfamyl 35WP	Metalaxyl (min 95%)	7	16g	16lit	1 binh	3	Splay after diseases appeared as recovering.
	DuPont™ Kocide 46.1WG	Copper Hydroxide	3	25g	16lit	1 binh	3	Splay before disease appears as prevention.
	Kasumin 2 SL	Kasugamycin (2%/w/w)	7	50ml-60ml	16lit	1 binh	3	

Note:
*1: Valivithaco 3SL is possible to apply instead of Validacin 5SL because of same active ingredient. But should not be applied together to avoid over-dosage.
*2: Forwanil 75WP is possible to apply instead of Daconil 75WP or Daconil 500SC because of same active ingredient. But should not be applied together to avoid over-dosage.

Source: JICA Project team

(iv) Instruction to sales manager about proper application of agrochemical

JICA project team and PPMU provided the draft list of recommended agrochemicals and a guidance for sales manager how to instruct farmers based on the list for example:

- Inquiry of purpose of use, target vegetable and land area, and
- Select proper chemicals with providing a guidance of dosage, timing of application, PHI.

(v) Establishment and monitoring of joint purchase and distribution system

JICA project team and PPMU will provide a format for joint purchase recording including purchasing, storing and sales, and will also start monitoring the progress of joint purchase from August 2019 by checking the record book, and interview with sale manager about sales and issues. Sample recording book for joint purchase is shown as below.

Table 2.6.36 Sample recording format for joint purchase

Date	Farmer name	Chemical name	No of bin/ pack	Price	Remark (Crop name, land size)
20/May/'19	Farmer A	Alfamil 35WP	1	30,000	Carrot 1 sao

Source: JICA Project team

(4) Cultivation method for safe vegetables

1) Soil improvement

(i) Demonstration of composting method in winter season 2018-19

The progress of demonstration of composting method is shown in the table below.

Table 2.6.37 Demonstration of composting method for new target groups

Province	Target Group Name	Demonstration amount (m3)	No. of farmers instructed	Starting date	Completion date
Hai Duong	Green farm company	2	5	31/10/2018	09/01/2019
	Gia Company	2	10	28/10/2018	09/01/2019
	Lua farmers group	2	20	25/10/2018	05/01/2019
Hà Nam	Thanh Tan Coop	2	5	02/12/2018	17/02/2019
	Cat Lai Coop	2	10	28/10/2018	08/01/2019
Hung Yên	Chien Thang Coop	2	5	09/11/2018	19/01/2019
Thái Bình	Quỳnh Hải coop	2	12	07/11/2018	16/01/2019
	Thanh Tân coop	2	6	28/01/2019	04/04/2019
Vĩnh Phúc	Visa Coop	2	4	09/01/2019	22/03/2019
	Vĩnh Phúc coop	2	15	15/11/2018	27/01/2019
	Đại Lợi Coop	2	4	2/1/2019	15/03/2019
Phú Thọ	Hương Nộn Coop	2	5	25/12/2018	10/03/2019
	Trường Thịnh coop	2	13	20/12/2018	04/03/2019
Total:		26	114		

Source: JICA Project team

After providing the demonstration, the JICA project team inquired target groups about the interest of application of composting method, then requested target groups of cooperative style to nominate the farmers who are willing to apply. The JICA project team supported to provide rice bran and yeast for fermentation though the farmers contributed for rice husk/straw and cow/pig dung as compost material.

Table 2.6.38 Trial of composting method by individual farmers

Province	Target Group Name	Amount (m3)	No. of farmers applying compost
Hai Duong	Tan Minh Duc cooperative	30	15
	Duc Chinh Cooperative	40	20
	Thanh Ha Company	8	4
	Green farm company	-	-
	Gia Company	-	-
	Lua farmers group	40	20
Hà Nam	Ha Vy cooperative	10	5
	Hiep farm company	-	-
	Thanh Tan Cooperative	2	1
	Cat Lai Cooperative	40	20
Hung Yen	Yen Phu Cooperative	30	15

	Japan Vietnam company	-	-
	Chien Thanh cooperative	-	-
Thai Binh	Quyñh Hải cooperative	40	20
	Thanh Tân cooperative	-	-
Vinh Phuc	Visa Cooperative	-	-
	Vĩnh Phúc cooperative	60	20
	Đại Lợi Cooperative	10	5
Phu Tho	Hương Nộn Cooperative	40	20
	Trường Thịnh cooperative	38	19
Total:		388	184

Source: JICA Project team

(ii) Dissemination of composting method

The JICA project team monitored the dissemination status of composting method. As of end March 2019, total 204 m³ are produced by 5 companies and 3 farmers without project support as below.

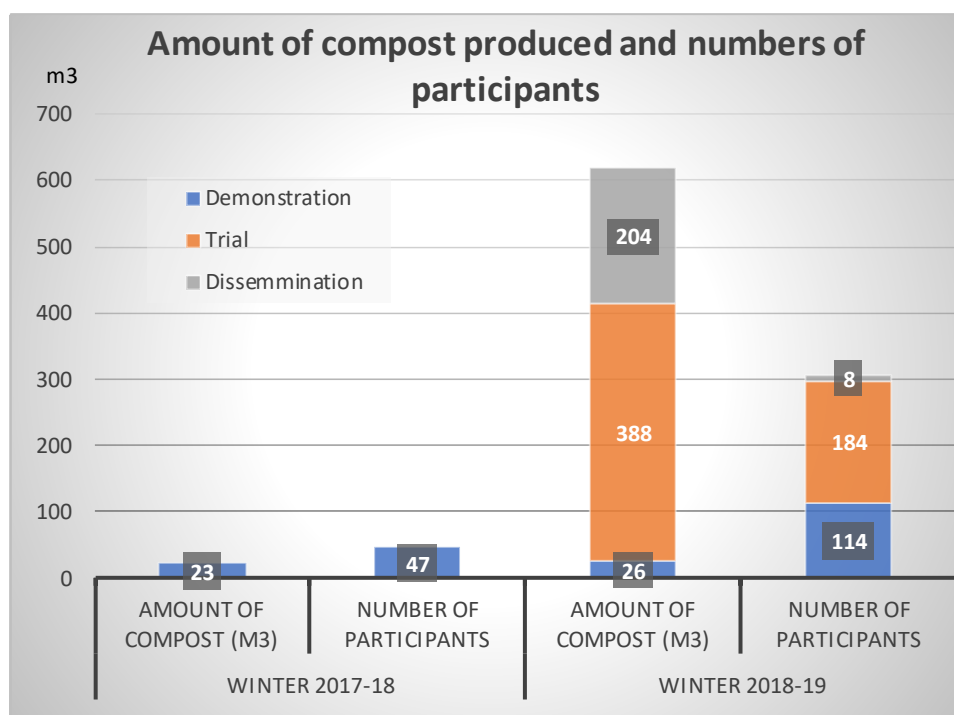
Table 2.6.39 Dissemination of composting method

Province	Target groups	Amount (m ³)	No. of farmers apply
Hai Duong	Thanh Ha company	30	1*
	Green farm company	16	1*
	Gia Gia company	14	1*
Ha Nam	Ha Vi coop	12	2
	Hiep farm company	100	1*
	Thanh Tan cooperative	12	1
Hung Yen	Japan Vietnam company	20	1*
Total		204	8 (5 companies, 3 farmers)

Note: * 1 company applies.

Source: JICA Project team

The JICA project team compared the extension of composting activities of this season with the one of previous year as below.



Note: Number of farmers on dissemination includes 5 companies out of 8.

Source: JICA Project team

Figure 2.6.9 Amount of compost produced and numbers of participants

In last winter 2017-18, the JICA project team conducted demonstration at 6 target groups except for Ha Vy cooperative, and produced 23m³ of compost. In response to the result of this demonstration, new 13 target groups and Ha Vy cooperative showed interests to demonstrate the composting and produced 26m³ of compost participating with 114 farmers. Based on these demonstrations, the JICA project team supported 184 farmers who were interested in trial of composting and produced 388m³ of compost with minimum material support. Besides that, 8 farmers including 5 companies produced 204m³ without project support. Up to now the total production of compost is 618m³.

(iii) Economic analysis of composting method

According to the trial composting preparation by JICA project team, the production cost of compost was estimated VND1,804/kg, which is VND526,573/sao (360m²) when it is applied 10m³ for 740m² of field.

In order to assess the economic feasibility, the JICA project team compared the production cost with other available materials in local market; such as locally-available compost, chicken dung and cow/pig dung as shown in the table below.

Table 2.6.40 Comparison of production cost of Introduced composting method and market price of compost and other products

Products	Production cost/ Market price			
	VND/kg	VND/m ³	VND/sao	%*

Compost introduced by Project	1,804	1,082,400	526,573	100%
Compost in local market (min)**	3,000	1,800,000	875,676	166%
Compost in local market (max)**	7,000	4,200,000	2,043,243	388%
Chicken dung in local market	-	400,000	194,595	37%
Cow/ pig dung in local market	-	500,000	243,243	46%

Remark: Weight of compost and other materials is calculated as 600kg/m³. Compost and other materials are estimated to apply 10m³ for 740m² of field.

* Compost introduced by project = 100%

** Interview data with local people

Source: JICA Project Team

According to the above table, production cost of compost introduced by project is higher than chicken dung or cow/pig dung, but it is cheaper than the compost in local market. In addition, locally-available compost is often not guaranteed of its quality in terms of contamination of heavy metal and/or foreign matters. Therefore, the project recommends the compost production method as the economic viable and trustable method for safe vegetable production.

2) Introduction of new variety seeds in winter season 2018-19

In winter season 2018-19, JICA project team received 15 varieties seeds from three Japanese companies as demonstration purpose. These varieties were carefully selected as having specific characters such as heat tolerance and/or disease tolerance, which were requested from target groups. As of end March 2019, demonstration farming is going on in each target group as shown in the table below.

Table 2.6.41 Introduction of new variety seeds in winter season 2018-19

Crop	Company	Target group	Sowing date	Harvesting date
Cauliflower	Futaba seed	Hiep farm	28 Jul. 2018	15 Oct. 2018
Cabbage	Futaba seed	Thanh Ha	12 Sep. 2018	20 Dec. 2018
Chinese cabbage (3 varieties)	Futaba seed	Japan Vietnam Thanh Ha	12 Sep. 2018	30 Nov. 2018
Cabbage (3 varieties)	Yamato Noen	Yen Phu	31 Aug. 2018	10 Dec. 2018
Melon (3 varieties)	Yamato Noen	Tan Minh Duc	11 Sep. 2018	30 Nov. 2018
Broccoli	Sakata seed	Thanh Ha Japan Vietnam	12 Sep. 2018	20 Dec. 2018
Komatsuna	Sakata seed	Hiep farm Japan Vietnam	10 Mar. 2019	20 Apr. 2019
Green onion	Sakata seed	Japan Vietnam Hiep farm	21 Oct. 2018	05 Jan. 2018
Carrot	Sakata seed	Gia Gia	02 Apr. 2019	(30 Jun. 2019)*

Note: * Trial of carrot is going on.

Source: JICA Project team

Expected features from new variety seeds are: 1) Heat tolerance in early season, 2) Heat tolerance in late season, 3) Disease tolerance, 4) Taste and 5) New product for Japanese market. Most expected feature was heat tolerance and 9 new varieties were tested. Disease tolerance of 3 varieties and Taste of 4 varieties were also tested as shown in below table.

Table 2.6.42 Expected features from new variety seeds for test

No.	Crop	Company	Variety	Expected Feature				
				F 1	F 2	F 3	F 4	F 5
1	Cauliflower	Futaba seed	F-NK-2017 (Fubata)	1				

2	Cabbage	Futaba seed	No 55 (Fubata)			1	1	
3	Chinese cabbage	Futaba seed	FTN 40 (Futaba)	1				
4	Chinese cabbage	Futaba seed	FTN 45 (Futaba)	1				
5	Chinese cabbage	Futaba seed	FTN 48 (Futaba)	1				
6	Cabbage	Yamato Noen	Cab-V001 (Yamato Noen)	1				
7	Cabbage	Yamato Noen	Cab-V003 (Yamato Noen)	1				
8	Cabbage	Yamato Noen	Cab-V004 (Yamato Noen)	1				
9	Melon	Yamato Noen	Mel-V001 (Yamato Noen)				1	
10	Melon	Yamato Noen	Mel-V002 (Yamato Noen)				1	
11	Melon	Yamato Noen	Mel-V003 (Yamato Noen)				1	
12	Broccoli	Sakata seed	Imperial Sakata	1		1		
13	Komatsuna	Sakata seed	SV-6302 Sakata	1		1		
14	Green onion	Sakata seed	BOS014 Sakata					1
15	Carrot	Sakata seed	CRS042 Sakata		1			
	Total			9	1	3	4	1

Note. Expected features are as below:

Feature 1 Heat tolerance in early season

Feature 2 Heat tolerance in late season

Feature 3 Disease tolerance

Feature 4 Taste

Feature 5 New product for Japanese market

Source: JICA Project team

Out of 15 varieties, the cultivation of one variety (Carrot) is going on as it tests the heat tolerance in late winter season. Through the trial, 14 varieties were evaluated by the following indicators:

- Disease damage
- Insect damage
- Harvested yield
- Farmers opinion in terms of easiness for cultivation, price, taste, etc.

Evaluation results were summarized in the table below.

Table 2.6.43 Result of new variety seed trial in winter 2018-19





Crop	Company	Variety	Expected feature for test	Disease damage	Insect damage	Harvest	Farmers' opinion	Overall Evaluation
Cauliflower	Futaba seed	F-NK-2017 (Fubata)	Heat tolerance to cultivate in early season	0%	10%	0.4 to 0.5 kg/plant = 14,500kg/ha (Existing main season variety: 0.8 to 0.9 kg/plant)	- Growing well in strong heat condition - Harvesting in very early season of winter - Soft and delicious - Selling price is 10,000 to 12,000 VND/plant (In main season: 4,000 to 5,000 VND/plant) - There are early season variety from Thai Land, and it has similar character (Heat tolerance, yield) with new variety	Potential for recommendation
Cabbage	Futaba seed	No 55 (Fubata)	Disease tolerance and taste	0%	- Name of insect: Pieris rapae - Applied 2 time of pesticide during crop.	- Weight: 1.6 kg to 1.8 kg/plant - Yield: 55,080 kg/ha (Yield is same as existing variety)	- Growing well and very strong - Yield is good - The taste is soft and delicious - It is suitable to plant in main season of winter - Thanh Ha' farmers want to buy this variety	High potential for strong recommendation
Chinese cabbage	Futaba seed	FTN 40 (Futaba)	Heat tolerance to cultivate in early season	0%	Phyllotreta striolata attacked. Prevathon is recommended to be applied for seedling before transplanting.	- Weight of plant: 0.601 kg/plant - Yield: 24,340 kg/ha	Taste is good, but the yield is low. Therefore this variety is not high potential.	Potential for recommendation
Chinese cabbage	Futaba seed	FTN 45 (Futaba)	Heat tolerance to cultivate in early season	0%	Phyllotreta striolata attacked. Prevathon is recommended to be applied for seedling before transplanting.	- Weight of plant: 0.8 kg/plant - Yield: 32,400 kg/ha. (not low)	- This variety has a potential because of good taste and good yield. - Thanh Ha' farmers want to buy this variety	High potential for strong recommendation
Chinese cabbage	Futaba seed	FTN 48 (Futaba)	Heat tolerance to cultivate in early season	0%	Phyllotreta striolata attacked. Prevathon is recommended to be applied for seedling before transplanting.	- Weight of plant: 0.6 kg/plant - Yield: 24,300 kg/ha.	Taste is good, but the yield is low. Therefore this variety is not high potential.	Potential for recommendation
Cabbage	Yamato Noen	Cab-V001 (Yamato Noen)	Heat tolerance to cultivate in early season	0%	Pieris rapae (Treated)	No harvest	Most plants have not started formation of boll, resulted in fail.	Not to recommend
Cabbage	Yamato Noen	Cab-V003 (Yamato Noen)	Heat tolerance to cultivate in early season	0%	Pieris rapae (Treated)	No harvest	Most plants have not started formation of boll, resulted in fail.	Not to recommend
Cabbage	Yamato Noen	Cab-V004 (Yamato Noen)	Heat tolerance to cultivate in early season	0%	Pieris rapae (Treated)	No harvest	Most plants have not started formation of boll, resulted in fail.	Not to recommend
Melon	Yamato Noen	Mel-V001 (Yamato Noen)	Taste	0%	Tetranychus urticae, Bemisia myricae (treated)	No harvest	Most plants were dead in the end season due to diseases caused by nutrition balance	Not to recommend
Melon	Yamato Noen	Mel-V002 (Yamato Noen)	Taste	0%	Tetranychus urticae, Bemisia myricae (treated)	No harvest	Most plants were dead in the end season due to diseases caused by nutrition balance	Not to recommend
Melon	Yamato Noen	Mel-V003 (Yamato Noen)	Taste	0%	Tetranychus urticae, Bemisia myricae (treated)	No harvest	Most plants were dead in the end season due to diseases caused by nutrition balance	Not to recommend
Broccoli	Sakata seed	Imperial Sakata	Heat tolerance and disease tolerance	0%	- Name of insect: Pieris rapae - Applied 2 time of pesticide during crop.	- Weight: 0.7 kg/plant - Yield: 22,680 kg/ha (same as existing variety)	- Growing well and very strong (Good) - Yield is good (Good) - The taste is soft and delicious (Good) - Very good appearance and color (Good) - Harvesting time: Regular - Thanh Ha' farmers want to buy this variety	High potential for strong recommendation
Komatsuna	Sakata seed	SV-6302 Sakata	Heat tolerance and disease tolerance	0%	strongly attacked by insect namely Phyllotreta striolata because this variety is more special than existing variety in the field	- Weight : 8.1 kg/m2 - Yield: 8,100 kg/ha. (Existing variety: 11,000 kg/ha). (Not good) - Taste: Sweeter than existing one (Good) - Corlor: Dark green (good)	Taste is good but the yield is low. Therefore this variety is potential for the farm who have good buyer that can pay higher price than normal	Potential for recommendation
Green onion	Sakata seed	BOS014 Sakata	New product for Japanese market	0%	0%	Yield: 12 000 kg/ha (Good).	- Growing well and very strong - Yield is good - Taste, smell of the new variety is less than the existing variety (Not good) - Good appearance and color - Flower timing of this variety is later than existing variety about 1 month, therefore farmer can reserve it long time in the field (Very good) - Japan Vietnam farm do not want to buy this variety because taste, smell is not good as existing variety	Potential for recommendation in Japanese market
Carrot	Sakata seed	CRS042 Sakata	Heat tolerance in late season					Under trial

Source: JICA Project team

According to the evaluation result, the following 3 varieties were selected as the high potential variety seeds for strong recommendation and the 5 varieties were selected as the potential varieties for recommendation.

The JICA project team will feedback the results and lessons to the seed companies then discuss the next steps for dissemination.

Table 2.6.44 Recommended variety seeds

Crop	Company	Variety	Expected feature	Photos
High potential variety seed for strong recommendation				
Cabbage	Futaba seed	No 55 (Fubata)	Disease tolerance and taste	
Chinese cabbage	Futaba seed	FTN 45 (Futaba)	Heat tolerance to cultivate in early season	
Broccoli	Sakata seed	Imperial Sakata	Heat tolerance and disease tolerance	
Potential for recommendation				
Cauliflower	Futaba seed	F-NK-2017 (Futaba)	Heat tolerance to cultivate in early season	
Chinese cabbage	Futaba seed	FTN 40 (Futaba)	Heat tolerance to cultivate in early season	
Chinese cabbage	Futaba seed	FTN 48 (Futaba)	Heat tolerance to cultivate in early season	
Komatsuna	Sakata seed	SV-6302 Sakata	Heat tolerance and disease tolerance	
Green onion	Sakata seed	BOS014 Sakata	New product for Japanese market	

Source: JICA Project team

3) Introduction of new seedling method

Based on the result in winter season 2017-18, JICA project team continued the introduction of new seedling methods even for new target groups as below.

Table 2.6.45 Demonstration of new seedling method in winter season 2018-19

Province	Target groups	Crop	Amount of seedlings	No. of farmer	Sowing date	Completed date
Hai	Gia gia company	Tomato	11,000	4	December 22, 2018	January 20, 2019
Duong	Green farm	Cucumber	2,500	5	March 15, 2019	March 29, 2019
Ha Nam	Ha Vy coop	Cucumber	4,000	1	February 15, 2019	March 01, 2019
	Cat lai coop	Cucumber	1,500	8	February 18, 2019	March 04, 2019
	Thanh Tan group	Cucumber	2,500	4	February 10, 2019	March 07, 2019
Thai Binh	Quynh Hai coop	Kohlrabi	8,000	10	07 November 2018	26 November 2018
	Vinh Phuc coop	Sponge gourd	3,000	15	January 29, 2019	February 14, 2019

Vinh Phuc	Visa coop	Tomato	4,000	5	January 22, 2019	February 12, 2019
	Dai Loi coop	Sponge gourd	1,000	4	February 21, 2019	March 08, 2019
Phu Tho	Huong Non coop	Pear shaped melon	1,600	6	February 07, 2019	March 01, 2019
	Truong Think coop	Pear shaped melon	4,000	10	February 19, 2019	March 08, 2019
Total			43,100	72		

Source: JICA Project team

72 farmers of 11 groups received trainings of new seedling method and all of groups satisfied with the results of seedlings demonstrated by the JICA project team.

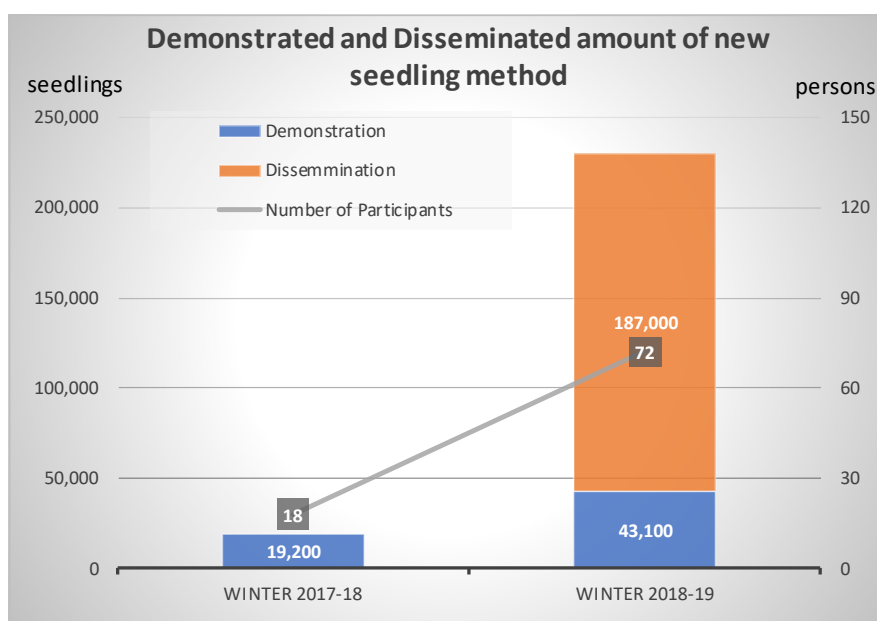
The JICA project team also monitored the dissemination status of new seedling method. As of end March 2019, total 187,000 seedlings equivalent to 5.99ha of cultivation land has been produced by 4 companies and 34 farmers as below. Those companies and farmers procured necessary materials by themselves.

Table 2.6.46 Dissemination of new seedling method

Target group		Number of farmers	Number of seedlings	Area of applying (ha)
Hai Duong	Tan Minh Duc Coop.	12	60,000	1.85
	Thanh Ha Company	3*	25,000	0.77
	Green farm	1**	4,000	0.12
Hung Yen	Japan-Vietnam Company	1**	11,000	0.34
	Yen Phu Cooperative.	7	20,000	0.62
Ha Nam	Ha Vi coop.	2	10,600	0.40
	Hiep' Farm company	1**	30,000	0.92
	Than Tan farmer group	1	3,500	0.13
Thai Binh	Quyinh Hai coop	4	12,000	0.44
Vinh Phuc	Vinh Phuc coop.	3	2,000	0.07
Phu Tho	Huong Non coop	1	5,400	0.2
	Truong Think coop	2	3,500	0.13
Total		38	187,000	5.99

Note: * 1 company and 2 farmers apply, ** 1 company applies.

Source: JICA Project team



Source: JICA Project team

Figure 2.6.10 Demonstrated and disseminated amount of new seedlings

In last year, only 18 farmers received a training, but in winter 2018-19 72 farmers received it. After these demonstrations, 38 farmers including 4 companies have started seedling production for more than 187,000 seedling.

4) Introduction of new agriculture material (Non-woven textile, NWT)

As the result of demonstration farming in previous year, Non-woven textile, NWT was evaluated as the promising item to protect vegetables from insect with reducing insecticide. In winter season 2018-19, JICA project team decided to introduce NWT even to new target groups. In winter season 2018-19, 13 target groups conducted demonstration of NWT as shown in the table below.

Table 2.6.47 Introduction of Non-Woven Textile in winter season 2018-19

Province	Target group	Vegetable	Area (m ²)			No. of Participants	Period	
			Japanese NWT		Without NWT		Started	Completed
			Direct Cover	Tunnel				
Hai Duong	Tan Minh Duc Coop.	Broccoli	100	100	100	4	15-Feb-19	5-Apr-19
	Thanh Ha Com.	Choysom	180	180	50	4	27-Feb-19	2-Apr-19
	Lua group	Broccoli	150	150	150	9	20-Jan-19	5-Mar-19
	Gia gia Com.	Choysom	100	100	50	5	5-Jan-19	14-Feb-19
Hung Yen	Yen Phu Coop.	Green mustard	200	200	50	6	5-Dec-18	15-Jan-19
Ha Nam	Ha Vi coop.	Choysom	150	150	50	4	3-Mar-19	7-Apr-19
	Cat lai Coop.	Choysom	150	150	50	5	28-Jan-19	4-Mar-19
	Thanh Tan group	Green mustard	150	150	50	3	3-Mar-19	7-Apr-19
Thai Binh	Quynh Hai Coop.	Green mustard	150	150	50	8	4-Mar-19	8-Apr-19
Vinh Phuc	Vinh Phuc coop.	Green mustard	200	100	50	5	7-Jan-19	15-Feb-19
	Dai Loi Coop.	Choysom	150	150	50	5	27-Feb-19	1-Apr-19
Phu Tho	Huong Non Coop.	Amaranth	150	150	50	8	22-Jan-19	18-Mar-19
	Truong Thinh coop.	Choysom	30	200	30	10	26-Feb-19	1-Apr-19
Total			1,860	1,930	780	76		

Source: JICA Project team

Total size demonstration farm was 4,570m² (12.7 sao) including Japanese NWT 3,790m² (10.5 sao) and without NWT 780m². The JICA project team collected three kinds of data for analysis: yield, insect damage with number of insecticide application and disease damage with number of fungicide application as shown in the table below. Insecticide and fungicide were applied when any insect and disease were found.

Table 2.6.48 Result of demonstration for Non-Woven Textile in winter season 2018-19

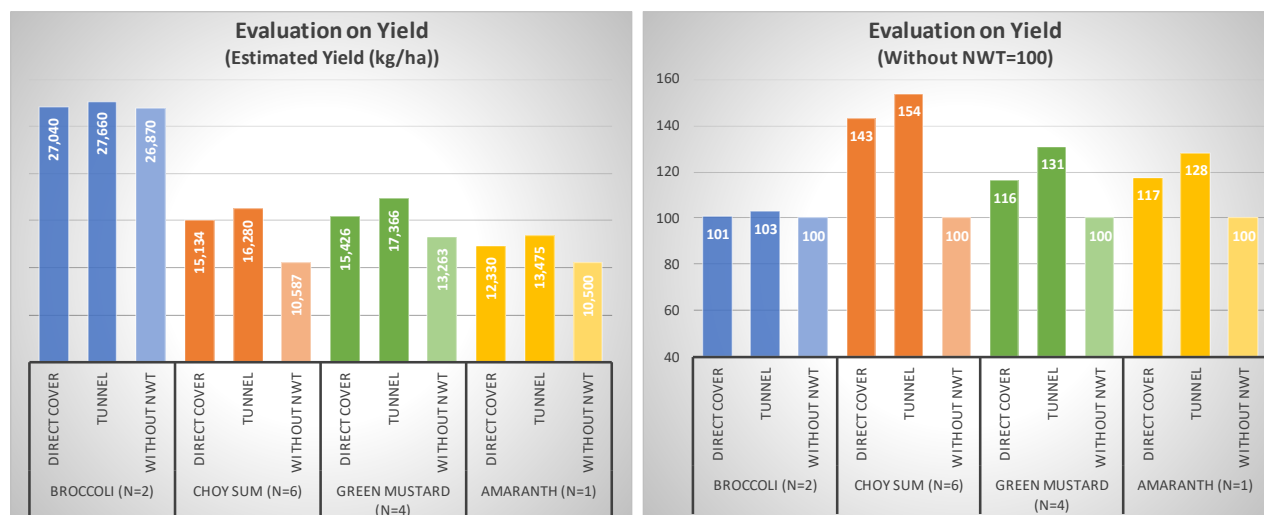
Vegetable	Method	Area of trial (m ²)	Average yield		Average insect damage				Average disease damage		Remark
			Harvest in trial area (kg)	Estimated Yield (kg/ha)	Pieris rapae	Plutella xylostella Linnaeus	Phyllotreta striolata Fabricius	Insecticide (times)	Name of disease	Fungicide (times)	
Broccoli (n=2)	Direct Cover	250	676	27,040	0.0%	0.0%	7.0%	0.0	Soft rot	2.0	It is assumed insect remained in the soil from previous crop, or from outside via connection point between NWT and soil. (flea beetle)
	Tunnel	250	692	27,660	0.0%	0.0%	9.5%	0.0	Soft rot	2.0	
	Without NWT	250	672	26,870	20.0%	0.0%	30.5%	3.5	Soft rot	2.5	
Choy sum (n=6)	Direct Cover	760	1,150	15,134	0.0%	2.7%	5.8%	0.2	-	0.0	It is assumed insect remained in the soil from previous crop, or from outside via connection point between NWT and soil. (flea beetle) Detailed inspection is required for plant damage under direct cover by moth.
	Tunnel	930	1,514	16,280	0.0%	0.0%	7.1%	0.0	-	0.0	
	Without NWT	280	296	10,587	0.0%	3.5%	96.7%	3.0	-	0.0	
Green mustard (n=4)	Direct Cover	700	1,080	15,426	0.0%	0.0%	5.4%	0.0	-	0.0	It is assumed insect remained in the soil from previous crop, or from outside via connection point between NWT and soil. (flea beetle)
	Tunnel	600	1,042	17,366	0.0%	0.0%	6.6%	0.0	-	0.0	
	Without NWT	200	265	13,263	0.0%	0.0%	74.8%	3.8	-	0.0	
Amaranth (n=1)	Direct Cover	150	185	12,330	0.0%	0.0%	0.0%	0.0	-	0.0	-
	Tunnel	150	202	13,475	0.0%	0.0%	0.0%	0.0	-	0.0	
	Without NWT	50	53	10,500	30.0%	0.0%	0.0%	2.0	-	0.0	
Total		4,570									

Remarks: Pieris rapae (butterfly) and Plutella xylostella Linnaeus (moth) normally lay eggs on plant. Phyllotreta striolata Fabricius (striped flea beetle) deposits eggs in the soil adjacent to plants and eat the roots of the plants.

Source: JICA Project team

(i) Yield

Yield was evaluated among 3 types methods (direct-cover NWT, tunnel NWT, and without NWT) and per crop: Broccoli (n=2), Choy sum (n=6), Green mustard (n=4), and Amaranth (n=1).



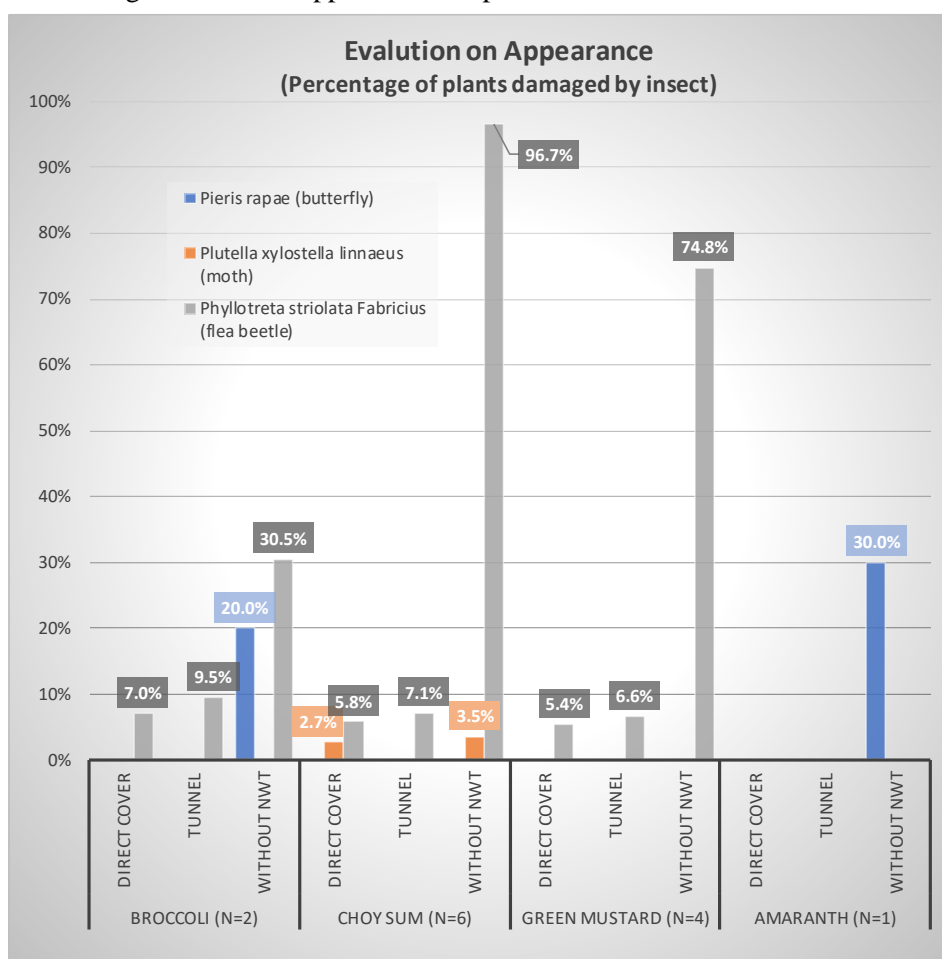
Source: JICA Project team

Figure 2.6.11 Evaluation of NWT demonstration on Yield

Three leafy vegetables had a significant difference between with NWT and without NWT. Maximum yield gap was 28% for amaranth, 31% for green mustard and 54% for choy sum. There was no big difference between with NWT and without NWT for broccoli.

(ii) Appearance

Appearance is clearly affected by insect damages. The following graph indicates the percentages of plants damaged by insects, which reflects the appearance directly. The higher percentage the plants are damaged, the lower appearance the plants are.



Source: JICA Project team

Figure 2.6.12 Evaluation of NWT demonstration on Appearance

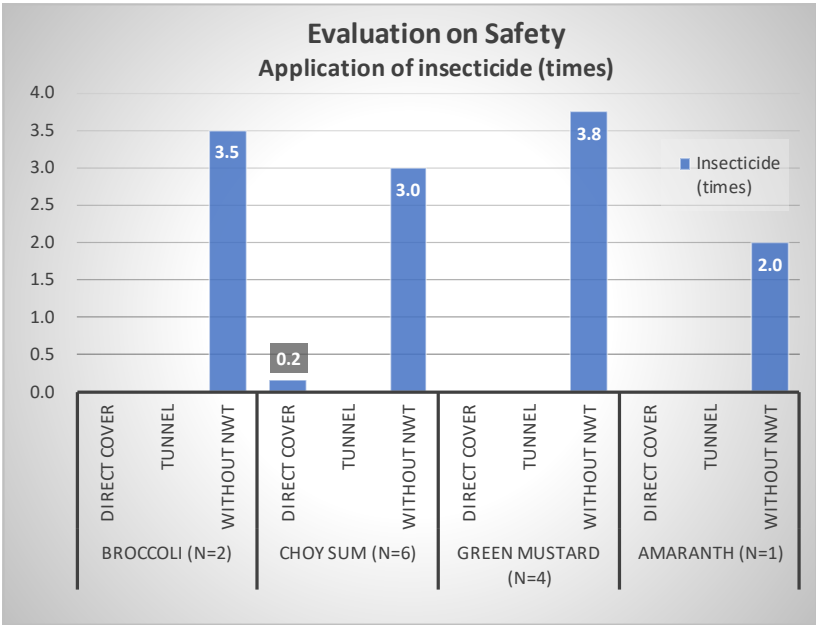
There was a significant difference for choy sum and green mustard between with NWT and without NWT. For choy sum, 96.7% of plants without NWT were damaged by flea beetles but only 5.8% (direct cove) and 7.1% (tunnel) of plants with NWT were damaged by them. Even for green mustard, the percentage of damaged plants were drastically reduced from 74.8% (without NWT) to 5.4% and 6.6% (with NWT). There were also differences for broccoli and amaranth

between with NWT and without NWT, NWT is evaluated as an effective material to protect plants from insect.

However, there was one unique case of damage caused by *Plutella xylostella linnaeus* (moth) under direct cover for choy sum in Gia gia company. Among 13 demonstration farms, there was no damage by the moth with NWT except for the farm in Gia gia company. *Pieris rapae* (butterfly) and *Plutella xylostella linnaeus* (moth) normally lay eggs on plant, but do not deposit eggs in the soil. Detailed inspection is required for plant damage under direct cover by moth. Except for Amaranth, all three crops had insect damage caused by *Phyllotreta striolata Fabricius* (flea beetle). It is assumed the insect egg were remained in the soil from previous crop, or from outside via connection point between NWT and soil. It is therefore highly recommended to implement soil sterilization before transplanting the plants in field to mitigate such insect damage.

(iii) Safety improvement by reduction of insecticide application

NWT contributed to reduce the application of insecticide as below.



Source: JICA Project team

Figure 2.6.13 Evaluation of NWT demonstration on Safety improvement by reduction of insecticide application

In the field without NWT, it was required to apply insecticide 2 – 3.8 times in average, but it was not required to apply in the field with NWT. Only one case, the JICA project team applied insecticide for the plants under direct cover due to occurrence of *Plutella xylostella linnaeus* (moth) inside the cover.

(iv) Dissemination of NWT

JICA project team monitored the dissemination status of NWT. As of end March 2019, total 32,260m² area of land was applied NWT including 1,260 m² for Japanese NWT by 3 companies and 3 farmers as below by purchasing material by themselves.

Table 2.6.49 Dissemination of non-woven textile (NWT)

Target group		Number of farmers	Japanese NWT (m ²)	Vietnamese NWT (m ²)	Total (m ²)
Hai Duong	Gia gia company	1*	0	12,000	12,000
	Green farm company	1*	0	5,000	5,000
Hung Yen	Japan-Vietnam Company	1*	0	7,000	7,000
	Yen Phu Cooperative.	3	1,260	7,000	8,260
Total		6	1,260	31,000	32,260

Note: *1 company

Source: JICA Project team

(5) On-field instruction of Basic GAP

1) Monitoring result of record keeping

In winter season 2018-19, the number of farmers/ land plots are expanded to 861. Out of them, 437 belong to initial 7 target groups and remaining 424 belong to new 13 target groups. Counting of each item is defined below.

(i) No. of farmers mistook on record keeping

- Necessary item is not recorded (e.g. basic information such as cultivation area and crop name, date of chemical application, dosage amount, etc.)
- There is a mistake on record (e.g. wrong chemical name, wrong dosage amount, etc.)

(ii) No. of misuse of agro-chemical (casual)

- There is a mistake on calculation of dilution rate for agrochemical.
- Agrochemical not permitted to use for target vegetable is applied (except for illegal agrochemicals).
- There is a mistake on application method of agrochemicals. (e.g. mixing with many kinds of chemicals)

(iii) No. of misuse of agro-chemical (serious)

- Illegal chemical is applied.
- Pre-harvest interval (PHI) is not enough before harvesting.

As of end March 2019, monitoring of record keeping is shown in the table below.

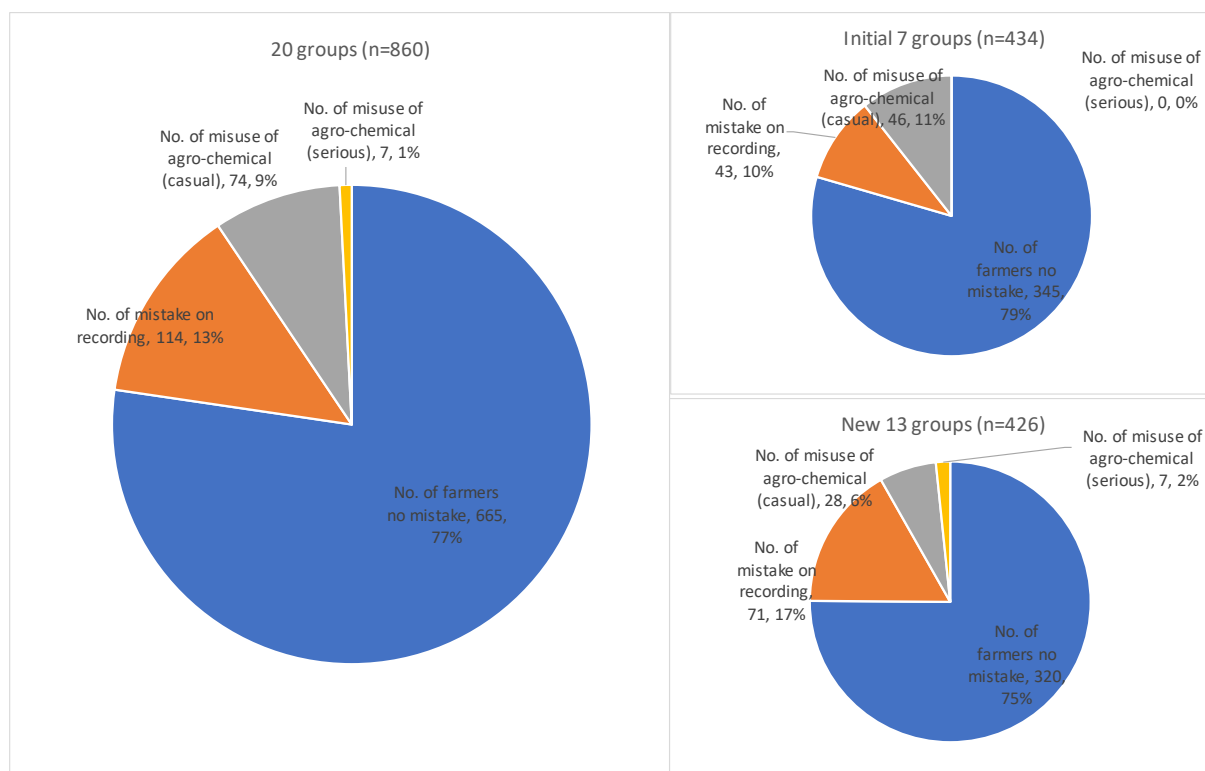
Table 2.6.50 Monitoring result of record keeping in winter season 2018-19

Province	Target groups	No. of farmer/ land plot, original	No. of farmer/ plot checked	No. of farmers no mistake	No. of mistake on recording	No. of misuse of agro-chemical (casual)	No. of misuse of agro-chemical (serious)
Hai Duong	Tan Minh Duc coop.	51	51	45	6	0	0
	Thanh Ha company	10	10	10	0	0	0
	Duc Chinh coop.	278	278	211	25	42	0
	<i>Gia gia company</i>	16*	16	16	0	0	0
	<i>Green farm company</i>	11*	13	13	0	0	0
	<i>Lua farmer group</i>	50	50	24	20	6	0
Ha Nam	Ha Vi coop	27	27	16	8	3	0
	Hiep farm company	22*	19	14	4	1	0
	<i>Cat Lai coop.</i>	24	24	13	6	4	1
	<i>Thanh Tan farmer group</i>	6	6	3	2	1	0
Hung Yen	Japan Vietnam company	17*	17	17	0	0	0
	Yen Phu coop.	32	32	32	0	0	0
	<i>Chien Thang coop.</i>	8	8	8	0	0	0
Phu Tho	<i>Huong Non coop</i>	86	86	60	19	5	2
	<i>Truong Thinh coop</i>	42	42	30	6	4	2
Vinh Phuc	<i>Visa coop</i>	31*	31	27	4	0	0
	<i>Dai Loi coop</i>	48*	48	35	6	5	2
	<i>Vinh Phuc coop</i>	64*	64	57	7	0	0
Thai Binh	<i>Quynh Hai coop</i>	32	32	28	1	3	0
	<i>Thanh Tan coop</i>	6*	6	6	0	0	0
Total	20 groups	861	860	665	114	74	7
	Initial 7 groups	437	434	345	43	46	0
	New 13 groups	424	426	320	71	28	7
Total (%)	20 groups			77%	13%	9%	1%
	Initial 7 groups			79%	10%	11%	0%
	New 13 groups			75%	17%	7%	2%

Note: * count as number of land plot

Source: JICA Project team

Out of 861 farmers/ land plot, JICA project team and PPMU staff checked 860 records, and found 665 farmers/plots (77%) were no mistake on record. However, 114 cases of mistakes (13%) were found including 74 casual cases (9%) and 7 serious cases (1%) of agro-chemicals misuse.



Source: JICA Project team

Figure 2.6.14 Monitoring result of record keeping in winter season 2018-19

2) Identification of cause of mistake in Duc Chinh cooperative

Especially there were 65 farmers mistook on recording in Duc Chinh cooperative and out of them 42 cases were casual mistake of agro-chemical. JICA project team together with PPMU staff therefore visited Duc Chinh cooperative to inspect the condition of recording. Most of mistake identified were wrong name of agrochemicals. It was difficult for many of farmers to remind proper English names of chemicals, farmers wrote wrong but commonly-used names. Those were not serious but there is a risk of misunderstanding to third parties, therefore, JICA project team proposed PPMU to improve the recording by the following actions.

- To prepare a list of recommended agro-chemicals for each vegetable
- To prepare a quick reference guide to assist calculation of dilution rate of chemicals
- To instruct farmers to use those recommended chemicals
- To attach the list of recommended chemicals on record book.

Besides Duc Chinh cooperative, there are many cases found mistakes on record keeping or agro-chemical usage in many target groups, especially in new target groups. JICA project team recommended target groups and PPMU staff to organize an internal meeting so that those lessons and technical guidance can be shared among farmers.

3) Identification of cause of serious misuse of agro-chemicals

There were 7 serious misuses of agro-chemicals found from 4 target groups: Cat Lai coop., Huong Non coop, Truong Thinh coop and Dai Loi coop. JICA project team reviewed those record books to identify the kind of case and the causes to lead misuse.


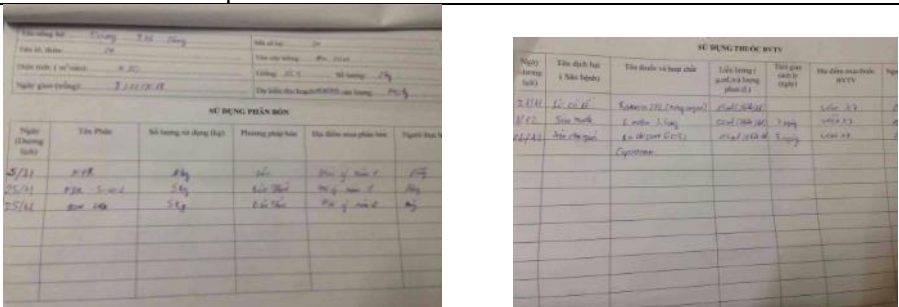
Table 2.6.51 Cause of misuse of agro-chemical (serious)

Target group		No. of misuse of agro-chemical (serious)	Illegal chemical was applied	PHI was not enough before harvesting
Ha Nam	Cat Lai coop.	1	0	1
Phu Tho	Huong Non coop	2	0	2
Phu Tho	Truong Thinh coop	2	0	2
Vinh Phuc	Dai Loi coop	2	0	2
Total		7	0	7

Source: JICA Project team

According to the inspection, there was no case of illegal chemical application. All of 7 cases were PHI violence, which a farmer harvested vegetable without keeping enough interval period after application of a chemical. Result of detailed inspection is shown in the table below:

Table 2.6.52 Detailed inspection note of serious case

Target group	Cat Lai cooperative	
Incident name	PHI violence	
Vegetable	Bean	
Incident detail	<p>When the field staff check the field record compared with harvesting record, the staff found the PHI was not enough according to the instruction on pesticide label.</p> <ul style="list-style-type: none"> - Name of pesticide: Radiant 60SC - Recommended duration (number of days) of PHI according to guidance of pesticide label: <u>3 days</u> - Actual PHI duration (number of days) of this case: <u>2 days</u> 	
Solution/ action to be taken	Collaborate with PPMU staff and cooperative production manager, instruct directly for corrective action. Keep monitor for next time	
Photo		

Source: JICA Project team

As shown in the above table, JICA project team checked the field record compared with harvesting record, then found the PHI was not enough according to the instruction on pesticide label as below:

- Name of pesticide: Radiant 60SC
- Recommended duration of PHI according to guidance of pesticide label: 3 days

- Actual PHI duration of this case: 2 days

It was evaluated as one day difference from recommended duration, and JICA project team directly instructed the farmer for corrective action to avoid mistakes in association with PPMU staff and cooperative production manager.

4) Internal Audit

Internal audit for winter 2018-19 was organized for each target group in February - March 2019 with attendance of PPMU staff. Internal audit report was prepared by each target group with signature of participant from PPMU. Summary of internal audit is shown in the table below:

Table 2.6.53 Summary of internal audit

Province	Target groups	Date of Internal audit	No. of passed criteria	No. of failure criteria	Remarks
Hai Duong	Tan Minh Duc coop.	28/02/2019	26	0	
	Thanh Ha company	01/02/2019	26	0	
	Duc Chinh coop.	07/3/2019	24	2	- Pesticide packages are not destroyed strictly in compliance with the State's regulations - Farmers do not have warning signs in the production site those just spraying pesticides
	<i>Gia gia company</i>	04/3/2019	26	0	
	<i>Green farm company</i>	28/02/2019	26	0	
	<i>Lua farmer group</i>	08/03/2019	19	7	- Due to not practice joint purchase, so do not record and kept when purchase fertilizers and soil additives - Several farmers use over dose of pesticides - Pesticide packages are not destroyed strictly in compliance with the State's regulations - Do not have processing, packaging, and storage house - Farmers do not have warning signs in the production site those just spraying pesticides.
Ha Nam	Ha Vi coop	28/02/2019	26	0	
	Hiep farm company	27/02/2019	26	0	
	<i>Cat Lai coop.</i>	04/03/2019	23	3	- Pesticide packages are not destroyed strictly in compliance with the State's regulations - Do not have processing, packaging, and storage house - Liquid waste are not collected in compliance with regulation
	<i>Thanh Tan farmer group</i>	05/03/2019	25	1	- Do not have processing, packaging, and storage house
Hung Yen	Japan Vietnam company	11/03/2019	26	0	
	Yen Phu coop.	11/03/2019	24	2	- Pesticide packages are not destroyed strictly in compliance with the State's regulations - Solid and liquid waste are not collected in compliance with regulation
	<i>Chien Thang coop.</i>	15/03/2019	23	3	- Pesticide packages are not destroyed strictly in compliance with the State's regulations

					- Do not have processing, packaging, and storage house - Liquid waste are not collected in compliance with regulation
Phu Tho	<i>Huong Non coop</i>	06/03/2019	23	3	- Do not have safe production site certification - Hygiene condition on packaging place is not proper Due to there is no pre-processing house - Farmers do not have warning signs in the production site those just spraying pesticides.
	<i>Truong Thinh coop</i>	05/03/2019	23	3	-Hygiene condition on packaging place is not proper Due to there is no pre-processing house - Farmers Do not have warning signs in the production site those just spraying pesticides. -Do not have label to facilitate the traceability of products
Vinh Phuc	<i>Visa coop</i>	26/02/2019	26	0	
	<i>Dai Loi coop</i>	25/02/2019	26	0	
	<i>Vinh Phuc coop</i>	26/02/2019	26	0	
Thai Binh	<i>Quynh Hai coop</i>	04/03/2019	25	1	Farmers do not have warning signs in the production site those just spraying pesticides
	<i>Thanh Tan coop</i>	14/03/2019	25	1	Farmers do not have warning signs in the production site those just spraying pesticides.

Source: JICA Project team

According to the result, 10 target groups out of 20 had no failure found by internal audit though other 10 groups had any kind of failure to meet criteria on Basic GAP 26 check points. Project team analyzed the failures identified in internal audit as below:

Table 2.6.54 Identified criteria failed to meet requirement on Basic GAP

No	Basic GAP Criteria	Level	No. failed (n=20)	Comment
17	Are processing, packaging, and storage areas isolated from storehouses and containing sites of pesticides, fertilizers and other hazardous chemicals?	A	6	The group does not have processing, packaging, and storage house.
22	Have farmers worked on warning signs in the production site those just spraying pesticides?	B	6	The group does not have warning signs in the production site those just spraying pesticides
14	Are chemicals and those packages destroyed strictly in compliance with the State's regulations?	A	5	Pesticide packages are not destroyed strictly in compliance with the State's regulations
20	Is waste water, garbage collected and treated properly in accordance with regulations?	A	3	Liquid waste are not collected in compliance with regulation
1	Is the production site appropriate for the State's and local planning?	A	1	Do not have safe production site certification
6	Has a record been made and kept when fertilizers and soil additives are purchased and used?	A	1	Due to not practice joint purchase, so do not record and kept when purchase fertilizers and soil additives
12	Are chemicals/plant protection products used strictly in accordance with label directions and guidance of technicians?	A	1	Several farmers use over dose of pesticides
18	Is clean water used to wash products after harvesting?	A	1	Do not have processing, packaging, and storage house

19	Does the quality of clean water used to wash products meet the standard?	A	1	Do not have processing, packaging, and storage house
25	Do products have product origin or label to facilitate the traceability?	A	1	Do not have label to facilitate the traceability of products

Source: JICA Project team

- Regarding No.17, 6 target groups mentioned that they did not have any pre-processing facility then it was not applicable for the group. It is recommended to build the facility to meet the requirement upon the buyers' demand. (same for No.18 and 19)
- Regarding No. 22, 6 target groups did not have warning signs for spraying pesticides. It is recommended to provide sign boards from JICA project team.
- Regarding No.14, 5 target groups mentioned that the chemical packages are destroyed or burned on site without taking out from field properly. It is compulsory to follow it as Level A, PPMU is advised to guide the groups to follow.
- Regarding No.20, 3 target groups mentioned that they dumped garbage or liquid waste in field without treating properly. It is also compulsory to follow as Level A, PPMU is advised to guide the groups to follow.
- Regarding No.12, only one group mentioned that some farmers used over dose of chemicals. But according to the result of monitoring of record books, we identified that 10 groups out of 20 target groups had any kinds of misuse of chemical. Therefore PPMU is advised to guide the groups again about proper use of chemicals.

(6) Upgrading conditions to ensure food hygiene and safety

As of end March 2019, 16 target groups out of 20 groups completed technical assessment of food hygiene and safety condition on pre-processing facilities as shown in the table below. 9 groups completed to prepare an upgrading plan and 7 groups completed the upgrading of facilities. 4 target groups, Thanh Ha company, Visa cooperative, Dai Loi cooperative and Vinh Phuc cooperative were assessed that their facilities met requirement on food hygiene and safety and another group, Duc Chinh cooperative assessed not to construct any pre-processing facility since those were already run by private companies in commune.

Table 2.6.55 Progress of upgrading of pre-processing facility (as of end March 2019)

Province	Target groups	Technical Assessment	Upgrading planning	Upgrade of facilities
Hai Duong	Tan Minh Duc coop.	Done	Done	Done
	Thanh Ha company	Done	Not necessary	Not necessary
	Duc Chinh coop.*	Done	Not necessary	Not necessary
	Gia gia company	Done	Done	Done
	Green farm company	Done	Done	-
	Lua farmer group	Done	Done	-
Ha Nam	Ha Vi coop	Done	Done	Done
	Hiep farm company	Done	Done	Done
	Cat Lai coop.	Done	On going	-
	Thanh Tan farmer group	On going	-	-

Hung Yen	Japan Vietnam company	Done	Done	Done
	Yen Phu coop.	Done	Done	Done
	Chien Thang coop.	Done	Done	Done
Phu Tho	Huong Non coop	On going	-	-
	Truong Thinh coop	On going	-	-
Vinh Phuc	Visa coop	Done	Not necessary	Not necessary
	Dai Loi coop	Done	Not necessary	Not necessary
	Vinh Phuc coop	Done	Not necessary	Not necessary
Thai Binh	Quynh Hai coop	Done	-	-
	Thanh Tan coop	On going	-	-
Total	Ongoing/ Not yet	4	6	8
	Done	16	9	7
	Not necessary	-	5	5

Note: * Duc Chinh cooperative uses a pre-processing facility run by a private company, then upgraded a fertilizer and agrochemical storage instead.

Source: JICA Project team

(7) Joint sales

1) Number of farmers who join joint sales

As of end March 2019, it was confirmed that more than 50% of farmers have joined the joint sales in 17 target groups out of 20 groups except for 3 cooperatives: Duc Chinh in Hai Duong, Cat Lai in Ha Nam and Huong Non in Phu Tho. In total, 60% of farmers joined the joint sales, which was higher than the project target indicator (50%).

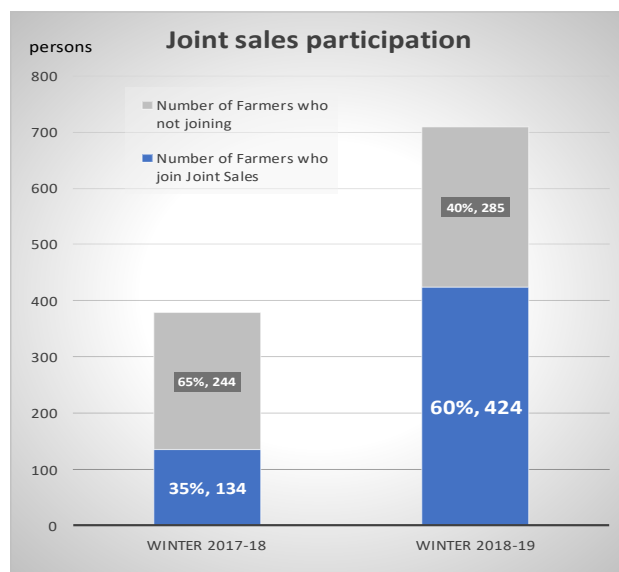
Table 2.6.56 Number of farmers who joined joint sales in winter season 2018-19

Province	Target groups	No. of farmer/ land plot	No. of farmers join joint sales	Percentage (%)
Hai Duong	Tan Minh Duc coop.	51	45	88%
	Thanh Ha company	10	10	100%
	Duc Chinh coop.	278	115	41%
	<i>Gia gia company</i>	1*	1	100%
	<i>Green farm company</i>	1*	1	100%
	<i>Lua farmer group</i>	50	35	70%
Ha Nam	Ha Vi coop	27	25	93%
	Hiep farm company	1*	1	100%
	<i>Cat Lai coop.</i>	16	0	0%
	<i>Thanh Tan farmer group</i>	6	6	100%
Hung Yen	Japan Vietnam company	1*	1	100%
	Yen Phu coop.	32	32	100%
	<i>Chien Thang coop.</i>	8	8	100%
Phu Tho	<i>Huong Non coop</i>	86	15	17%
	<i>Truong Thinh coop</i>	42	42	100%
Vinh Phuc	<i>Visa coop</i>	10	10	100%
	<i>Dai Loi coop</i>	14	14	100%
	<i>Vinh Phuc coop</i>	42	42	100%
Thai Binh	<i>Quynh Hai coop</i>	32	20	63%
	<i>Thanh Tan coop</i>	1*	1	100%
Total	20 groups	709	424	60%
	Initial 7 target groups	400	229	57%
	New 13 target groups	309	195	63%

Note: * count as number of land plot.

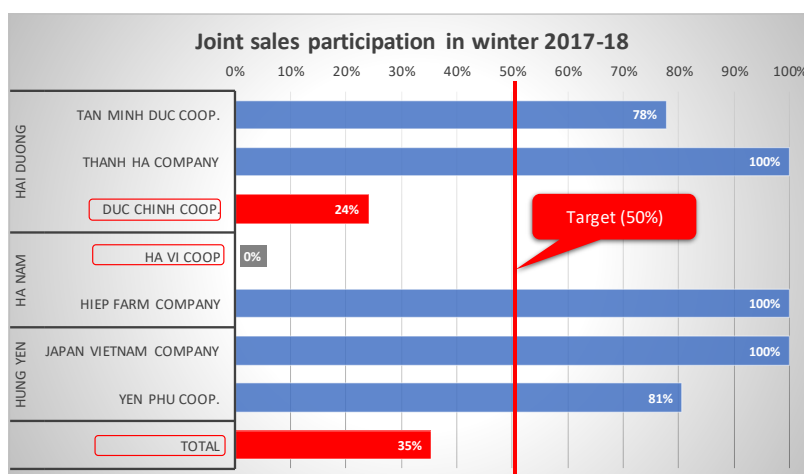
Source: JICA Project team

Comparing with previous year, the total number of farmers involved in joint sales was increased from 134 to 424 persons, and the total percentage of joint sales participation was also increased from 35% to 60%.



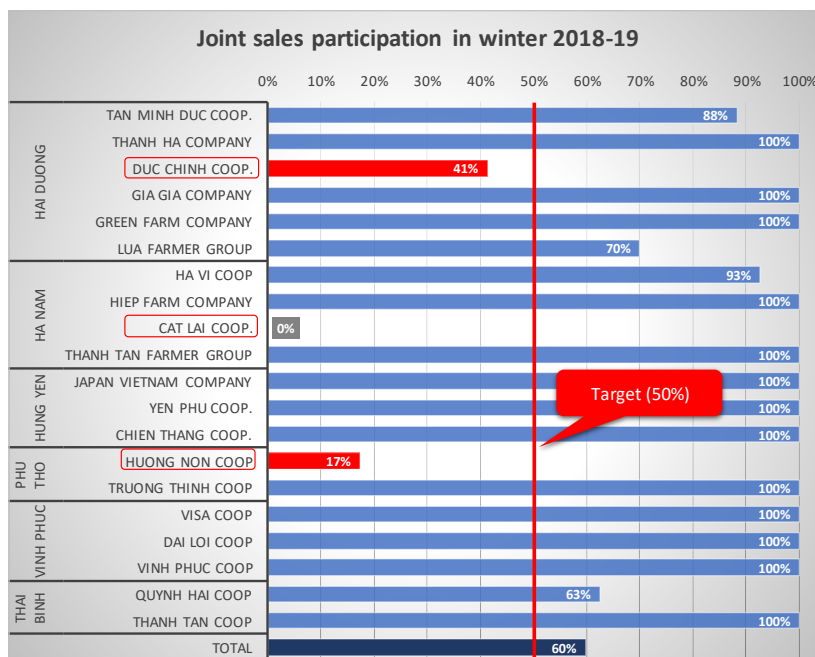
Source: JICA Project team

Figure 2.6.15 Comparison of joint sales participation between winter2017-18 and winter2018-19



Source: JICA Project team

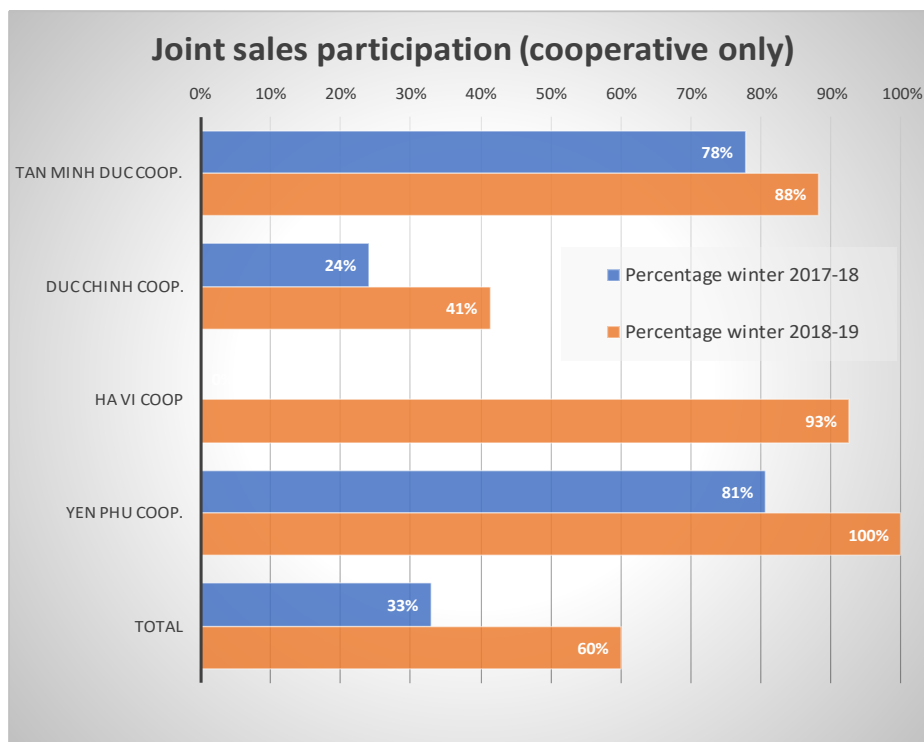
Figure 2.6.16 Joint Sales participation per group in winter 2017-18



Source: JICA Project team

Figure 2.6.17 Joint Sales participation per group in winter 2018-19

Transition of joint sale participation was analyzed for 4 cooperatives among initial 7 target groups as below.



Source: JICA Project team

Figure 2.6.18 Transition of Joint sales participation for initial 4 cooperatives

According to the above figure, all 4 groups improved the participation of joint sales compared with last year. Especially Ha Vy cooperative drastically improved after participation of local government like commune PC and district economic division. Duc Chinh cooperative, in turn, improved the

participation from 67 farmers in winter 2017-18 to 115 farmers in winter 2018-19, but their participation is still below the target.

2) Joint sales plan and result in sales volume (initial 7 target groups)

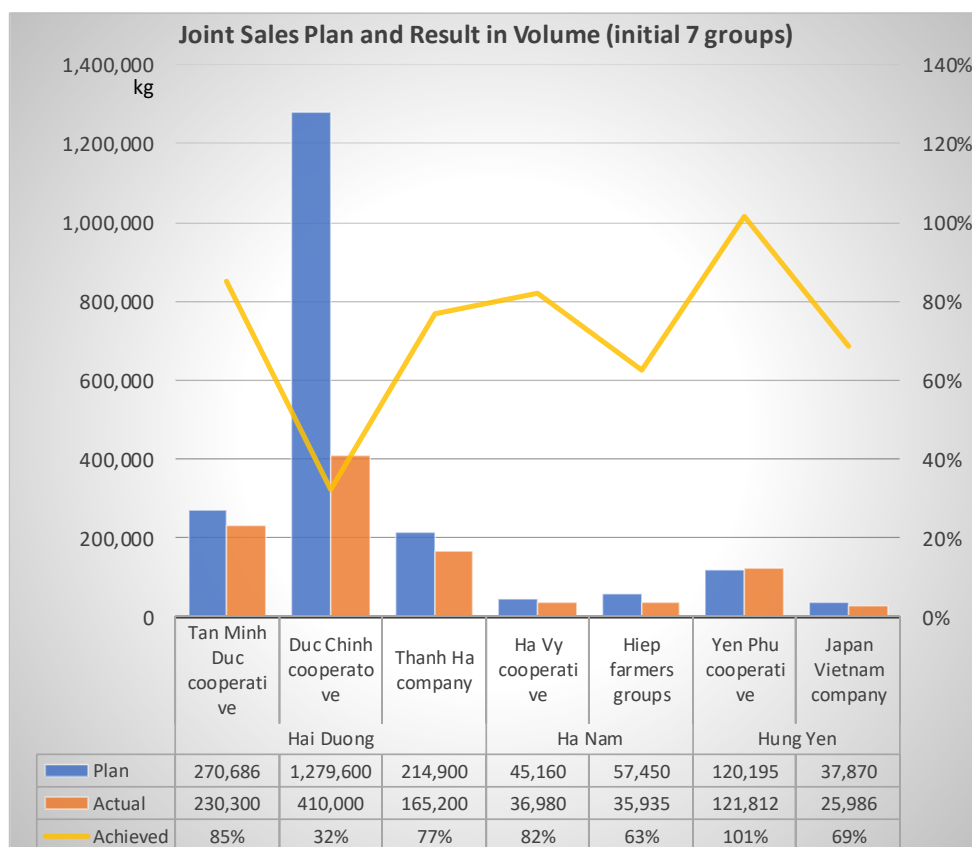
The following table indicates the plan and result of joint sales volume in winter 2018-19 for initial 7 target groups. Though this is not the indicator of PDM, but it provides the lessons learned on joint sales management.

Table 2.6.57 Plan and result in sales volume, winter 2018-19 (for Initial 7 target groups)

Target Group		Area (m2)	No. of farmers	Plan and Result per Month (Kg)								Remarks	
				Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total		
Hai Duong	Tan Minh Duc cooperative	Plan	96,484	51	0	92,142	97,133	24,000	11,500	12,500	33,410	270,686	
		Result	96,484	51	0	79,450	85,000	21,200	7,700	7,800	29,150	230,300	
		Achieved	100%	100%	0%	86%	88%	88%	67%	62%	87%	85%	
	Duc Chinh cooperative	Plan	300,717	278	0	0	0	0	500,000	500,000	279,600	1,279,600	
		Result	300,717	278	0	0	0	0	190,000	135,000	85,000	410,000	
		Achieved	100%	100%	0%	0%	0%	0%	38%	27%	30%	32%	
	Thanh Ha company	Plan	76,180	10	16,000	14,000	30,900	69,600	50,900	33,500	0	214,900	
		Result	76,180	10	10,420	11,510	23,050	46,230	40,350	23,400	10,240	165,200	
		Achieved	100%	100%	65%	82%	75%	66%	79%	70%		77%	
Ha Nam	Ha Vy cooperative	Plan	21,341	27	3,500	7,520	10,050	18,490	4,400	1,200	0	45,160	
		Result	21,341	27	0	0	7,160	17,780	3,615	7,430	995	36,980	
		Achieved	100%	100%	0%	0%	71%	96%	82%	619%		82%	
	Hiep farmers groups	Plan	20,480	21	4,100	6,950	17,300	11,700	17,400	0	0	57,450	Cultivation area is reduced due to flooding (Oct. '18)
		Result	19,760	19	4,310	2,850	8,500	6,700	8,390	3,120	2,065	35,935	
		Achieved	96%	90%	105%	41%	49%	57%	48%			63%	
Hung Yen	Yen Phu cooperative	Plan	45,432	32	800	8,710	17,100	39,750	15,700	10,350	27,785	120,195	
		Result	45,432	32	510	12,477	16,889	26,816	18,464	12,106	40,103	121,812	
		Achieved	100%	100%	64%	143%	99%	67%	118%	117%	144%	101%	
	Japan Vietnam company	Plan	17,570	17	5,550	10,060	10,300	7,560	0	0	0	37,870	Cultivation area is adjusted based on market demand.
		Result	14,680	17	4,763	5,248	2,466	3,466	5,173	1,071	1,802	25,986	
	Achieved	84%	100%	86%	52%	24%	46%				69%		
Total	Plan	578,204	436	29,950	139,382	182,783	171,100	599,900	557,550	340,795	2,025,861		
	Result	574,594	434	20,003	111,535	143,065	122,191	273,692	189,927	169,355	1,026,213		
	Achieved	99%	100%	67%	80%	78%	71%	46%	34%	50%	51%		

Remarks: Red=No. of crops

Source: JICA Project team



Source: JICA Project team

Figure 2.6.19 Joint sales plan and result in volume (initial 7 target groups)

Out of 7 target groups, Duc Chinh cooperative sold biggest volume of vegetable (410ton), though the smallest group was Japan Vietnam company (25ton). 7 groups in total supplied more than 1,000ton of safe vegetable in winter 2018-19. However, target groups could achieve only 50% of original plan as 2,000ton, Especially Duc Chinh cooperative achieved only 32% from plan.

The JICA project team evaluated the result of joint sales and identified the strength and weakness of each group. In order to improve the weak points, the JICA project team recommends ideas for solution for next season as in the table below. These results will be shared and discussed with PPMU and CPMU to reflect in next year’s activity plan.

Table 2.6.58 Evaluation of joint sales result and ideas for solution (initial 7 target groups)

Target group	Indicator	Score	Description
Tan Minh Duc cooperative	A. Production/ Cultivation	2	Percentage of low quality vegetables were higher than expectation. TMD could not sell to Big C or collectors with requested volume, then sold the remaining to wholesale or wet market, where are not counted as joint sales. Need to improve the quality by promotion of cultivation techniques.
	B. Cooperative Management	3	TMD organized the joint sales well. Need to increase the volume to meet requirement of buyers by expanding of production area under project.
	C. Marketing	2	TMD is almost satisfied with current buyers in terms of stability and safety of trade, according to the feedback from Big C and a collector (Mr.Vinh, deliver for central Vietnam).
	D. Food safety on trade	1	No claim from buyers
	E. Others	-	

	Solution		Expand production area Improve cultivation by introduced techniques, such as composting, soil sterilization, and non-woven textile.
Duc Chinh cooperative	A. Production/Cultivation	2	There was no severe disease and insect damage, but yield was lower than average (this year: 33.2t/ha, average: 35-36t/ha)
	B. Cooperative Management	3	Under the market condition, buyers demand lower price than the price of farmers expectation. DC could not coordinate between buyers and farmers. There are 16 big enterprises for carrot trading but so far unable to access since DC cannot afford the loss of trading during price down dimension.
	C. Marketing	3	China was high production this year, big volume of carrot was imported to Vietnam with low price. Domestic market in South area demands Chinese carrot due to low price. Selling price in Duc Chinh was low in main season (2,000VND/kg).
	D. Food safety on trade	1	No claim from buyers
	E. Others	-	Carrot production in Hai Duong is increasing year by year, now about 1,500ha. Production area in Duc Chinh commune is only 360ha, but the farmers borrow the land for cultivation outside of village. Competition becomes tougher, differentiation is required (e.g. same case of Lychee in 10 yrs ago.)
	Solution		Improve cooperative management, such as: 1. financial approach (bank loan etc.), 2. stock management (internalize a village collector), Implement marketing and promotion, such as: 3. branding (reputation for safety), 4. contract approach (review sales contract), 5. transition approach (negotiate with existing buyers to buy safe vegetable instead of normal) Improve cultivation techniques, such as: 6. production approach (cost reduction etc.),
Thanh Ha company	A. Production/Cultivation	3	There was production loss in off-season crops, which demand from existing buyers like supermarkets. Improvement of cultivation method and investment for additional greenhouses or agri. materials such as NWT are required to produce off-season crops with quality.
	B. Cooperative Management	1	TH organized joint sales well. TH invested for a cool truck for delivery last year.
	C. Marketing	1	Competition became high among safe production suppliers, TH reduced sales volume compared with previous years.
	D. Food safety on trade	1	No claim from buyers
	E. Others	-	
	Solution		Expand production area Improve cultivation by introduced techniques, such as soil sterilization, new variety seed, non-woven textile with recruitment of technical staff.
Ha Vy cooperative	A. Production/Cultivation	2	There was production loss.
	B. Cooperative Management	3	2 farmers did not join joint sales due to unsatisfied pricing. HY could receive good reputation from existing buyers by renovation of pre-processing facility.
	C. Marketing	2	HY could not find enough buyers to meet production. For supermarkets in Hanoi, sufficient volume with stable supply and delivery cost were challenges. For local buyers, same price with market is required with higher quality, which is not attractive for farmers to join joint sales.
	D. Food safety on trade	1	No claim from buyers
	E. Others	-	
	Solution		Expand production area and varieties of vegetable Re-trial of matching with buyers
Hiep farmers groups	A. Production/Cultivation	3	There was a flood damage in October, Hiep could not produce sufficient products as planned in Nov-Dec.
	B. Cooperative Management	1	No issue on joint sales.
	C. Marketing	2	Hiep could not find enough buyers. He could not get order from supermarket in Hanoi due to lack of supply stability. He got a profit from sales to local buyers due to low production cost.
	D. Food safety on trade	1	No claim from buyers

	E. Others	-	Production cost of Hiep farm seems relatively lower than others, it result in good profit. It can be analyzed for replication.
	Solution		Expand production area in association with Thanh Son group, next to Hiep farm Advise not to cultivate in lower land as it is suffered by flood.
Yen Phu cooperative	A. Production/Cultivation	2	There was no severe disease and insect damage.
	B. Cooperative Management	2	YP does not purchase from farmers if the buyers offer low price, member farmers have to take care of their products. (Which means that the cooperative does not take risk, but farmers do.)
	C. Marketing	3	Achieved the target against the revised plan. But the joint sales volume were reduced from original because YP could not find enough buyers to supply. YP only focus on high level buyers such as VinEco.
	D. Food safety on trade	1	No claim from buyers
	E. Others		Plan was modified from original according to market requirement (192ton → 120ton)
	Solution		Expand production area Reform market strategy to diversify the market channels to reduce sales risk.
Japan Vietnam company	A. Production/Cultivation	2	There were insect damages on cabbage, Chinese cabbage and leafy veggies, JV lost production volume.
	B. Cooperative Management	1	No issue on joint sales.
	C. Marketing	3	JV could not find enough buyers to supply then sold to wet market, those sales was not counted as joint sales. JV initially had many customers like high end apartment and shops in Hanoi with higher price, but the number of customers were reduced because JV lost competitiveness of sales in terms of pricing and quality compared with other vegetables.
	D. Food safety on trade	1	No claim from buyers
	E. Others	-	Management is unstable. Recently leadership was changed again as JV lost customers.
	Solution		Re-establish management structure and confirm the target market by fixing a strategy of production and sales.

Remarks: Scoring is a relative evaluation to identify the strength and weakness of each target group.

1. Very good operation. There is no issue.
2. Good operation though there is a minor issue to improve.
3. There are several issues to improve.
4. There is a serious issue to overcome immediately.
5. Very bad operation or no operation at all.

Source: JICA Project team

3) Joint sales plan and result in sales volume (new 13 target groups)

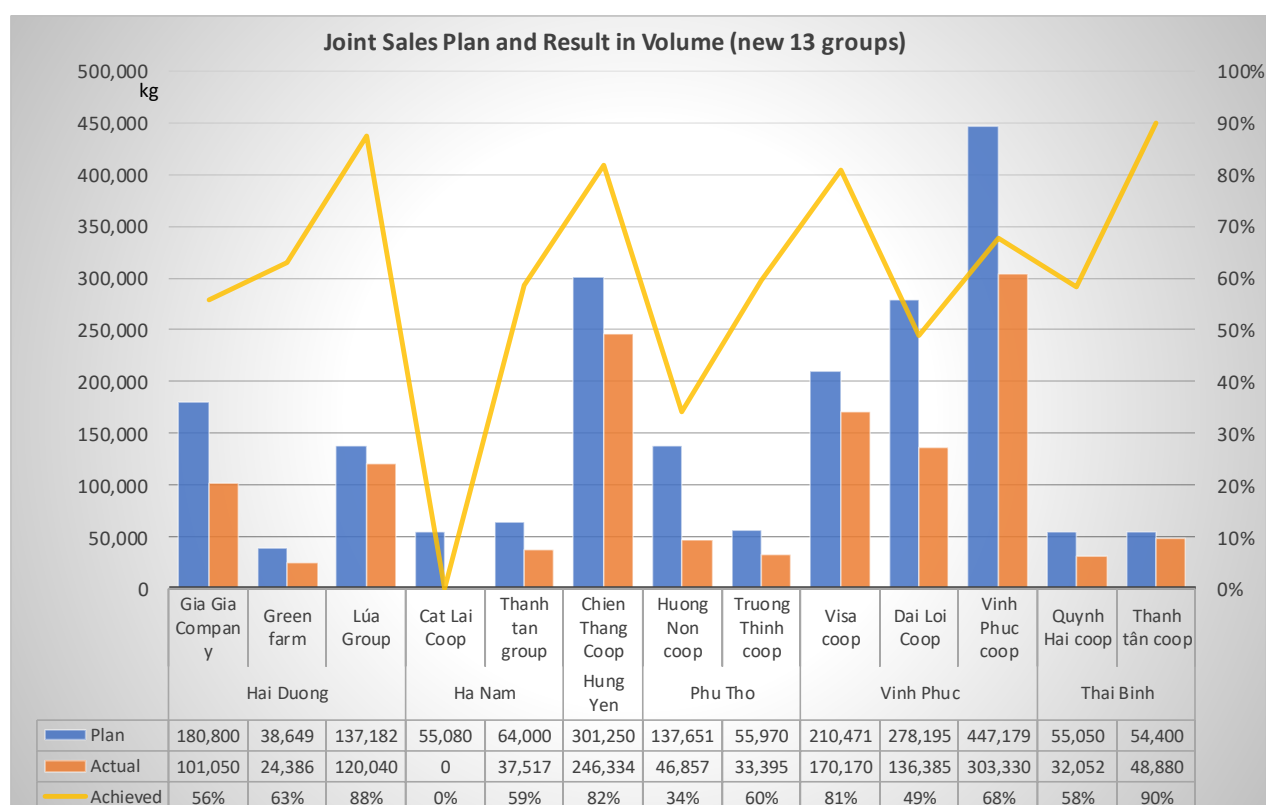
The following table indicates the plan and result of joint sales volume in winter 2018-19 for new 13 target groups.

Table 2.6.59 Plan and result in sales volume, winter 2018-19 (for new 13 target groups)

As of: 28 March 2019

Target Group		Area (m2)	Plan and Result per Month (Kg)									Remarks	
			Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	Total		
Hai Duong	Gia Gia Company	Plan	49,820	0	0	16,800	62,000	53,500	38,000	10,500		180,800	
		Result	46,240	0	0	15,000	35,000	29,500	18,000	3,550		101,050	
		Achieved	93%			89%	56%	55%	47%	34%		56%	
	Green farm	Plan	24,810	0	1,000	6,500	12,350	11,555	4,500	2,744		38,649	
		Result	25,620	0	949	3,491	5,694	8,662	3,050	2,540		24,386	
		Achieved	103%		95%	54%	46%	75%	68%	93%		63%	
	Lua Group	Plan	44,250	0	0	0	66,104	71,078	0	0		137,182	
		Result	44,250	0	0	0	51,840	52,850	0	15,350		120,040	
		Achieved	100%				78%	74%				88%	
Ha Nam	Cat Lai Cooperative	Plan	23,468	0	0	36,780	14,700	1,000	2,100	500		55,080	Farmers sold individually
		Result	23,468	0	0	0	0	0	0	0		0	
		Achieved	100%			0%	0%	0%	0%	0%		0%	
	Thanh tan group	Plan	10,080	0	0	24,400	23,600	16,000	0	0		64,000	
		Result	8,640	0	0	15,900	20,500	0	0	1,117		37,517	
		Achieved	0%			65%	87%	0%				59%	
Hung Yen	Chien Thang Cooperative	Plan	48,452	22,200	40,450	21,200	76,000	65,400	47,550	28,450		301,250	
		Result	55,808	21,100	32,800	18,880	72,520	55,294	45,740	0		246,334	
		Achieved	0%	95%	81%	73%	95%	85%	96%	0%		82%	
Phu Tho	Huong Non cooperative	Plan	35,122		25,500	39,740	44,098	14,868	2,255	11,190		137,651	
		Result	35,122		9,745	12,140	15,895	3,477	1,250	4,350		46,857	
		Achieved	100%		38%	31%	36%	23%	55%	39%		34%	
	Trung Thinh cooperative	Plan	21,240		5,050	20,570	15,420	3,320	1,490	10,120		55,970	
		Result	21,240		4,010	11,820	9,255	2,810	530	4,970		33,395	
		Achieved	100%		79%	57%	60%	85%	36%	49%		60%	
Vinh Phuc	Visa cooperative	Plan	29,640		0	0	42,903	41,520	40,056	43,886	42,106	210,471	
		Result	30,000		0	0	37,100	34,140	26,040	36,270	36,620	170,170	
		Achieved	101%				86%	82%	65%	83%	87%	81%	
	Dai Loi Cooperative	Plan	100,300		31,156	88,366	88,644	48,084	13,045	8,900	0	278,195	
		Result	94,800		18,800	47,230	44,785	17,095	3,925	4,550	0	136,385	
		Achieved	95%		60%	53%	51%	36%	30%	51%		49%	
	Vinh Phuc cooperative	Plan	53,248	35,000	35,000	39,134	58,739	74,507	87,287	117,512		447,179	
		Result	53,248	24,000	28,000	28,640	43,130	47,140	80,400	52,020		303,330	
		Achieved	100%	69%	80%	73%	73%	63%	92%	44%		68%	
Thai Binh	Quynh Hai cooperative	Plan	23,796			24,280	13,880	700	1,300	14,890	0	55,050	
		Result	23,796			13,320	7,082	650	900	10,100	0	32,052	
		Achieved	100%			55%	51%	93%	69%	68%		58%	
	Thanh tan cooperative	Plan	23,640		26,900	0	2,500	0	10,000	15,000	0	54,400	
		Result	23,640		25,450	0	2,430	0	8,000	13,000	0	48,880	
		Achieved	100%		95%		97%		80%	87%		90%	
Total	Plan	487,866	57,200	165,056	317,770	520,938	401,532	247,583	263,692	42,106	2,015,877		
	Result	485,872	45,100	119,754	166,421	345,231	251,618	187,835	147,817	36,620	1,300,396		
	Achieved	100%	79%	73%	52%	66%	63%	76%	56%	87%	65%		

Source: JICA Project team



Source: JICA Project team

Figure 2.6.20 Joint sales plan and result in volume (new 13 target groups)

Out of 13 target groups, Vinh Phuc cooperative sold the biggest volume of vegetable (303ton) followed by Chien Thang cooperative (246ton). The smallest group was Cat Lai (0ton). 13 groups in total supplied more than 1,300ton of safe vegetable in winter 2018-19, and target groups achieved 65% of original plan as 2,016ton.

The JICA project team evaluated the result of joint sales and identified the strength and weakness of each group. In order to improve the weak points, the JICA project team recommends a sample idea for solution for next season as in the table below. These results will be shared and discussed with PPMU and CPMU to reflect in next year's activity plan.

Table 2.6.60 Evaluation of joint sales result and sample idea for solution (new 13 target groups)

Province	Target group	A. Production/Cultivation	B. Cooperative Management	C. Marketing	D. Food safety on trade	E. Others	Comment
Hai Duong	Gia Gia Company	3	2	2	1		Expand production area to supply more vegetable with improvement of cultivation techniques.
	Green farm	3	1	1	1		Expand production area to supply more vegetable with improvement of cultivation techniques.
	Lúa Group	2	2	2	2		Register for cooperative to approach more buyers
Ha Nam	Cat Lai Coop	2	4	3	3	No certificate of safe vegetable production condition	There was no joint sales mechanism, only individual sales. PPMU is advised to mobilize CPC to link with potential local buyers like the case of Ha Vy.

	Thanh tan group	2	2	2	2		Expand production area Consider to register as cooperative.
Hung Yen	Chien Thang Coop	2	1	1	1		Need improvement of production techniques especially in off-season and summer season crops
Phu Tho	Huong Non coop		3	3	4	No certificate of safe vegetable production condition No pesticide residue check	PPMU is advised to mobilize CPC to link with potential local buyers like the case of Ha Vy. PPMU should conduct pesticide residue check, quick test and laboratory test sampling.
	Truong Thinh coop	2	1	2	4	No pesticide residue check No pre-processing facility	PPMU should conduct pesticide residue check, quick test and laboratory test sampling.
Vinh Phuc	Visa coop	2	1	1	1		Need improvement of production techniques especially in off-season and summer season crops
	Dai Loi Coop	2	2	2	1		Expand production area Reform market strategy to diversify the market channels to reduce sales risk.
	Vinh Phuc coop	2	1	1	1		Need improvement of production techniques especially in off-season and summer season crops
Thai Binh	Quynh Hai coop	2	1	2	2	No pre-processing facility	Expand the production area and construct/ upgrade pre-processing house to meet buyers requirement.
	Thanh tan coop	2	2	2	2	No pre-processing facility	Expand the production area and construct/ upgrade pre-processing house to meet buyers requirement.

Remarks: Scoring is a relative evaluation to identify the strength and weakness of each target group.

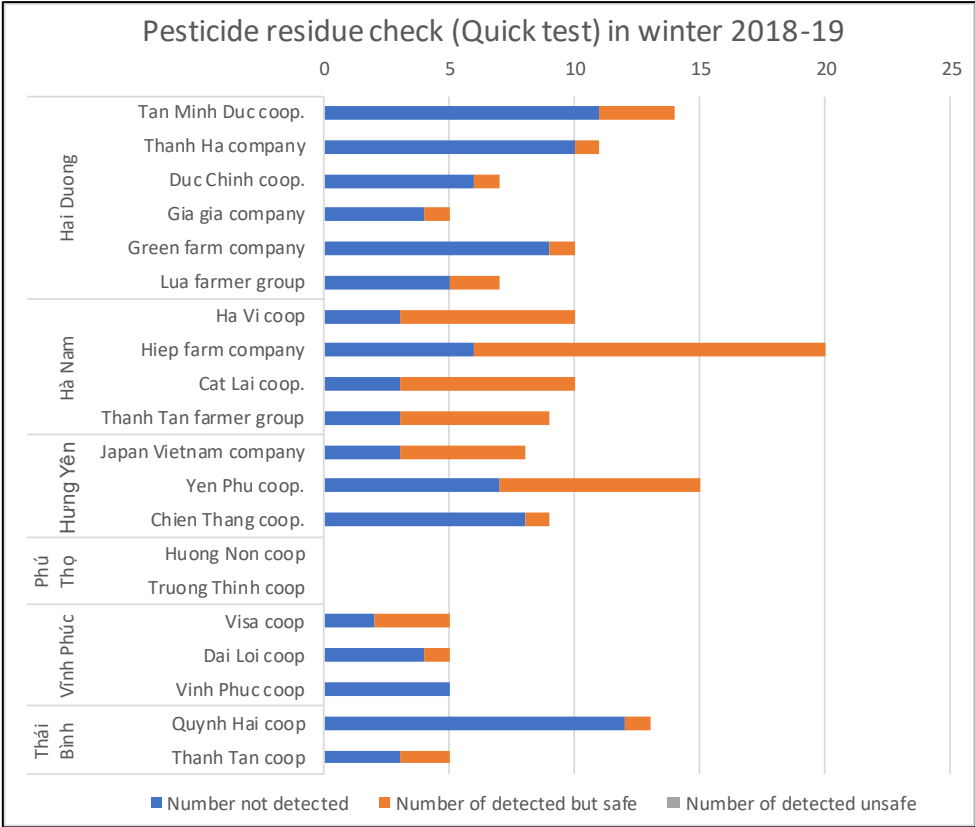
1. Very good operation. There is no issue.
2. Good operation though there is a minor issue to improve.
3. There are several issues to improve.
4. There is a serious issue to overcome immediately.
5. Very bad operation or no operation at all.

Source: JICA Project team

(8) External inspection and auditing

1) Quick test for pesticide residue

In winter 2018-19, total 168 samples in 18 target groups were tested by quick test. Result of quick test per target group is shown in figure below.



Source: JICA Project team
Figure 2.6.21 Result of pesticide residue check by quick test in winter 2018-19

All the target groups except for 2 groups in Ph Tho conducted quick test at least for 5 samples. Hiep farm conducted tests for 20 samples as they supply many varieties of vegetables. Out of 168 samples, 104 samples did not detect any residue though 64 samples showed a chemical residue but under safe level. There was no sample above MRL.

Quick test was not conducted by PPMU Phu Tho due to budget shortage.

2) Laboratory test for pesticide residue

Laboratory test was conducted in 18 target groups except for 2 groups in Phu Tho province. PPMU staff conducted product sampling and sent the samples to laboratory. Total 38 samples were tested and there was no sample detected as over MRL.

Table 2.6.61 Pesticide residue check (Laboratory test) in winter 2018-19

Province	Target Group Name	Date of sampling	Name of vegetables	Number of samples	No. of detected unsafe
Hai Duong	Tan Minh Duc Coop.	20/2/2019	Tomato; Cucumber	2	0
Hai Duong	Thanh Ha Company	20/2/2019	Spinach; Malabar nightshade	2	0
Hai Duong	Duc Chinh Cop.	20/2/2019	Carrot	1	0
Hai Duong	Duc Chinh Cop.	29/3/2019	Carrot; Carrot	2	0
Hai Duong	Green farm vegetables production group	14/2/2019	Malabar nightshade; Cove bean	2	0
Hai Duong	Gia Gia food joint stock Company	20/2/2019	Choysom; Tomato	2	0
Hai Duong	Lua farmers group	20/2/2019	Kohlrabi; Broccoli;	2	0
Ha Nam	Ha Vi Cop.	22/2/2019	Broccoli; Cabbage	2	0
Ha Nam	Pham Hong Hiep farmer Group	22/2/2019	Cove bean; Edible chrysanthemum	2	0
Ha Nam	Thanh Tan Cooperative	22/2/2019	Tomato; Malabar nightshade	2	0
Ha Nam	Cat Lai Cooperative	22/2/2019	Cabbage; Green Bok Choy	2	0
Hung Yen	Japan Vietnam Company	20/2/2019	Kohlrabi; Malabar nightshade;	2	0
Hung Yen	Yen Phu cooperative	20/2/2019	Tomato; Pink eggplant; Kohlrabi	3	0
Hung Yen	Chien Thang Safe vegetable Cooperative	20/2/2019	Tomato; Cabbage;	2	0
Thai Binh	Quỳnh Hải cooperative	14/02/2019	Kohlrabi; Pickle mustard	2	0
Thai Binh	Thanh Tân cooperative	27/02/2019	Potato; Potato	2	0
Vinh Phuc	Visa Safe Vegetable Cooperative	29/01/2019	Morning glory; Malabar nightshade	2	0
Vinh Phuc	Vĩnh Phúc Safe vegetable cooperative	29/01/2019	Chayote fruit; Choysom	2	0
Vinh Phuc	Đại Lợi Safe Vegetable Cooperative	29/01/2019	Kohlrabi; Morning glory	2	0
Phu Tho	Hương Nộn Cooperative	ND			
Phu Tho	Trường Thịnh cooperative	ND			
Total:				38	0

Source: JICA Project team

2.6.4 Implementation of Workshop and Seminar

In phase 1, it was originally planned to organize a workshop in each pilot city/province and semi-pilot province to share the experiences of crop production system and collection and delivery method, inviting about 30 persons per workshop including; deputy chairman of provincial people's committee, PPMU members, target group leaders. It was also planned to organize a seminar to share the same with workshop, inviting about 200 persons including; Minister of MARD, Deputy DG of relevant departments, representatives from pilot and semi-pilot provinces, target groups, agriculture cooperative, etc. However due to delay of approval of project document, there was a delay of trial activity implementation. Therefore, CPMU and JICA project team decided to postpone the workshops and the seminar expectedly in August 2019.

2.7 Monitoring and Evaluation of Trial Activities

PPMU with support of JICA Project team monitors the trial activities of target groups and government officers in charge every 3 months. CPMU, then, evaluates overall trial activities before every JCC meetings and review and improve the crop production system as well as collection and delivery method. CPMU shall have a presentation of the evaluation results in JCC meeting.

2.7.1 Monitoring and Evaluation Procedures of Production Activities in accordance with Basic GAP

- (1) Monitoring by PPMU

The objectives of monitoring are to improve crop production system and to develop capacity of C/P for monitoring and evaluation. The monitoring item and methodology are as following table.

Table 2.7.1 Monitoring method of trial activity

Target	Person in charge	Monitoring Item	Method
For producers	PPMU of each province	<ul style="list-style-type: none"> • Procedure of selection of production area of safe crop • Cultivation according to check list (26 items) • Record keeping of field diary by each member • Record keeping of management book by group • Execution of internal audit 	Record book of target group Field note of extension staff (commune and/or district level)
For government officers	PPMU of each province	<ul style="list-style-type: none"> • Confirmation of safety of production area (execution of soil and water analysis) • Frequency of field visit to target group • Witness of internal auditing by target group • Execution of inspection of products upon delivery 	Field note of extension staff (commune and/or district level)

Source: JICA Project team

Technical staff of PPMU prepares a field report of the field activities of target groups and submit to PPMU once a month according to the monitoring item. A respective officer from PPMU visits target groups to supervise the operation of crop production system and prepares a monitoring report, which compile all data and records of trial activities. The monitoring report will be prepared by PPMU every 3 months. All the data and records of trial activities will be compiled as a monitoring report and used for evaluation.

(2) Evaluation by CPMU

After completing the trial activities, advantages and disadvantages, bottlenecks and counter measures of the crop production system in the trial activities are evaluated with monitoring reports and interviews of stakeholders. The evaluation is conducted by CPMU with support of JICA Project Team before each JCC meeting. The results of evaluation are reflected to the plans of the following trial activities.

Table 2.7.2 Evaluation of Trial Activities

	Target	Evaluation indicators	Method of obtaining data
Crop production system	Crop production system is executed properly in trial activity.	Number of producers following instructions according to the system Number of government officers following instructions according to the system	Monitoring report
	Contents of the system satisfy requirements of safety standard	Timing and frequency of safety confirmation of target area, field visits and inspection of products	Monitoring report
Monitoring for producers	Producers follow the procedures according to BasicGAP	Procedure and evidence of selection of target area Confirmation of check list (26items) Execution of internal audit	Monitoring report Interview with producers

	Producers record field diary properly.	Recording of field diary of each member Recording of field diary of target group	Monitoring report
Monitoring for government officers	Government officer follow the procedures according to BasicGAP	Execution of safety confirmation (soil and water analysis) Execution of products inspection on delivery	Monitoring report
	Government officer follow the instruction on crop production system.	Regular visit to target group Witness of internal audit of target group	Monitoring report Interview with government officers

Source: JICA Project team

The results of evaluation are explained to all the stakeholders after completing the trial activities. The measures to improve the activities are reflected to the plan of the following trial activities. The results of evaluation are also reflected for the trial activities in the semi-pilot provinces and for spreading the similar activities within the pilot provinces. The contents of evaluation should be comprehensive enough to apply them to not only the project-related provinces but also any other provinces in Vietnam.

2.7.2 Progress of Monitoring and Evaluation of Production Activities

(1) Progress of PPMU monitoring

PPMU monitoring report is prepared by PPMU pilot provinces every 3 months as below. Pilot provinces have already submitted 5 monitoring reports to CPMU. Semi-pilot provinces started monitoring activity since October 2018.

Table 2.7.3 Monitoring of PPMU Monitoring report of Production Activities

Report	Timing	Ha Nam	Hai Duong	Hung Yen	Phu Tho	Vinh Phuc	Thai Binh
1st Monitoring report	Jul-Sep2017	Submitted	Submitted	Submitted	-	-	-
2nd Monitoring report	Oct-Dec2017	Submitted	Submitted	Submitted	-	-	-
3rd Monitoring report	Jan-Mar2018	Submitted	Submitted	Submitted	-	-	-
4th Monitoring report	Apr-Jun2018	Submitted	Submitted	Submitted	-	-	-
5th Monitoring report	Jul-Sep2018	Submitted	Submitted	Submitted	-	-	-
6 th Monitoring report	Oct-Dec2018	Submitted	Submitted	Submitted	Under process	Under process	Under process

Source: JICA Project team

(2) Progress of CPMU evaluation

The first evaluation was conducted by CPMU in March 2018 with support of JICA project team. CPMU dispatched an evaluation mission to 3 pilot provinces and conducted field interviews with PPMU staff and target groups leaders. After field visit, CPMU compiled all the interview data into the format as CPMU evaluation report and had a presentation on 2nd JCC meeting held on 16 April 2018.

< *Activities for Output 2* >

Output 2 covers activities related to marketing, collection and delivery of safe vegetable. There are two principles in the activities for Output 2. First is market oriented. As most of safe vegetable producers at the time of project start sold their products to collectors who in most cases came to the field only in the harvesting time and paid low price, producers did not know what the consumers want and had low trust on buyers. The Project team introduced the concept ‘not grow and sell but grow to sell’ in order to transform the mindset of producers as well as their marketing system into more market-oriented one.

Before



Project



Source: JICA Project Team

Figure 2.8.1 Principle of Output 2

Second principle is joint sales. Although most of producers in the project area belong to the cooperative, they sold their products not through cooperative but individually. This is because most of cooperatives which are categorized as traditional cooperatives do not have the function of marketing or new type of cooperatives established under the Cooperative Law of 2012 do have marketing function but did not have experience to do so. Since producers grow whatever they think marketable in order to mitigate risk of unsold, varieties of vegetables they produce tend to increase and their trading volume tends to decrease. These tendencies have contributed to further fragmentation of safe vegetable market. On the other hand, institutional buyers such as supermarket have had a difficulty to find reliable suppliers who can supply safe vegetables of required amount at required timing. It is time-consuming as well as costly for them to deal with individual producers. Aggregation through joint sales is the only way for the cooperatives to supply products to these institutional buyers.

The activities started in November 2016 for TGs in Pilot provinces and in July 2017 for those in Semi-Pilot provinces¹ as shown in the table below.

Table 2.8.1 Implementation schedule for marketing trial activities

Activities	2016		2017						2018						2019		
	10	11	1	3	5	7	9	11	1	3	5	7	9	11	1	3	
Market survey																	
First batch	Finding buyers																
	Examining collection & delivery																
	Monitoring and evaluation																
Second batch	Finding buyers																
	Examining collection & delivery																
	Monitoring and evaluation																

Source: JICA Project Team

There was an important change in the mode of supporting marketing activities in May 2018 when Training of Farmers (TOF) on marketing action plan was conducted in Pilot provinces. The Project went through one winter crop season in 2017² to test the various mechanism for supporting TG’s marketing as well as collection/delivery activities, and the standard activities cycle for TGs which is to be applied to TGs from the second season onward had been worked out before May 2018. In order to gradually shift the responsibility of project implementation from the Project team to PPMU, the Project team introduced the idea of developing marketing action plan for each TG through TOF conducted in May 2018. TG and PPMU are supposed to carry out project activities based on the plan developed by each TG. After May 2018, regular marketing activities of TG such as one-to-one matching, and monitoring of collection and delivery were in principle carried out with the initiative of TGs. In addition, marketing activities in Semi-pilot provinces started in September 2018 followed the same principles. The introduced annual activity cycle is shown below.

¹ Market survey was conducted only in Semi-Pilot provinces. Other activities were carried out for not only TGs in Semi-Pilot provinces, but also those additionally selected in Pilot provinces

² Winter crop season roughly indicates between October and March and summer crop season between April and September. Winter crop season in 2017 indicate from October 2017 to March 2018.

Month	Hanoi	Province		
By	HPA	Target producer group	PPMU	
May		Develop marketing action plan at TOF	TOF marketing	
June				
July				
August	Safe vegetable business forum			
September				
October			Provincial safe vegetable forum	
November	Safe vegetable business forum	Mezoroekai		
December				
January		Monitoring of collection & delivery		
February				
March		Review meeting		
April			Provincial safe vegetable forum	

Source: JICA Project Team

Figure 2.8.2 Annual activity cycle

2.8 Market Survey and Analysis

2.8.1 Overview of Survey

Market survey for safe vegetable was conducted in order to understand the current conditions of demand and supply of vegetables in general and safe vegetables in particular, and their supply chains in the target areas. Market survey reports in Pilot as well as Semi-Pilot provinces are found as Attachment 5.

(1) Survey period

The survey was conducted between November and December 2016 for Pilot provinces and between August 2017 and August 2018 for Semi-pilot provinces.

(2) Survey Sample

Samples are buyers of safe vegetables. The number of samples is 91 for Pilot provinces and 57 for Semi-pilot provinces. As Table 2.8.2 shows, the distribution of samples in each category varied as the availability of buyers differs among provinces.

Table 2.8.2 Distribution of samples in the categories of buyers and provinces

Category	Pilot					Semi-pilot			
	Hanoi	Hai Duong	Hanam	Hung Yen	Total	Vinh Phuc	Phu Tho	Thai Binh	Total

Collector	8	5	5	0	18	10	10	0	20
Processing company	5	6	2	2	15	1	0	0	1
Wholesaler	2	0	5	10	17	2	0	3	5
Restaurant/hospital/catering company	7	4	6	5	22	4	5	9	18
Retailer	2	6	6	5	19	4	5	4	13
Total	24	21	24	22	91	21	20	16	57

Source: JICA Project Team

(3) Methodology

Questionnaire survey was employed for the survey. Standardized questionnaire was prepared, tested and finalized by the Project team. The officials of PPMU of each province were nominated as surveyor. They made one-to-one interviews with the selected samples. The persons at the management position were interviewed. The instructions were provided by the Project team. The data collected in the survey were analyzed in province-wise as well as by type of business they answered.

2.8.2 Key Findings

There are following four important findings from the survey.

- 1) Most of respondents showed high awareness toward safety when they choose vegetables.
 - Sales of safe vegetable are stable or increasing. Sales of safe vegetables for processors, exporters and retailers surveyed in Pilot provinces are increasing, while those for wholesalers and retailers surveyed in Semi-Pilot provinces are increasing.
 - Safety is the most important factor for the respondents to choose vegetable for buyers surveyed in both Pilot and Semi-Pilot provinces.
- 2) Buyers pay the higher price for safe vegetables if the vegetables are really safe
 - Majority of respondents pay higher prices for safe vegetables. They pay average 17.5% higher price for the safe vegetables in Pilot provinces and 14.5% higher price in Semi-Pilot provinces
- 3) Not only certificate but also knowing producers by themselves is important for buyers to believe in safety
 - Majority of respondents require certificates such as VietGAP when they buy safe vegetables.
 - Majority of respondents are confident in safety of the vegetable they sell. The reason for their belief is 'I know the producer well' followed by 'I choose only certified producers. This suggests that not only certificates but also knowing producers personally is important for buyers to believe the safety.

4) ‘Provide accurate information’ which require knowing producers is identified as the most important factor for buyers to gain trust from consumers.)

- Finding reliable producers seems to be the biggest bottleneck for promoting safe vegetable trading.
- ‘Find good producers’ is identified as one of the most difficult issue for collectors, processors, exporters, retailers and restaurants/catering services in Pilot provinces, while this is the most difficult issues for all kinds of buyers in Semi-pilot provinces along with other issues such as ‘quality control’ and ‘find buyers’.
- ‘Difficult to find reliable suppliers’ is identified as the biggest reason for not trading safe vegetables in Pilot provinces.
- Buyers use various sources to find good producers such as government departments including Department of Agriculture and Rural Development (DARD) and Department of Health (DOH), trade fairs, internet and word of mouth.

2.9 Identification of Potential Buyers and Sales Promotion

The Project aims to improve reliability of safe vegetable production and distribution. Therefore, it is important to identify buyers who can contribute to ensuring safety of products. The Project team considers that the reliable buyers can contribute to ensuring safety of products by monitoring and facilitating producers to improve production technique as well as collection and delivery practices, and by ensuring safety in their distribution and sales operations.

As there had been many cases where buyers mixed safe vegetables with non-safe vegetables or use certificates or packages of safe vegetables producers to non-safe vegetables, matching with buyers who lacked awareness of the importance of safety will not improve the reliability of safe vegetables. With this background, the Project team first introduced only reliable institutional buyers who have strict rules on safety such as supermarket in Hanoi to TGs and supported TGs in satisfying high level of requirements from those buyers. After TGs developed the capacity of accommodating the requirement of high level institutional buyers in Hanoi by experiencing the winter crop season in 2017, the Project team started to explore local market where TGs can sell their products within the province they are located.

The Project team assisted TGs in identifying potential buyers and promoting sales in three steps, namely conducting TOT and TOF on marketing, developing marketing tools, and assisting matching with buyers as shown in the figure below.



Source: JICA Project Team

Figure 2.9.1 Processes of identification of buyers and sales promotion

This section explains each step.

2.9.1 Training of trainers (TOT) and Training of farmers (TOF) on marketing

Training of Trainers (TOT) on marketing was conducted for PPMU marketing staff as well as TG leaders before conducting trial activities for the first year. Based on TOT, PPMU marketing staff along with TG leaders conducted Training of Farmers (TOF) to members of TGs.

Two TOFs conducted before May 2018 were designed for participants to learn the skills and experiences of specific marketing activities such as matching or joint sales depending on the timing. This is because the concept of project marketing activities or annual activity cycle had not been established.

TOF conducted in May 2018 introduced the idea of annual activity cycle and each TG developed its own marketing action plan. All project marketing activities are carried out based on the marketing action plan of each TG since then.

Therefore, TOT and TOF on marketing conducted after May 2018 focused on explaining concept as well as details of project activities so that new TGs and PPMU can carry out the project activities efficiently.

The summary of TOT and TOF on marketing is shown below.

Table 2.9.1 Summary of TOT and TOF

Period	Before May 2018	After May 2018
Target	<ul style="list-style-type: none"> ● PPMU and 7 TGs in Pilot Provinces 	<ul style="list-style-type: none"> ● PPMU in Pilot as well as Semi-pilot provinces ● Additional 6 TGs in Pilot provinces ● New 7 TGs in Semi-Pilot provinces
TOT Marketing	- Conducted on 27- 28 February 2017 for PPMU and TG leaders	- Conducted on 11 October 2018 for PPMUs and TG leaders to understand

Period	Before May 2018	After May 2018
	- Aiming for participants to acquire theories and practices of safe vegetable marketing	the concept and details of project marketing activities
TOF Marketing	<ul style="list-style-type: none"> ● 1st TOF in March and April 2017 for TGs to understand market situation of safe vegetables, conduct SWOT analysis and develop a marketing action plan ● 2nd TOF in July and August 2017 for TGs to learn how to organize collection and delivery activities of joint sales from successful examples in Hanoi and develop strategies for joint-sales ● 3rd TOF in May 2018 for TGs to review the winter crop of 2017/18 and develop marketing action plans for next one year. 	<ul style="list-style-type: none"> ● Conducted in October and November 2018 for TGs to develop a concept of promotion materials and a simplified marketing action plan which includes a plan of one-to-one matching, <i>mezeroekai</i> and review meeting.

Source: JICA Project Team

Both TOT and TOF did contribute to better understanding of PPMU staff as well as TG members on project activities.

As most of PPMUs as well as TGs had had very little experience of marketing and joint-sales before joining the Project, both TOT and TOF focused on providing practical knowledge and sharing experiences of successful cases. Each training contains group discussions or visits in addition to lectures. For the first TOF, PPMU staff to attended TOF in other provinces so that PPMU staff can learn each other how to conduct training and motivate participants. TOT and TOF served to PPMU staff and TGs members as an occasion for networking among stakeholders in different provinces. After a series of TOT and TOF, PPMU staff as well as TG members could contact each other to share information, coordinate for trading and support each other. The Project team also supported teambuilding of PPMU staff and TG members in the same province. The Project team designed TOT conducted in October 2018 for PPMU staff and TG members in the same province to sit together and discuss the issues related training topic so that PPMU staff could know the situation of TGs in terms of marketing activities more correctly and better plan for their support to TGs.

	
<p>During TOT on marketing in February 2017, participants visited supermarket in Hanoi to see how vegetables are sold.</p>	<p>TGs conducted SWOT analysis during TOF marketing in April 2017.</p>
	
<p>Presenting review of trial activity in 2017 and marketing action plan of 2018 by TG at TOF on marketing in May 2018</p>	<p>Group discussion by PPMU and TGs in Vinh Phuc at TOT on marketing in October 2018</p>

2.9.2 Developing marketing tools

In order to make the marketing activities of TGs more effective, the Project team assisted them in preparing the various marketing tools. Those tools are used to provide information of the group, its production and products to buyers and other stakeholders. The tools include producer profile which contains detailed information of the group and other marketing tools such as logo, business cards and leaflet. The table below shows the basic tools that the Project supported.

Table 2.9.2 Basic tools for marketing

Tools	Purpose	Information contained
Producer profile	Provide stakeholders detailed information of TG required for stating trading	General information (name, contact information, number of member, year of establishment), production information, information on collection and delivery, methods of quality and safety monitoring, copies of certificates, results of safety checks
Logo	Symbolize the identity of the group	
Business card	Introduce the name and contact of the group	Logo, Name of group, name of director, contact information, slogan

Sign board	Introduce the group at the office or production site or provide direction to the office/farm to visitors.	Logo, Name of group, contact information, slogan
Leaflet	Introduce the overview of producer group visually with photos and story	Logo, Name of group, contact information, production information, characteristic of production, collection and delivery, assistance provided by the Project
Package/label	Provide information of producer, product and traceability	Logo, Name of group, contact information, date of shipment, code of producer

Source: JICA Project Team

Samples of each tool are shown below.

<Producer profile>

JICA Project for improvement of reliability of safe crop production in the Northern region
Producer's profile

Province	Hung Yen	ID number	HY-N2
NAME OF UNIT	JAPAN-VIETNAM VEGETABLE, FRUIT JSC COMPANY		
			

I. General information of the Unit

Address: 31 Chua Chanh, Thang Duyen commune, Hung Yen city, Hung Yen province

Leader of Unit: Nguyen Duah Thuy

Tel: 0321 3211 267 Fax: _____

Cell: 0983 633 818 Email: duahthuy2711@gmail.com

Website: www.thoigianhiep.com

Established year: 2016

Number of members of Management Board: 5/5

Number of farmers: _____

Form of management: Joint stock Company

II. Production

1. Total vegetable cultivation land: with vegetable cultivation land: 1 ha 50a

2. Estimated annual vegetable volume: 80 tons

3. The protocol applied: VietGAP

4. Types of vegetable produced by the Unit

Vegetable	From April to October		From November to March	
	Leafy veg	Root veg	Leafy veg	Root veg
Green mustard			Cabbage	Tomato
Chrysom			Kohlrabi	
Flowering chrysom			Lettuce	
Morning glory			Chrysom	

Example of producer profile

<Signboard>



<Business card>



<Leaflet>

Source: JICA Project Team

Figure 2.9.2 Sample of basic tools for marketing

2.9.3 Matching with buyers

There are two types of matching supported in the trial activity. One is one-to-one matching, a matching between a specific producer and buyers. The other is a matching event where multiple producers and buyers meet. The Project team supported in organizing Safe vegetable business forum as a matching event in Hanoi.

(1) One-to-one matching

The Project team organized one-to-one matching at the beginning since neither PPMU nor TGs had contact with major institutional buyers such as supermarket. When the trial activities started in March 2017, few TG had experiences of joint-sales before. Most members of TGs sold their product to collectors individually. The first step the Project team took was to identify reliable buyers who can buy safe vegetables through joint-sales. It was very difficult to find such reliable buyers in provinces. The Project team visited various institutional buyers such as supermarket in Hanoi and tried to facilitate buyers to visit the sites of TGs for matching. The Project team provided producer profiles of TGs to buyers and asked them to choose TGs they were interested. The Project team took buyers to match with TGs whenever possible.

Through these experiences, the Project team accumulated knowledge of buyers and became able to organize matching more effectively. As the table below indicates, the requirements, volume, price and means of transportation are different among different buyers. For organizing matching, appropriate combination between a TG and a buyer was taken into consideration.

Table 2.9.3 Categorization of buyers for safe vegetables

Buyer	Quality	Safety	Volume	Price	Pre-Processing	Location	Storage and transportation	Contract, payment
Consumer	High	Middle	Small	High	Sorting, packaging	Big city, local city	Motorbike, truck	
Safe vegetable shop, super	Middle	Middle	Middle	Middle	Sorting, packaging, label	Big city, local city	Motorbike, truck	Legal status, tax code for super
High grade super, convenience store, 5 star hotels	High	High	Small-Middle	High	Sorting, packaging, label, traceability (QR code)	Big city (Hanoi, Hai Phong)	Precooling storage, truck	Legal status, tax code
Canteen	Low	Low	Large	Low	No need (Simple packing)	Each province	Truck	

Source: JICA Project Team

Based on the experiences of matching in the winter crop season in 2017, the Project team found that the types of buyers with whom TGs can trade their vegetables depend on the level of their experience in joint sales as indicated in the table below. Although type of organization, variety and volume of products do matter for selling products, it is joint sales system which organizes, negotiates and coordinates with members to produce, harvest, collect, pre-process and deliver the products that defines the type of buyers TG can trade with. If TG has solid joint sales system, it can supply both small and big buyers. If not, TG can only supply safe vegetable shops who do not require big volume and whose quality standard as well as preprocessing requirements are not strict.

Table 2.9.4 Level of experience in joint sales and possible buyers

Experience of joint sales	Scale	Characteristics	Consumer	Safe vegetable shop	High grade supermarket	Canteen
None	Small	Limited joint production and sales management system	△	○	X	○
Medium	Middle	Basic joint production and sales management system	○	○	△	○
High	Middle-Large	Advanced joint production and sales management system	◎	◎	◎	○

◎-Possible to supply all times, ○- Possible to supply, △- Possible to supply depending on season and variety, X-Not possible to supply

Source: JICA Project Team

Achievements and issues of one-to-one matching are as follows:

- 53 one-to-one matching were organized by the end September 2018 for 7 TGs in Pilot provinces and 97 were organized after September 2018 for 20 TGs in Pilot as well as Semi-pilot provinces (Attachment 6). In total, 150 matchings were organized. The Project team organized 53 matchings before September 2018, while 97 matchings organized after September 2018 include those organized by TG itself and PPMU.
- As the Project progresses, TGs as well as PPMU becomes more familiar with matching. Some TGs become famous since they appeared on TV or newspapers. Consequently, there were more cases where buyers approached to TGs directly and did matching with them without informing the Project team.
- Some TGs promote themselves through SNS such as Facebook.
- 13 matchings before September 2018 and 30 matchings after September 2018 led to actual trading of safe vegetables. Success rate of matching varies among TGs depending on the variety and volume of vegetables available, the demand of buyers at the timing of matching and the capacity of TG leaders to communicate and negotiate with buyers.

- Total number of buyers for TGs is 62 of which 30 were introduced by the Project team and others were identified by TGs or their original buyers before they joined in the Project (Attachment 7). They made contact when they started trading.
- It was found out that TGs with more variety of vegetables to offer and located near Hanoi are more successful in matching, while TG with limited variety of crops in big volume has limited number of buyers to be matched with.
- Most of buyers are reluctant to make a contract until they see the harvest. Therefore, the concept of finding buyers before sowing was turned out to be difficult for the first season. Once the TG builds trust with buyers, it is more likely that buyers will give TGs order in advance and it will become easier for TGs to make a plan for cultivation based on market demand.
- Trading of vegetables is not static but dynamic. The products are different as the season changes. The buyers of winter crops do not always buy summer crops of same TGs if the products do not satisfy the requirements. Although matching is a very important first step to start trading, it does not promise long-term trading. Continuous efforts from TGs are required to maintain the relations with buyers.
- Involvement of leaders of the commune as well as PPMU turned out to be very positive for one cooperative type TG who had no experience of joint sales before. The TG had a difficulty in negotiating with buyers due to lack of skills in its staff³ and disadvantaged location of TG. The Commune People's Committee (CPC) and PPMU jointly organized a meeting to facilitate local safe vegetable shops and suppliers to canteen in the commune to buy vegetables from the TG and TG leader was forced to make tangible results in terms of joint sales under the supervision of CPC. This strategy can be utilized for other cooperatives with little experience of joint-sales.

(2) Matching events

The Project team organized the matching events called 'Safe vegetable business forum' in Hanoi in collaboration with Hanoi Promotion Agency (HPA). HPA is an agency under Hanoi PPC specialized in promotion of investment, trade, tourism and agriculture. It has capacity and mandate of organizing matching events for buyers in Hanoi and producers in other provinces as 60% of vegetables consumed in Hanoi are coming from outside Hanoi.

³ Even though there was little experience, TGs with capable leaders could find buyers and organized joint sales.

The Project team organized ‘Safe vegetable business forum’ four times since August 2018. The track record of four forums was real learning as well as evolution processes as the concept of matching event was not well developed at the time of project start. The JICA project team struggled to find appropriate form of forum in collaboration with HPA and PPMU. The concept and program of the forum was continuously reviewed and upgraded based on the experiences of previous forums as explained below)

i) Concept of forum

The ideas of forum started with the awareness on the need of communication between producers and buyers of safe vegetables. Since the most of safe vegetable producers at the time of project start, sold their products to collectors, the producers lacked understanding of markets and consumers and they did not trust their buyers. Coupled with low price generally paid to safe vegetables, this lack of understanding on market needs and insufficient collaboration between producers and buyers resulted in a vicious cycle where producers could not produce what the market wants, could not sell the products well and could not be paid sufficiently.

The Project team considered that it is extremely important for producers to understand market as well as buyers so that they can adjust their operation of production, collection and delivery to the needs of customer which can differentiate themselves from other producers and thus can obtain trust from buyers.

The general matching events at the time of project start were mostly seminar types where a series of speech from representatives of government, buyers and producers were given and vegetables were displayed for matching. There was no dialogue between producers and buyers. In addition, those events were basically organized during harvest season when producers displayed their harvest and buyers could immediately start trading. There was no event in the beginning of season for producers to make a plan of cultivation. This style does not match with the concept of ‘grow to sell’ under which buyers should be identified before cultivation planning.

With this background, the Project team proposed First safe vegetable business forum which focused on dialogue between producers and buyers. For the second forum, the Project team intended to deepen the dialogue between buyers and producers by setting ‘Role of buyers’ as a theme and inviting two progressive buyers namely AEON and VINECO as presenters. However, the time for matching was very limited due to difficulty in time management. Third forum was organized in collaboration with Women Union, Labor Union, Urban Economic newspaper in addition to HPA. It attracted huge number of participants as host organizations invited many people. However, there were three presentations and two panel discussions before matching and it took too long to complete these activities. As a result, there was little time left for matching. From these experiences, all stakeholders understood that it is very difficult to allocate enough time for matching if there are many programs. The Project team and HPA organized the fourth forum only focusing on matching.

It is also true that the importance of dialogue decreased as TGs and PPMU became familiar with negotiating with buyers.

ii) Summary of forum

The summary of safe vegetable business forum is shown below.

Table 2.9.5 Summary of Safe Vegetable Business Forum

Forum	Concept	Outcomes
First forum on 12 August 2017	Dialogue with buyers <Program> ➤ Seminar ➤ World Café ➤ Display and matching	<ul style="list-style-type: none"> ● Around 200 participants consisting of government, buyers and producers. ● Participants liked World Café. There was a lot of useful discussion. But its operation was not effective. ● Minimal effect on matching as there was not enough harvest to display.
Second forum on 25 December 2017	Role of buyers <Program> ➤ Seminar on 'role of buyers in safe vegetable business' ➤ Dialogue between producers and buyers ➤ Display and matching	<ul style="list-style-type: none"> ● Around 100 participants but more producers than buyers. ● Seminar and dialogue took long and no time for matching. ● TG did make linkages with buyers during dialogue session
Third forum on 12 September 2018	Trading safe vegetable in Hanoi Co-hosted by HPA, Women Union, Labor Union, Urban Economic newspaper, and JICA project <Program> - Seminar - Panel discussion - Matching - Display	<ul style="list-style-type: none"> ● Around 300 participants consisting of government, producers, buyers, agriculture material companies and consumers. ● Although seminar and panel discussion were meaningful, it took so long that no time left for matching. ● Nevertheless, as many buyers (69) participated, the chance of matching was high.
Fourth forum on 11 December 2018	Focused on matching <Program> Display and matching	There was enough time for producers and buyers to discuss and negotiate.

Source: JICA Project Team

It can be said that operation by HPA as well as effectiveness of forum in general improved gradually. The Project team tried to involve PPMUs as well as TGs in preparation. PPMU and TGs are asked to prepare marketing tools and harvests for display. PPMU staff is supposed to monitor as well as assist TGs to negotiate with buyers during the forum and facilitate follow up of potential buyers by TGs after the forum. Four forums contributed to the improved understanding of buyers and market as well as negotiation skills of PPMU and TGs,

The Project team tried to involve other stakeholders such as agriculture material companies and consumers in the forum. The agriculture input companies who provide inputs to the project production activities such as Watanabe Pipe or Unitika were invited to the forum to display their products so that other TGs have a chance to learn new technology. The consumers were invited to the third and fourth forum to buy vegetables displayed by TGs. TGs can earn money from their products and collect feedback on their products from consumers.

However, the biggest difficulty the Project team faced in organizing forums is attracting buyers for the events focusing on only vegetables. The number of reliable safe vegetables buyers is still limited.

Most of those buyers carry not only vegetables but also other food materials such as meat. Attracting buyers for matching with only vegetable producers is getting difficult. Although canteens of schools and factories have big demand of safe vegetables, it is difficult to reach those buyers as they are under different administrative structure.

	
<p>World Café at the first forum on 12 August 2017</p>	<p>Group discussion at the second forum on 25 December 2017</p>
	
<p>Panel discussion at the third forum on 12 September 2018</p>	<p>Negotiation between producers and buyers at the fourth forum on 11 December 2018</p>

With these circumstances, the Project team sought other opportunities for TGs to match with buyers. The Project team encouraged PPMUs and TGs to organize or participate in trade fairs. It is common that each province organizes trade fair for various products not only foods but also crafts or manufactured products. PPMU and TGs can take these opportunities to promote their products as well as to improve marketing skill. Although most of trade fairs in provinces are organized by Department of Industry and Trade (DOIT) of province, PPMU in Hai Duong organized the fair titled “Safe Agriculture Product Trade Fair in Hai Duong province in 2018” on 9-16 December 2018 as a part of provincial trade fair. 13 producer groups including six project TGs participated in the fair. TGs displayed and sold their vegetables to consumers. PPMU planned this activity as a part of project marketing activity. In addition, Ha Nam PPMU organized a study tour of 4 project TGs to participate the trade fair organized in Hanoi in November 2018 as a part of project marketing activities. PPMU

and TGs learned the way of displaying vegetables and other techniques at trade fair and sold their vegetables as trial.

2.10 Examination of Collection and Delivery Method

As the Project follows market-oriented approach, what is important in collection and delivery activities is how to ensure the safety and quality required by buyers identified. The Project team introduced three steps of activities to realize this requirement, namely introduced three steps of activities to realize this requirement, namely *Mezoroekai*⁴ to agree on the criteria and conditions for collection and delivery activities at the beginning of season, monitoring of collection and delivery to check if the criteria and conditions agreed at the *mezoroekai* are met, and finally at the end of season, review and planning of next season.



Source: JICA Project Team

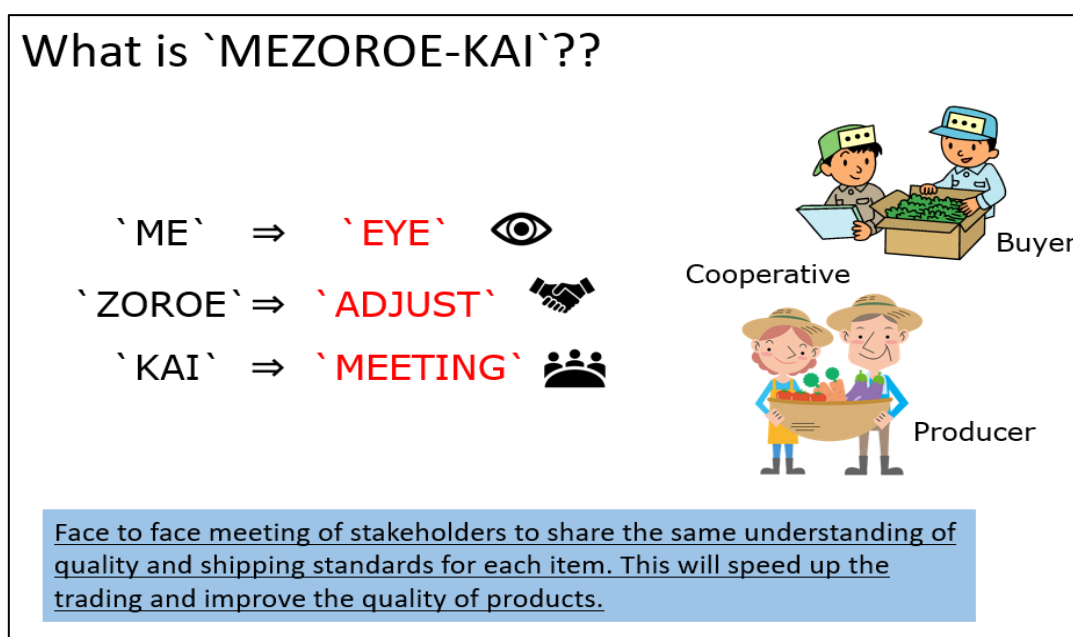
Figure 2.10.1 Work flow of collection and delivery

The following sections explain each activity.

2.10.1 *Mezoroekai*

Mezoroekai is a Japanese word to indicate a meeting of stakeholders to adjust understanding of quality standard for the harvest. In Japan, cooperatives or producer groups organize *Mezoroekai* at the beginning of harvest season to check the condition of harvest and agree on the quality and grading standard of specific crops.

⁴ Based on the decision at the 3rd JCC held on 21 June 2019, the term ‘mezoroekai’ was not used in the Phase 2.



Source: JICA Project Team

Figure 2.10.2 What is 'Mezoroekai'?

Its objectives and standard program are shown below

1) Objective

- Share the information on the conditions of harvest and market between producers and buyers
- Adjust the quality requirements between producers and buyers
- Agree on the adjusted conditions of trading

2) Standard Program

- Venue: TG office
- Timing: Set the date at the beginning of harvest season for each crop
- Participants: Board members and key producers of TG, PPMU member (production, marketing)

Table 2.10.1 Standard program

Agenda	min	Issues to be discussed	By
Confirmation of trading conditions	5	- Confirming the content of contract, MOU etc.	Producer
Checking harvest conditions	10	- Production conditions (cultivation schedule, pesticide usage, occurrence of disease etc.) - Summary of harvest conditions (color, size, uniformity, volume, disease etc.) - Production records for check	Producer
Sharing market information	5	- Situation of demand and supply - Trend of market price	Buyer

Agenda	min	Issues to be discussed	By
Adjustment and confirmation of sorting criteria	20	- Sorted harvest with packing materials - Check and adjust the criteria of sorting	Producer & Buyer
Discussion on adjusted trading conditions	20	- Confirm the volume, packing requirement, timing, mode of delivery, delivery point, mode of payment etc.	
Signing agreed criteria and trading conditions	10	- Sign agreement on criteria of sorting and trading conditions	

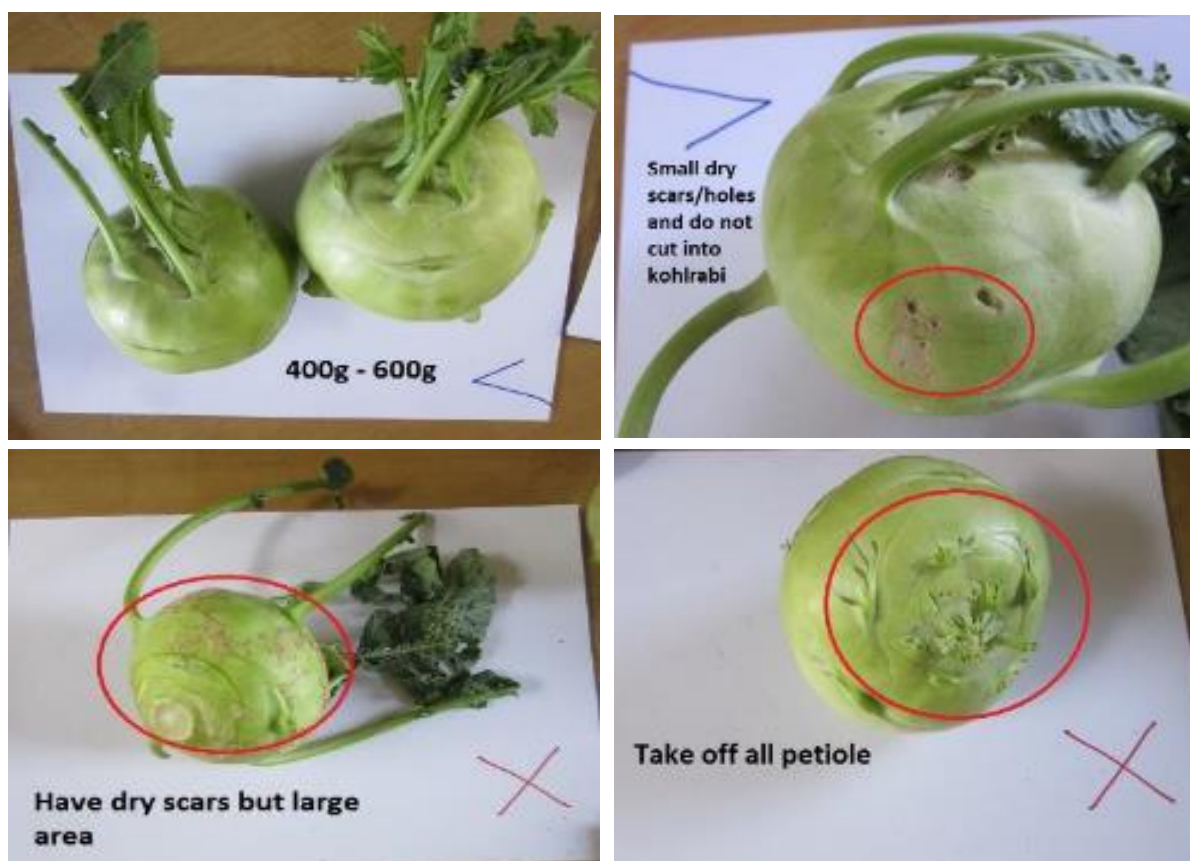
Source: JICA Project Team

Key element of *mezoroekai* is that buyers and producers agree on quality and sorting criteria based on real harvest so that misunderstanding of criteria could be avoided. This can reduce the chance of loss or time for coordination caused from lack of clarity in criteria. It is recommended to organize *mezoroekai* every year as the conditions of harvest different year to year and criteria should be adjusted based on the real harvest conditions.



A Mezoroekai meeting conducted with Big C

It is also recommended to record the agreed criteria by taking photographs of products satisfying criteria and those not as shown below picture. Recording by photographs can prevent producers from misunderstanding criteria.



Source: JICA Project Team

Figure 2.10.3 Harvests satisfying criteria (upper row) and those not satisfying (bottom row)

Mezoroekais were organized for seven TGs including two new groups who joined the Project in September 2018 in the winter crop of 2018 as well as 2019 as shown in the table below.

Table 2.10.2 Summary of *Mezoroekai*

Province	TG	Date	Buyer
Hai Duong	Tan Minh Duc	31 October 2017	Big C
	Thanh Ha	7 December 2017	Big C & Coop Mart
Ha Nam	Hiep	April 2018	Existing buyer
Hung Yen	Japan Vietnam	29 November 2017	Oshitsu
	Yen Phu	24 November 2018	Big C
	Chien Tang	16 January 2019	Existing buyers
Vinh Phuc	Visa	25 January 2019	VietHarvest

Source: JICA Project Team

However, remaining 13 group have not been able to organize *mezoroekai* so far. The reasons not organizing the *mezoroekai* were either one of the following:

- Buyers do not require high quality standard and thus are not interested in *mezoroekai*.
- Buyers have their own system to check the quality standard and thus no need to organize *mezoroekai*

- Since the target group does not have any buyer for joint sales, it could not organize *mezoroekai*.

Producers and buyers who participated in *Mezoroekai* generally found it useful and effective.

In order to make *mezoroekai* more effective, the following issues should be taken into account:

- There was a case where agreed criteria were not followed by the buyer in real trading. It happened as the person attended at *mezoroekai* was not the person for checking products when supplied. It is critical to invite the buyer who is responsible for quality check of supplied products.
- There was also a case where the results of *mezoroekai* were not properly informed to the producers and workers who actually carry out harvesting and pre-processing. Thus, the benefit of *mezoroekai* was limited as the agreed criteria were not followed properly. The Project team asked TGs to inform the results of agreement at *mezoroekai* to producers and workers. It is effective to display photos of harvests which satisfy the criteria in comparison with those do not satisfy the criteria.

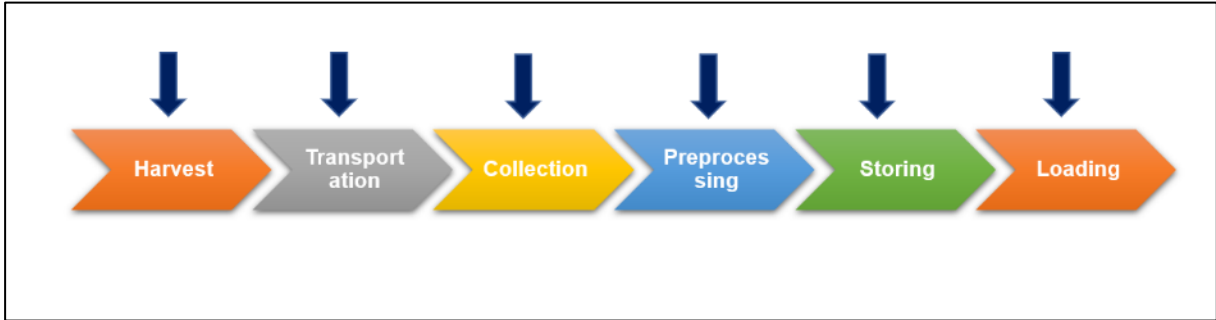
2.10.2 Monitoring of collection and delivery

(2) Monitoring of collection and delivery was carried out in two ways, namely by physical monitoring and by feedback from buyers

1) Physical monitoring

Physical monitoring of collection and delivery was conducted aiming to ensure the conditions of collection and delivery as well as the safety of vegetables agreed with the buyers are satisfied

In physical monitoring, control points⁵ of each step after harvest were examined by using the check sheet. The check sheet contains instructions for producers or workers to follow when they handle harvest in order to avoid risk of contaminations with five elements, namely dirty water, soil, garbage, chemical substances, and biological substances as well as to maintain quality/ traceability.



Source: JICA Project Team

Figure 2.10.4 Steps consisting of post-harvest activities

⁵ Control points for cross-contamination indicates the points where the harvest of target crop can be contaminated with dirty water, soil, garbage, chemicals and other vegetables.

The Project team organized the monitoring activities with PPMU and TGs. The standard program is shown below.

Table 2.10.3 Standard program for monitoring of collection and delivery

Required time	2.0 hours
Participants	<ul style="list-style-type: none"> ● TG: Director and Logistic manager ● PPMU: Both production and marketing officers ● Project staffs (production and marketing)
Program	<ul style="list-style-type: none"> ● At each check point, participants will check the control points by using the standard check list (Attachment 8). ● After checking all steps, participants share the findings and discuss how to improve the practices.

Source: JICA Project Team

Monitoring of collection and delivery was conducted in the winter crop seasons in 2017 and 2018 for 9 TGs. Among 13 TGs added in September 2018, the monitoring was conducted only for 2 TGs namely Green Farm in Hai Duong and Chien Tang in Hung Yen. No monitoring activity conducted in semi-pilot provinces where the understanding of project activities was still not sufficient. On the other hand, PPMU became able to initiate these activities in Pilot provinces.

Table 2.10.4 Experience of Monitoring of collection and delivery

Province	TG	Date	Buyer
Hai Duong	Duc Chinh	1 February 2018	Existing buyers
	Tan Minh Duc	21 November 2017	Big C
	Thanh Ha	15 & 22 December 2017	Big C & Coop Mart
	Green Farm	21 November 2018	Vineco
Ha Nam	Ha Vi	18 December 2018	Existing buyer
	Hiep	3 January 2018 19 December 2018	Existing buyers
Hung Yen	Japan Vietnam	13 & 18 December 2017 27 November 2018	Oshitsu Oshitsu
	Yen Phu	12 & 18 December 2017 26 November 2018	VINECO Coop Mart
	Chien Tang	28 November 2018	TVITA

Source: JICA Project Team

The achievement and issues in conducting monitoring of collection and delivery are summarized below.

- No serious risk on contamination was found through physical monitoring, although there are rooms for improvement on the basic conditions of hygiene and workplace organization.
- Although two times monitoring (initial monitoring and random monitoring) was originally planned, random monitoring was cancelled due to difficulty of organizing the monitoring and the fact that there was no major risk identified.

- The monitoring covered only the risk of contamination. However, in order to improve efficiency of collection and delivery, providing advice on operation of collection and delivery such as quality management may be effective.
- In order to make the monitoring activity more effective, it is important to involve TG management members. In addition, the result of monitoring should effectively communicate with other members as well as producers of the group.

(2) Feedback form from buyers

The Project team placed high importance on collecting and learning from feedback from buyers on quality, safety of products and services of TGs. The Project team encouraged sales manager of TG to regularly contact with buyers who are responsible on quality management of product to seek feedback. The name and contact information of the concerned official should be discussed and agreed at the *mezoroekai*.

The Project team had kept close contact with buyers before May 2018 when the Project team mainly introduced and coordinated with buyers. Whenever the Project team collected negative feedback from buyers, the team shared it with PPMU and TGs and discussed how to improve the situation. The stakeholder meeting was held if there was any serious issue which should be solved between TG and buyers. PPMU coordinated and facilitated TG to organize a meeting. The table below summarizes negative feedback from buyers to TG.

Table 2.10.5 Summary of Feedback from buyers in winter crop season in 2017

TG	Buyer	Date	Issue
Tanh Min Duc	VINECO	20 October 2017	Usage of pesticide
Tanh Min Duc	Big C	25 November 2017	Delivery
Tanh Min Duc	Big C	7 December 2017	Delivery
Japan Vietnam	Oshitsu	4 November 2017	Sticker, Delivery
Yen Phu	Safe Food 24	11 November 2017	Package, kinds of crops
Yen Phu	VINECO	17 November 2017	Quality of supply
Yen Phu	VINECO	9 January 2018	Usage of pesticide
Yen Phu	VINECO	March 2018	Usage of herbicide
Japan Vietnam	Oshitsu	April 2018	Deterioration of vegetable quality

Source: JICA Project Team

Findings from feedback are as follows:

- 1) Feedback from buyers are categorized in those related to the usage of pesticide, preprocessing and delivery.
- 2) Feedback related to usage of pesticide include using illegal pesticide, detection of pesticide residue and mixing of unsafe vegetables. Solving the issue related to pesticide requires good internal control of TG. Unless TGs do not have proper system to check and manage pesticide usage, the same problem happens again.
- 3) Feedback related to delivery include delay of delivery and unsatisfied quantity of supply.

- 4) Feedback on low quality is mostly related to insufficient preprocessing such as lack of uniformity, mixing of products which do not satisfy sorting criteria. Holding *mezoroekai*, continuous training of workers who carry out preprocessing activities and regular monitoring can reduce the chance of such feedback.
- 5) Feedback is very useful to identify bottlenecks in supply-chain. Solving problems based on the feedback can improve supply chain very effectively.
- 6) It is important for each TG to record and review feedback to reflect their plan and operation. There is no such mechanism established yet.

There are two cases, as shown in the table below, where the buyers made negative feedback on the supply from TGs and the Project team supported TGs to solve the issues. The Project team confirmed the situations improved for both cases by now.

Table 2.10.6 Cases of receiving negative feedback from buyers

Date	TG	Buyer	Feedback	Action taken
March, 2018	Yen Phu (Hung Yen)	VINECO	Usage of herbicide not approved by VINECO	Strengthening monitoring of using herbicide by assigning one staff, excludes the producer who breached the rules from supply to VINECO, increasing communication with producers
May, 2018	Japan Vietnam (Hung Yen)	Oshitsu	Low quality of vegetables delivered	Improving skills of preprocessing by training staff and introducing improved skill. Improving the communication with buyers.

Source: JICA Project Team

At TOF conducted in May 2018, the Project team asked TGs to report and share any feedback they received from buyers during the winter crop season in 2017 with other participants. Those feedback include delay of delivery, different size of products, low quality, low volume, and insufficient preprocessing. Sharing and discussing about feedbacks enable TGs to further improve their operation.

2.10.3 Review and planning next season

(2) The Project team introduced two activities for the end of winter crop season, namely review meeting with buyers in April and TOF on marketing action plan in May. The former aims to review the trading with buyers in order to draw lessons and confirm good practices, and the latter to formulate the marketing action plan for the next one year based on the experience of current year1) Review meeting with buyers

Each TG is expected to organize the review meeting with major buyers. The objectives of meeting are as follows:

- To collect feedback from buyers to understand good practices and lessons for trading winter crop
- To negotiate possible trading of summer crops or next winter crops

The standard program of review meeting is shown below. TG is expected to summarize the trading details with the buyer and lead discussion.

Table 2.10.7 Standard program of review meeting

Timing	April
Venue	Either TG office or buyer's office depending on the result of coordination
Participants	Cooperative: Director and marketing manager PPMU: marketing officer Project team
Content	1. Review the trading of winter crop Trading volume Observing the agreement at <i>mezoroekai</i> or contract Good practices and lessons (collection & delivery, quality, safety) 2. Discussion about continuing trade
Preparation	Copy of contract Copy of agreement at <i>mezoroekai</i> Leaflet/ revised producer profile Production plan of summer crop Sample of summer crops

Source: JICA Project Team

The Project team encouraged TGs to conduct review meetings with major buyers. The Project team considers that these meetings are especially effective for major buyers with high requirement in Hanoi. The Project team found it difficult for TGs to organize a review meeting with many small buyers. For these cases, the Project team proposed to organize one meeting with all buyers. In Hanam and Hung Yen, PPMU organized review meeting for all TGs by inviting all existing buyers as well as potential buyers. These meetings turned out to be quite effective and useful as an occasion for discussing various issues related to safe vegetable trading. Besides it can be an occasion of *mezoroekai* if the TGs bring their harvested crops.

Based on this experience, the Project team proposed PPMU to organize the meeting called Provincial safe vegetable business forum as an occasion for TG and buyers to match, agree on quality criteria (*mezoroekai*) and review the result of trading at the end of winter crop in April and that of summer crop in September. In this way, organizing matching, *mezoroekai* and review meeting can be streamlined.

Results of review meetings in winter crop season in 2017 are shown below.

Table 2.10.8 Result of review meeting

Date	PPMU/TG	Buyer
24 March 2018	Yen Phu, Hung Yen	VINECO
3 April 2018	Hiep, Ha Nam	Existing local buyers
20 April 2018	Thanh Ha, Hai Duong	VINECO
27 April 2018	Ha Nam PPMU review meeting (Ha Vi, Hiep)	Existing local buyer
22 May 2018	Hung Yen PPMU review meeting (Japan Vietnam, Yen Phu)	Existing local buyers

Source: JICA Project Team

(2) TOF on marketing action plan

With the intention to shift the responsibility of project implementation from the Project team to PPMU and TGs, the Project team conducted TOF on marketing action plan in May 2018. At TOF, each TG reviewed their activities in last season and developed a marketing action plan for next season.

The table below shows the outlines of marketing action plan to be developed at TOF. The marketing action plan consists of two parts, namely review of last season and marketing action plan for next season. Each TG is expected to develop the first part and draft the second part before the training and finalize the second part on the day of training.

Table 2.10.9 Outlines of marketing action plan

Section	Content	Timing of preparation
PART1 Review of last season	<ul style="list-style-type: none"> ● Experience of joint sales ● Communication with buyers ● Feedback from buyers ● Good practices ● Challenge ahead 	To be prepared BEFORE TOF and presented at TOF
PART2 Marketing action plans for next season	<ul style="list-style-type: none"> ● Summary of marketing action plan- project target ● Summary of marketing action plan-target for each group ● Detailed plan <ol style="list-style-type: none"> 1. Joint-sales members 2. Stakeholder meeting 3. Products 4. Delivery 5. Price 6. Strategy with buyers ● Monthly schedule 	To be prepared on the day of TOF. Draft is better to be prepared in advance

Source: JICA Project Team

In order to align the activities in the marketing action plan with project target and institutionalize the project activities as the regular activities of TGs, the Project team requested TGs to include the following points in the marketing action plans.

- Specify target sales and profit for 2018 based on the 2017 sales and profits in newly added slide and review/ adjust all other targets/actions to achieve the sales/profit targets.
- Specify target number of HH to be involved in joint sales (Only for cooperative)
- Specify target number of new buyers in each category TG would like to explore
- At least two stakeholder meetings such as *mezeroekai* or review meeting in a year
- At least 4 one-to-one matching for each TG in a year
- At least 3 linkages (contracts) with buyers
- Hold *mezeroekai* with producers or workers at the beginning of harvest season
- Hold training session of post-harvest with producers or workers
- Review and revise marketing tools such as producer profiles

The standard program of TOF on marketing action plan is shown below. TG presented draft marketing action plan and received comments from participants for finalization.

Table 2.10.10 Standard program of TOF on marketing action plan

Time	Half day
Place	The venue should have enough space for group work of TGs
Trainer	PPMU officials in charge of marketing and JICA experts
Participants	Management staff (Director and managers of production, logistic and sales) and key producers in each TG. Around 5 people from each group.
Program	9:00-9:10 Opening remarks 9:10-9:30 Summary of joint sales for winter crop of 2017 (PPMU) 9:30-10:10 Sharing experiences of joint sales and feedback from buyers by TG (20 minutes/TG) Buyers, crops and volume sold Feedback from buyers (collection and delivery, quality, safety) 10:30-10:40 Break 10:40-11:30 Group work: develop marketing action plan each group 1. Target of joint sales (No of producers who participate in the joint-sales) * 2. Target crop and target volume, target buyers, 3. Communication with buyers (utilization of marketing tools) 4. Monthly activity plan 11:30-12:00 Sharing the results
Preparation	<ul style="list-style-type: none"> - Experiences of joint sales and feedback from buyers by TG - Promotion materials of each TG (by TG) - Big paper, pen, and stickers
Output	- Marketing action plan

*Target of the Project in PDM is ‘Percentage of farmers who join joint-sales of safe crop is increased to 50% in the target site.

Source: JICA Project Team

TOFs in 3 pilot provinces were conducted in May 2018 as shown in the table below. PPMU prepared well and all TGs had done their homework before the training.

Table 2.10.11 Result of TOF training

Province	Date	TG
Hai Duong	31 May 2018	Thanh Ha, Duc Chinh, Tan Minh Duc
Hung yen	24 May 2018	Hiep, Ha Vi
Hung yen	28 May 2018	Japan Vietnam, Yen Phu

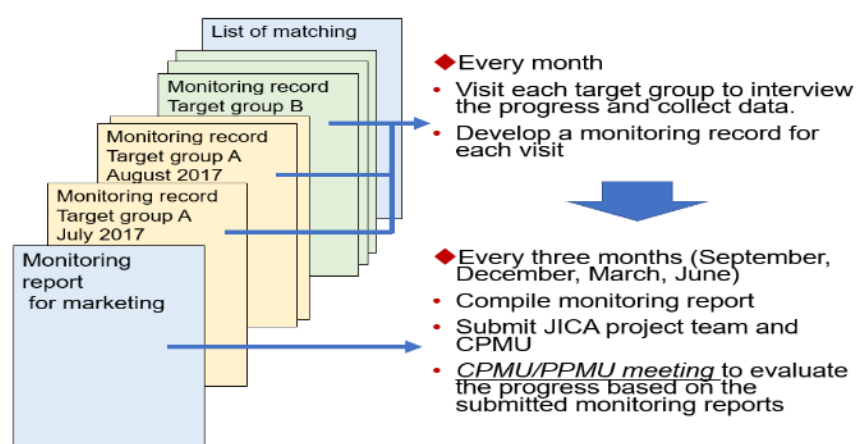
Source: JICA Project Team

Additional TGs in pilot and semi-pilot provinces who joined in the Project in September 2018 developed simplified marketing action plans which contain SWOT analysis and plan for *mezoroekai*, monitoring of collection and delivery and review meeting by April 2019. Additional TGs are expected to develop a full-version of marketing action plan at TOF on marketing action plan in May 2019.

2.11 Monitoring and Evaluation of Trial Activities

2.11.1 Monitoring

In order for PPMU to develop the capacity of monitoring as well as ensure smooth operation of trial activities, the Project team introduced the system of quarterly marketing monitoring report from July 2017. The Project team asked PPMU marketing staff to visit TGs in the province at least once to monitor and record the project activity. PPMU submits the quarterly report which contains summary and monthly monitoring records of each month in the concerned quarter the end of March, June, September, and December. PPMU should provide support and advice to TGs based on the result of monitoring.



Source: JICA Project team

Figure 2.11.1 Image of monitoring report

Although the monitoring activities focused on matching and collection and delivery at the beginning, more comprehensive monitoring structure based on the marketing action plan of TGs was introduced after May 2018 and revised the format of monitoring report. The monitoring item included in the current format are listed below.

Table 2.11.1 Monitoring items included in the monitoring report

Monitoring level	Monitoring items
Achievement at provincial level	<ul style="list-style-type: none"> • No. of business matching • No. of linkages supported • No. of stakeholder meetings
Achievement of each TG	<ul style="list-style-type: none"> • Target and activities specified in the marketing action plan developed by each TG in the following areas <ul style="list-style-type: none"> ➢ No of producers in joint sales ➢ Stakeholder meetings ➢ Product ➢ Delivery ➢ Price ➢ Strategy with buyers

Source: JICA Project team

Monitoring report contributed to improvement of PPMU's understanding of marketing activities as well as strengthening their relations with TGs. As they understand project activities, they become able to provide more appropriate support to the activities of TGs. Thus the overall efficiency of project implementation also improved.

2.11.2 Evaluation

Central Project Management Unit (CPMU) evaluation was conducted in March 2018. The objectives of CPMU evaluation are as follows:

- To improve the safe crop production system, and collection and delivery through the trial activities.
- To enhance PPMU's monitoring capacity for trial activities in order to sustain the project activities even after the project completion.

The results of evaluation were reported at the second JCC meeting held on 16 April 2018. Evaluation criteria of trial activities on marketing and results of evaluation are described in the tables below.

Table 2.11.2 Evaluation of trial activities

Item	Target Criteria	Result of evaluation by CPMU
Matching	The producers and buyers reach to the business agreement	Some TGs (e.g. Ha Vy – Ha Nam) had not made any linkage with buyers. Special attention is required for the concerned TGs to find buyers.
Collection and delivery	The safe crop which satisfy the quality and quantity required by the buyer is delivered	Actual sales compared to sales plans for contracted enterprises are low. Maintaining the quality and quantity of products after the matching is very important. Some TGs have not satisfied in terms of volume and species, so they have not been successfully connected with buyers
	The system to ensure safety of crop functions	There are some inadequacies about time, and transportation means
	The safe crop is traded at the higher price than market price	Yes, achieved in most groups contracted with enterprises or adoption of new varieties with good appearance
Sales	Sales volume increases	Yes, but needs to be assessed over the years or based on static data of production groups
	The produced crops gain the trust of buyers and consumers	Trust from buyers in general improved. There is insufficient information to evaluate the reliability of consumers for the products of the project
Business Forum	To make the business forum an effective and sustainable tool for business matching among safe vegetable business stakeholders	<ul style="list-style-type: none"> ➤ There are initial successes such as: attracting the interest of parties related to production and distribution and mass media through 2 events organized. ➤ Successful match two TGs: Duc Chinh – Lien Anh and Nhat Viet – Sao Việt. ➤ The number of participants is too big, and it affected smooth operation. ➤ The number of buyers is less than the producers, so the TGs have less opportunity to meet buyers. ➤ Coordination unit (HPA) has not approached the TGs so lacking confidence to promote about TGs.

Item	Target Criteria	Result of evaluation by CPMU
		➤ Improved product design for better matching.

Source: JICA Project team

Evaluation was considered a valuable occasion for CPMU to see the project activities and discuss various issues related to the Project with stakeholders. It is also a good occasion for PPMUs to review activities and strengthen their tie with CPMU.

< *Activities for Output 3* >

2.12 Review and Analysis of Past Experiences of Promotion Activities

Output 3 covers activities related to consumer communication and awareness raising on safe vegetable consumption. Different programs have been strategically planned to induce effective conversion of consumer behavior from passive attitude/no-action towards conscious safe vegetable purchases.

2.12.1 Consumer Survey

In order to design communication activities strategically, a qualitative consumer survey was conducted in Hanoi from 23rd to 29th November 2016, with cooperation of Hanoi DARD. The purpose of this survey was two-fold: 1) To understand what is hindering consumers from purchasing safe vegetables and at which behavioral stage their progress might be stalling, and 2) to assess if there are any distinctive behaviors affected by age, education level, children, children's age, or purchase channels. Consumer Survey report is shown in Attachment 5.

(5) Sample

Samples were screened with the following requirements in order to obtain valid answers from the decision-making unit in vegetable purchase for self-consumption.

- 20 years old or older
- Female vegetable purchasers in Hanoi, who buy vegetables for herself or for her family.
- Those who are already aware and are concerned about food safety with vegetables

Five respondents were equally recruited from different purchase channels: Supermarket, safe vegetable stall/shop, and wet retail market, so that behavioral tendencies in relation to each sales channel could be also captured.

(2) Hypothesis

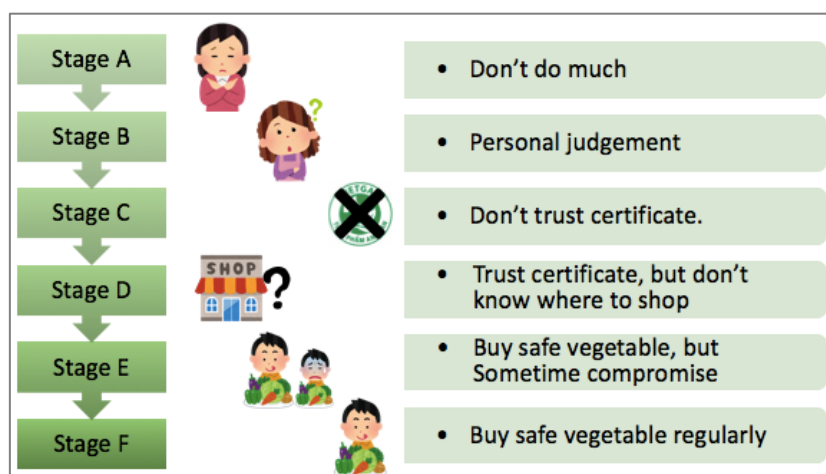
This survey was conducted based on the hypothesis that consumers change their purchase behavior through the following stages. (Figure 2.12.1)

- Stage A: Want to buy safe vegetables, but don't do much at grocery shopping.
- Stage B: Want to buy safe vegetables, but usually rely on personal judgement.
- Stage C: Have knowledge about certified safe vegetables, but don't trust them.

Stage D: Have knowledge about certified safe vegetables, but don't know where to find them.

Stage E: Have knowledge about certified safe vegetables and where to buy them, but don't always buy them.

Stage F: Have knowledge about certified safe vegetables and buy them most of the time.



Source: JICA Project team

Figure 2.12.1 Consumers' behavioral stages in safe vegetable purchase

(3) Method

In order to extract in-depth opinions and insight, the survey was administered in one-on-one interviews with a semi-scripted questionnaire, which consists of all open answer questions.






(4) Analysis and key finding

Analysis were conducted based on behavioral stages, demographics and purchase habit variables, in order to extract factors which are effective to move different segments from one stage to the next.

5) Variables affecting purchase behavior

Even though this is a qualitative survey hence not statistically concluded, the following behavioral tendencies were detected according to two variables: age and shopping channel.










- It would be effective if communication activities were to be designed according to different age segments. As exhibited in Figure 2.12.2, it appears that the older segment (60 years old and above) largely remains at an earlier stage (Stage A though C).

Age	mainly 60 and above	Behavioral Stage
40	A	 Don't do much
61	A	
65	A	
69	A	
57	B	 Personal judgement
60	B	
60	C	 Don't trust certificate
-	D	Trust certificate, but don't know where to shop
38	E	 Buy safe vegetable, but sometime compromise
43	E	
58	E	
29	F	 Buy safe vegetable regularly
47	F	
55	F	
57	F	
66	mainly below 60	

Source: JICA Project team

Figure 2.12.2 Behavioral tendencies by age

- A key message to convert consumers to the next behavioral stage must be customized according to the shopping channel. As presented in Figure 2.12.3, the respondents who shop at a wet market predominantly stay within Stages A and B. Those who shop at safe vegetable shops seem to be consciously selecting the shopping channel, and they are mostly already at Stages E and F.
- Supermarkets need to raise awareness that they sell safe vegetables. Supermarkets typically provide safe vegetables; yet shoppers at supermarkets turned out to be in mixed Stages, as in Figure 2.12.3. Some may not be aware that supermarkets provide safe vegetable, or others may not be shopping specifically safe vegetables due to a wide variety of merchandise.

Sample	Shopping Channel	Behavioral Stage
9	Wet Market	 A
8	Wet Market	 A
10	Wet Market	 A
6	Wet Market	 B
7	Wet Market	E
1	Supermarket	A
4	Supermarket	B
3	Supermarket	E
2	Supermarket	F
5	Supermarket	F
12	Safe Vege Shop	 C
15	Safe Vege Shop	 E
14	Safe Vege Shop	 F
11	Safe Vege Shop	 F
13	Safe Vege Shop	 F

Predominantly stays within Stage A & B

- Some may be unaware that supermarkets provide safe vegetable.
- The reason to shop at supermarket may not be necessarily "for safe vegetable", as product assortment is wide.

A majority is well aware of safe vegetable and proactively choose this type of shop.

Source: JICA Project team

Figure 2.12.3 Behavioral tendencies by Shopping Channel

The other three variables (educational level, the number of co-residing youths under 18, or the ages of co-residing youth under 18) did not seem to drive any particular behavioral tendencies.

2) Results by behavioral stages

According to the behavioral stages, the following two key findings have been drawn.

- Belief, trust factors, information collection manner, media usage, and trigger to purchase safe vegetables varied according to the behavioral stages from A through F.
- “Family members’ health, especially children’s” was mentioned by respondents across all stages⁶ in relation to the trigger to start purchasing safe vegetables or about an influencer who would prompt the respondents to start purchasing safe vegetables.

(5) Implications for marketing action plans

The key findings discussed thus far and qualitative details were sorted according to the behavioral stages. The following implications were drawn to reflect to communication activities. (Figure 2.12.4)

Qualitative Finding	Implications to Activities
Stage A, B, and C ① Lack of knowledge about safe vegetable and its distinction ② Easy access, low price, quality (= fresh appearance) are the key	Continue with grass root training and educational activities. Approach: mass / face-to-face
Stage E & F ① First step is to learn where to buy safe vegetable (advertisement, passing-by, or internet) ② The barrier between Stage E and Stage F is lack of easy access ③ Proactively use internet to collect information	Develop online platform(s) • Shop finder • Producer information • Certificate information
④ They trust comes from combination of three information ✓ Information on the package (producer’s traceability) ✓ government’s certificate ✓ Shop’s certificate	Coordinate with producers & trade (incorporate in Pilot activities) • Information on packaging • Certificate process • In-store display at retailers
All Stages Key influence to search safe vegetable is family’s, especially “child” is often mentioned	Plan communication activity involving children/youth with mass approach

Source: JICA Project team

Figure 2.12.4 Summary of implications

Stages A, B, and C

They share similar key issues as following, and suggested actions for this segment are as following.

- Continuous grass roots training and educational activities be still necessary for consumers at Stages A, B, and C to disseminate proper judgement and the consequences of health issues as a tradeoff for the lower prices.
- An approach of mass communication and/or tangible face-to-face events should be applied to this segment in order to convince the relatively older age segment in these stages.

Behavior of Stages E and F

⁶ Except Stage B, as answers to these questions were not obtained from this segment.

The behavioral history and characteristics of consumers at Stages E and F should be replicated to other consumers in earlier stages, so that the course of action to move on towards Stage E and F can be facilitated. Therefore, suggested actions include the following.

- To facilitate the conversion steps towards Stages E and F, it is suggested that a web-based information hub be developed
- The website platform should include three components: a shop finder, producer information, and educational information of safe vegetable and various certificates.

Common key factor across all stages

One common key factor that is relevant to all consumers across different stages is a concern about family members’ health, especially that of children. The following actions are suggested to capitalize on children’s influence in promoting safe vegetable consumption.

- Involve children or youth in a mass communication approach, potentially together with health-related topics.
- Design activities to trigger emotional engagement of their mothers and grandmothers.

2.12.2 Past Communication Activities

Information on past activities was collected from the governmental organizations, NGOs, and retailers. As shown on Figure 2.12.5, various activities had been implemented through different organizations.

		Stage A	Stage B	Stage C	Stage D	Stage E	Stage F
Gov't	Hanoi DARD	Awareness & Education: Food Safety • Mass media • Leaflet • Training • Events • Workshops			Traceability • QR code • Site visits	Access Info • Directory (hard copy)	
	Women's Union						
	Hanoi Trade Promotion Center						
	NAFIQAD (Hung Yen)						
NGO	Hanoi Consumers' Club			Evaluation & Traceability • Site visit • Evaluation & information release			
	VECO				Access Info • Online Store Locator		
Retailer	AEON			Traceability • Farm Tour • Display • Package	Access Info • Advert	Trust Building • Display • Store certificate	
	BACTOM						

Source: JICA Project team

Figure 2.12.5 Past communication activities

All stages had been well covered by at least one organization; however, there had been two fundamental issues as follows:

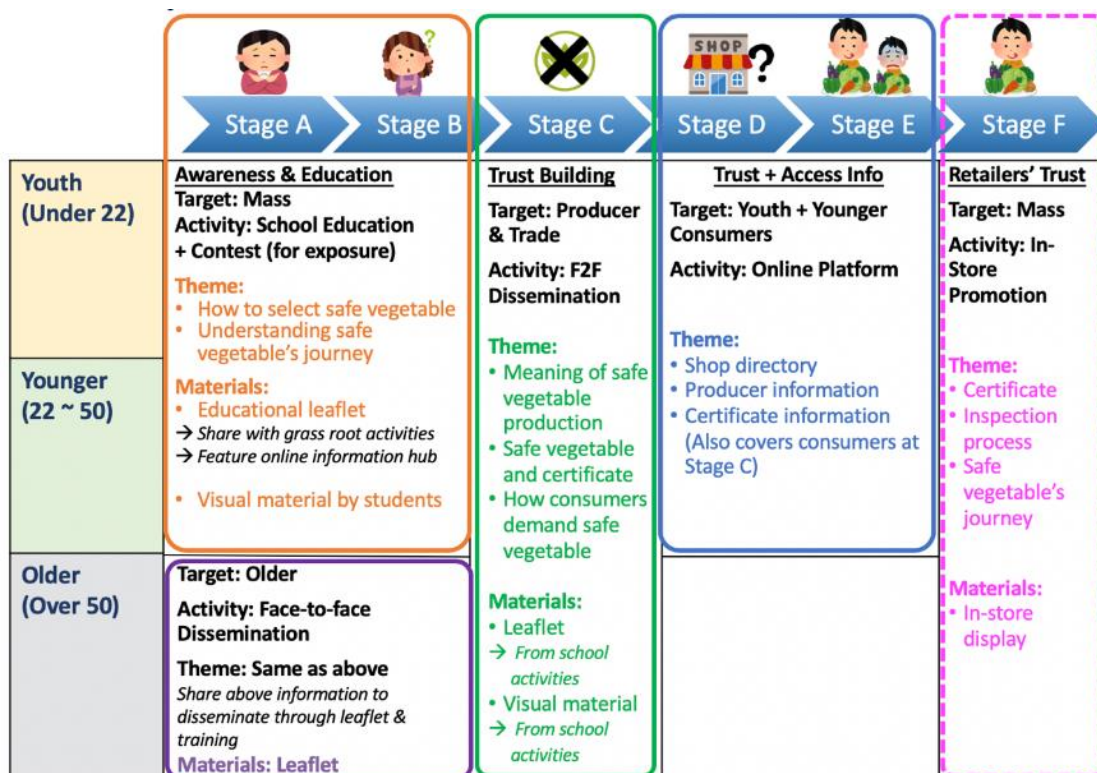
- Each activity was planned and executed independently; therefore, there was no holistic approach to coordinate different communication programs to link consumers to the next stage.
- Each activity might have contained relevant contents; however, due to different organizational missions and interests, some activities had not been targeted specifically to consumers. (e.g. training for farmers, directory issued for producers and trade, etc.)

Therefore, the following special attention were paid, upon designing consumer communication programs to enhance synergy among different activities.

- Each program would carry a specific objective to induce consumers’ actions to move onto the next behavioral stage.
- Each program would be designed to appeal to consumers with a key message, contents, and visual design that are relevant and attractive to the target audience.
- Each program would feature positive tone and manner to promote emotional engagement, which would drive an action.

2.12.3 Communication Strategy

Reflecting the above results, the overall communication plan was developed as in Figure. 2.12.6. with five different programs as explained below.



Source: JICA Project team

Figure 2.12.6 Overall communication activities

(1) School education program

For Stages A and B, targeting younger generation, a school program was placed as a strategic focal point with a primary objective to induce behavioral changes among the mothers by using students as a communication medium. The reasons behind this program are as following: (1) mothers of families are more conscious about food safety to protect children, (2) mothers are typically the decision-making unit of vegetable purchases in a household, (3) younger mothers are relatively flexible in changing behavior than an older segment, and (4) mothers pay more attention to their children than to other information sources.

(2) Face-to-face dissemination program for the elderly segment

For Stages A and B, targeting the elderly segment, face-to-face dissemination by Women's Union and Hanoi Women Consumer Club was planned. The purpose of this activity is to raise awareness and induce concerns about children's health through direct communication in their meetings.

(3) Face-to-face dissemination program for producers and trades

To improve conditions of Stages C, face-to-face dissemination through ToT and ToF with producers and trades was planned. The purpose of this activity is two-fold: i) to connect producers and trade with consumers' mind so that they will become more serious about their safe vegetable businesses, and ii) communicate their benefits to motivate their commitment to comply with safe production and trade. This will bring an indirect effect to improve trust between producers/trades and consumers.

(4) Hanoi Promotion Agency website as an information hub

To facilitate conversion towards Stage E, where consumers start purchasing safe vegetables, development of HPA website was proposed to create an online information hub about safe vegetables. The primary objective is to facilitate safe vegetable purchase by providing shop information and other critical information for consumers to build trust in safe vegetable purchase.

(5) In-store promotion by safe vegetable retailers

To enhance Stage F, consistent purchase of safe vegetable, an in-store promotion by safe vegetable retailers was planned. The strategic positioning of this activity is to induce purchase experience among consumers, and to solidify awareness that supermarkets typically provide safe vegetables.

2.13 Implementation of Awareness Raising on Safe Crop Production and Food Safety

Following the communication strategy and overall plans discussed thus far, this section elaborates each of the above five programs with: (1) execution principles, and (2) execution details and results.

2.13.1 School education program

(1) Execution principles

1) Involvement of children and mothers

The key strategy in this program is to utilize school children as a communication medium to reach mothers with the safe vegetable educational contents; therefore, the program activities were designed in the following sequence.

- i. An in-class learning session will engage students with an educational interactive leaflet.
- ii. Students will be a teacher of their household and teach their mothers the leaflet contents.
- iii. Students and mothers fill out a homework sheet and submit a signed paper to Project. Two questions are asked in this homework sheet: what they learned from the leaflet contents, and how the mother will improve their consumption behavior about safe vegetable.
- iv. Extracurricular activity of communication material creation is conducted. Groups of students work on visual material development (posters in 2017 and slideshow videos in 2018) and enter a contest.
- v. Awards are presented to winning groups at a ceremony by Vietnamese government officials.
- vi. The winners' visual materials are duplicated and distributed to schools, PPMU, Women's Union, and other stakeholders for further dissemination to a wider audience.

During this course, there are three levels to engage mothers: i) testimonials of “smart Moms who purchase safe vegetables” are featured in the leaflet to make the topic relevant to mothers, ii) the mothers commit to improve their consumption behavior in front of their children through homework, and iii) their interest is stimulated through the visual materials' contest and award news.

2) Communication visual for mass dissemination

The communication visual contest and an award ceremony were strategically incorporated in the program to create a newsworthy event for exposure. This will attract media coverage and efficiently expose the news and contents to a wider mass audience without bearing additional project budget.

(2) Execution details and results

In order to run a pilot program, different levels of activities were required among the public schools in the 12 urban districts in Hanoi. After discussing realistic feasibility with Hanoi DARD and DOET, the program was conducted as following.

- 1) ALL students of a target grade within the 12 urban districts in Hanoi receive educational leaflets and are encouraged to share the information with their family members
- 2) Selected schools require their students to work on a homework with their parents after studying the contents of the leaflet in class
- 3) Further selected schools recruit students to participate in an extracurricular activity, in which students participate in a contest festival to create communication materials. Awards are presented to best teams by MARD, Hanoi DARD, and DOET officials
- 4) Communication materials of the finalists are showcased at an exhibition at AEON MALL to general public.

The impact of each activity is exhibited in Table 2.13.1, and results of each activity are discussed below it.

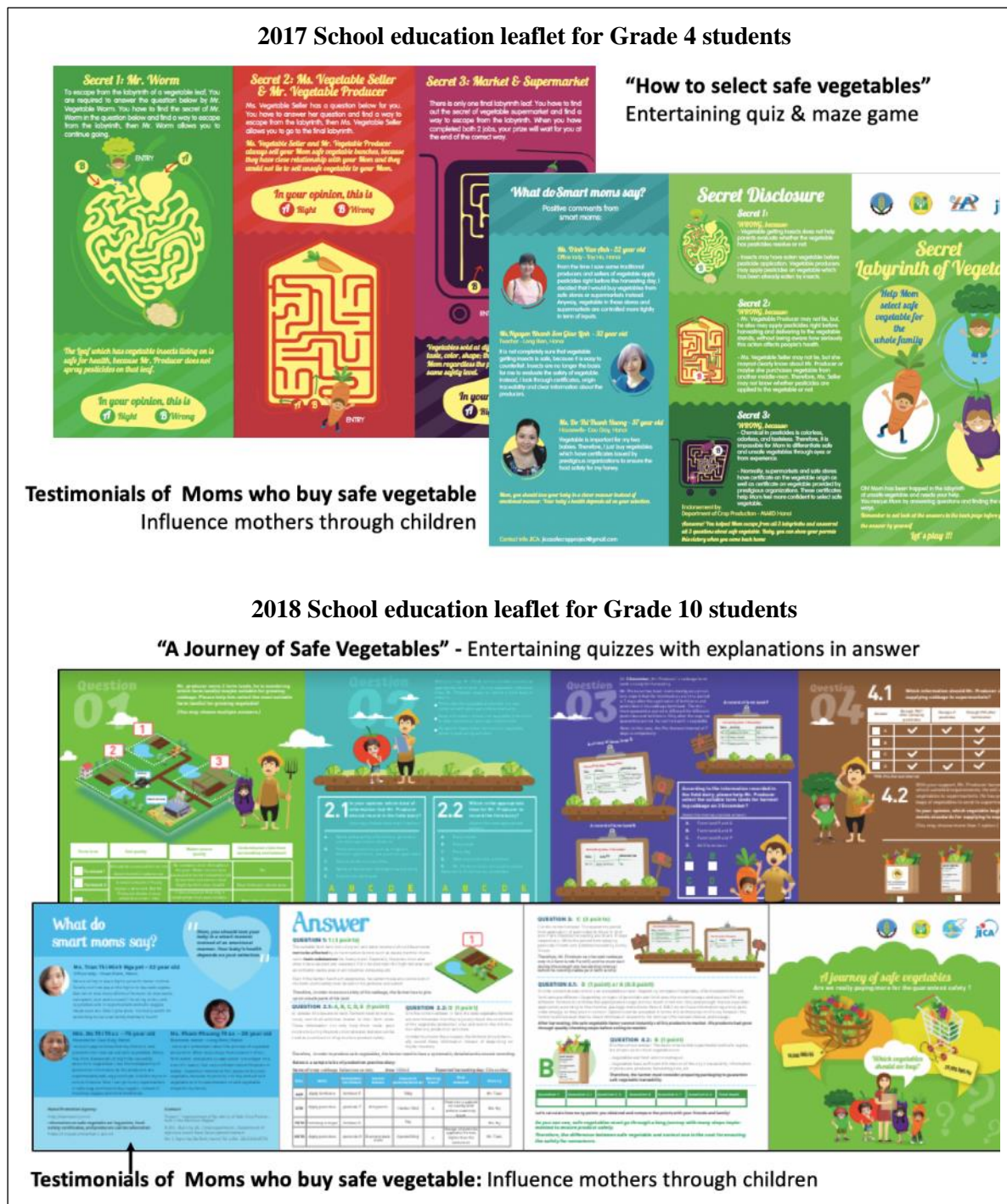
Table 2.13.1 Impact of school education program

Activity	Year	District	# of Schools	# of Impact
1) Leaflet distribution	2017 (Grade 4)	12 urban districts	194	52,514 Grade 4 students
	2018 (Grade 10)	12 urban districts	39	24,986 Grade 10 students
2) In-class program & homework	2017 (Grade 4)	12 urban districts	30	10,350 Grade 4 students 5,116 homework submissions
	2018 (Grade 10)	6 selected urban districts	6	3,891 Grade 10 students 3,308 homework submissions
3) Poster contest festival	2017 (Grade 4)	2 urban districts	10	Approx. 1,500 students 150 finalist students selected
Slideshow contest festival	2018 (Grade 10)	6 selected urban districts	6	363 students 36 finalist students selected
4) Exhibition at AEON MALL	2017 (Grade 4)	---		Approx. 3,000 visitors 1,500 leaflets distribution
	2018 (Grade 10)	---		Approx. 2,500 visitors 4,000 leaflets distributed

Source: JICA Project team

1) Leaflet distribution

Educational leaflets (Figure 2.13.1) were developed to communicate to mothers through school children as a medium; therefore, the following factors were carefully incorporated.



Source: JICA Project team

Figure 2.13.1 School education leaflet 2017 & 2018

Topics to appeal to appeal to consumer insight

The topics were selected as following to reveal common misunderstanding on which their typical justifications to stick to wet market shopping are based: The purpose is to open their eyes to take an action to change their vegetable shopping behavior.

Topic of 2017: How to Select Safe Vegetables

A majority of consumers were still at Stage A & B; however, they were aware of importance of food safety. Mothers were doing their best to choose safe vegetable for their family members, but mostly believed in their own judgement criteria which were often wrong. This topic revealed the myths mothers typically believed, and the efforts made were to unwind the mothers' misbeliefs and guide them to supermarkets and safe vegetable shops which follow the protocol to secure safety.

2018: A Journey of Safe Vegetables

Consumers in Stages A and B tend to stick to wet markets due to the low prices, despite unknown safety of their vegetables. The 2018 theme "A Journey of Safe Vegetables" educates consumers with the course of safety check through production and distribution of safe vegetable, to convince that the relatively higher prices set for "safe vegetables" are not for their cosmetics but for the efforts in safety.

Relevance to audience

Testimonials of mothers are featured to engage mothers emotionally with relevant associations: The purpose is to expose mothers to positive benefits which safe vegetables purchasers enjoy.

With this being said, the primary leaflet users are school children, and it is important to heighten their interest so that they would be motivated to discuss the contents with their family members. Contents were presented in an interactive and entertaining manner to engage young students, even with short attention-span, and to promote proactive and fun learning experiences.

- Visual tone and manner are designed colorful, positive and fun.
- Contents are in a quiz format, so that students think on their own to find a correct answer.
- Technical vocabularies or professional complications are omitted for easy understanding.
- For Grade 4 students, simple games are incorporated so that they can play as they learn. It also encourages them to play with their parents to transmit the information.
- For Grade 10 students, quizzes are formatted in a way to compete with points earned. It encourages them to challenge their friends and family for further contents dissemination.

Feedback from teachers and students expressed appreciation for practical contents, easy explanations, and an effective format to capture students' interests.

2) In-class program & homework

Kick-off meeting

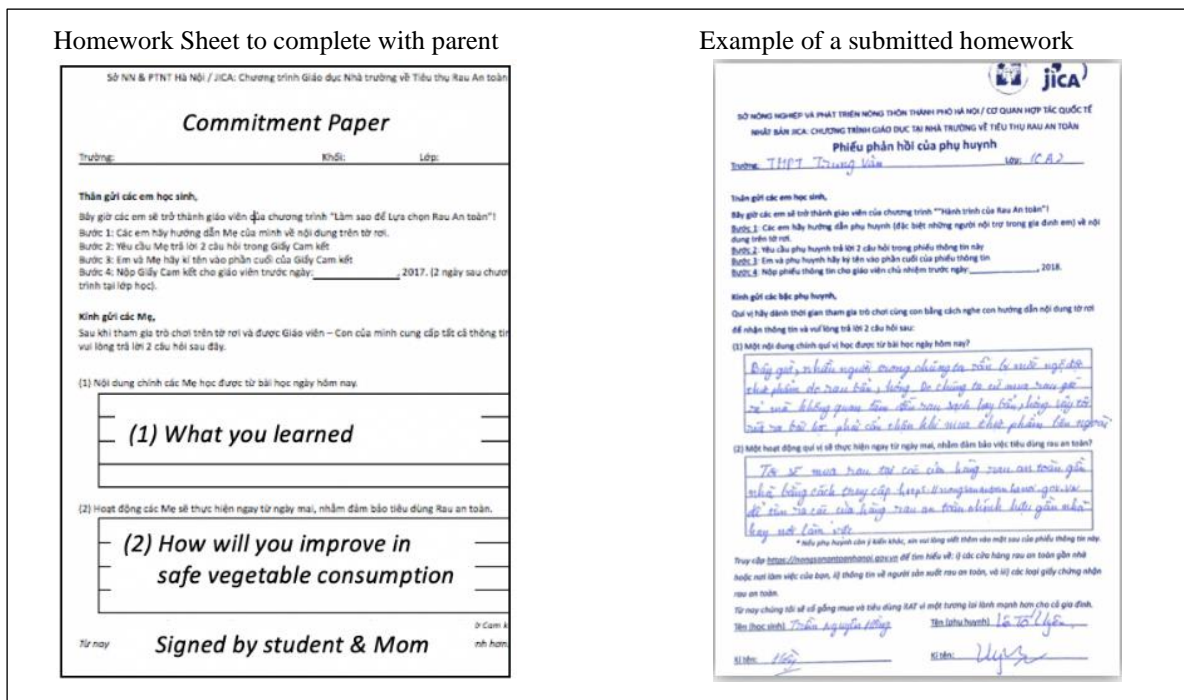
Prior to the school program, a kick-off meeting was held with DOET's initiative. All teachers involved in the activities were invited, and project background, instructions of each activity, and IT training (2018 for slideshow creation) were covered in the meeting agenda.

<p>Speech from Mr. Phung Ngoc Tuan, DOET, Kick-off meeting 2018</p>	<p>IT Training in 2018, Kick-off meeting 2018</p>

In-class education and homework

With clear understanding of education program execution, teachers were well prepared with the leaflet contents and in-class sessions were well conducted at selected schools, followed by homework. Following the in-class education, students completed homework with their mothers by answering two open-answer questions: 1) What was one key thing you learned from today’s lesson, and 2) What is one thing you will do from tomorrow to ensure safe vegetable consumption? Students and the parent sign together to submit the homework sheet. (Figure 2.13.2)

<p>In-class education for Grade 4 students in 2017</p>	<p>In-class education for Grade 10 students in 2018</p>

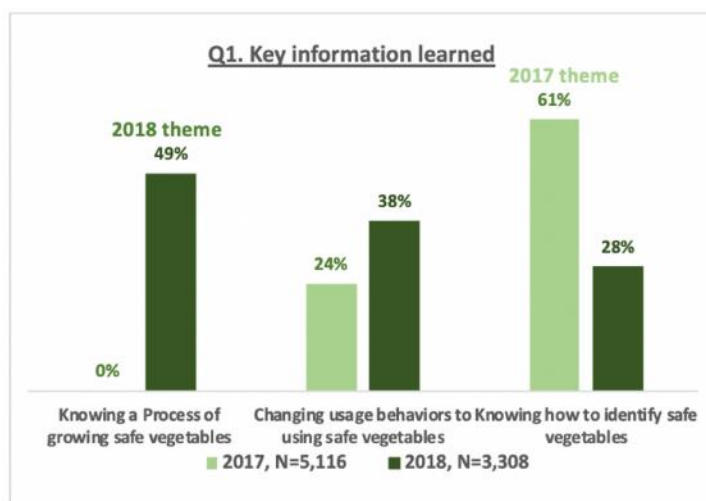


Source: JICA Project team

Figure 2.13.2 Homework

Homework result analysis

The collected answers were coded and analyzed by Project. Both in 2017 and 2018, the parents identified the theme of the leaflet contents as their key learning point with the highest percentage. It therefore shows the communication strategy to educate parents through their children worked effectively with unaided recall among 50-60% of the audience. (Figure 2.13.3)

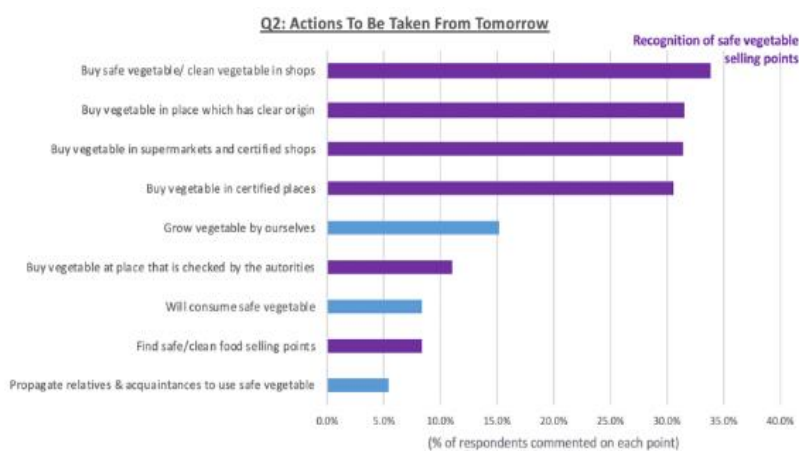


Source: JICA Project team

Figure 2.13.3 Key information learned from school education

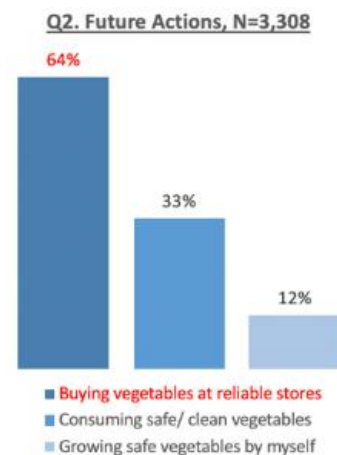
In relation to Q2, the improvement of consumption behavior, it has been confirmed that their primary action after the learning experience is related to selling points. In 2017, 2/3 of the top 9 answers which earned above 5% respondents, were related to safe vegetable selling points. The purple bars

shown in Fig. 2.13.4 are answers related to recognition of safe vegetable selling points. In 2018, 64% of respondents mentioned to start buying vegetables at reliable stores, as shown in Fig. 2.13.5.



Source: JICA Project team

Figure 2.13.4 Q2 answers in 2017



Source: JICA Project team

Figure 2.13.5 Q2 answers in 2018

As the above reaction had been anticipated, HPA Website URL (safe vegetable online information hub) had been introduced in the educational leaflet in 2018. By directing consumers to the online shop directory when their interest is heightened, it would facilitate them to take an action right away.

3) Poster and slideshow contest festival

Rather than outsourcing to a professional designer to develop a communication visual, visuals created by students would emotionally appeal to mothers and grandmothers, and also the activity itself becomes newsworthy. The reinforced points and observed effects are discussed below.

Visual creation and dissemination

In 2017, the theme was specified as “Safe Vegetable And Bright Future”, and Grade 4 students (in groups of 5 members) were engaged in poster drawing activity and an award ceremony. In order to achieve the objective to utilize the event and posters for a media exposure, the following points were reinforced.

- “Safe Vegetable And Bright Future” was required as a slogan in a poster for dissemination.
- Local media were invited to the school education, the poster evaluation committee, and the award ceremony to produce a documentary clip or to feature the events on local news.

In 2018, following the educational theme “A Journey of Safe Vegetable”, a slogan was designated as “Let’s Bring Safe Vegetable Home” for Grade 10 students (in groups of 3 members) to be engaged in slideshow video production. Using digital media, online dissemination activities were encouraged as following.

- In order to direct a traffic to HPA website after watching slideshows on Facebook page, HPA website URL was required to be featured in all slideshows.

- Three best teams from each school, a total of 18 teams, were invited to visit Project Target Groups (Yen Phu Cooperative and Nhat Viet Company) and a supermarket (BigC) to learn their efforts in securing safety in vegetable production and distribution on site, where students were encouraged to capture necessary photos to improve their slideshows.
- Finalists' videos were posted on Project Facebook page, and students were encouraged to earn “LIKE” by sharing the page to win a new award for 2018: “Most LIKed” Award

Evaluation committee and award ceremony

After participating schools submit pre-selected visual materials, an evaluation committee was held by Hanoi DARD to select award winners. Evaluation board included members from CPMU, Hanoi DARD, DOET, JICA Project Expert Office, JICA Project Team, safe vegetable producers and trade. After the evaluation committee, an award ceremony was held at one of the participating schools. Teachers and students of the host school were involved as an emcee and performers, VIPs and sponsors presented awards, and speeches of VIPs were also incorporated in the ceremony program. Sponsors who provided award prize items were also invited to the ceremony. With an intention to enhance the image of the “safe vegetable” campaign and to raise awareness of the companies associated with safe vegetables, potential sponsors had been approached and thus contributed to the award prizes. Sponsorship included; shopping vouchers for safe vegetable retailers (AEON VIETNAM and Big Green), safe vegetables and fruit from Project target producers, salad dressing and gift boxes to promote safe vegetable consumption (KEWPIE VIETNAM), and rice and milk from Development Center. Sponsor information sheet, which introduces each sponsor and their business, was distributed to ceremony participants for two reasons: 1) to raise awareness of safe vegetable related businesses among consumers, and 2) to benefit sponsors to gain exposure to consumers to create a win-win situation for their contribution. (Figure 2.13.6)



Source: JICA Project team

Figure 2.13.6 Sponsor information sheet

Visual creation contest and award ceremony thus created an exciting event to raise awareness among students and families as well as to motivate safe vegetable related businesses as sponsors. (Table 2.13.2 and 2.13.3)

Table 2.13.2 Poster contest and award ceremony 2017

Safe Vegetable Poster Festival Fact Sheet	
# of participating schools	10 (5 schools each from Thanh Xuan & Ha Dong)
# of participating students	Approximately 1,500
# of posters submitted	Approximately 300 (5 students per group to draw poster)
# of finalists	30 posters (3 best posters x 10 schools) 150 students (30 posters x 5 students per group)
Awards	Gold / Silver / Bronze / Most Creative / Most Entertaining Promising Award (15) / Community Award (10)
Sponsored prizes	<ul style="list-style-type: none"> • Shopping vouchers for safe vegetable retailers (AEON and Big Green) • Safe vegetables from target producers (Thanh Ha and Japan-Vietnam) • Salad dressing for safe vegetable (Kewpie) • Rice and milk from Development Center
Award ceremony	600 participants at An Hung Primary School, Nov. 3, 2017

Source: JICA Project team



Poster contest and award ceremony 2017

Table 2.13.3 Slideshow contest and award ceremony 2018

Safe Vegetable Slideshow Festival Fact Sheet	
# of participating schools	6
# of participating students	Approximately 360
# of slideshows submitted	Approximately 120 (3 students per group to produce slideshow)
# of finalists	18 slide shows selected from participating schools (3 best slide shows x 6 schools = 54 students) 12 slide shows selected by Evaluation Committee (12 slide shows x 3 students per group = 36 students)
Awards	<ul style="list-style-type: none"> • Gold / Silver / Bronze / Most Creative / Most Entertaining (1 group each) • Promising Award (3 groups) / Community Award (4 groups) • Encouragement (6 groups)
Sponsored prizes	<ul style="list-style-type: none"> • Shopping vouchers for safe vegetable retailers (AEON Vietnam) • Safe vegetables from target producers • Salad dressing and gift boxes for safe vegetable (Kewpie) • Rice and milk from Development Center
Award ceremony	Approximately 1,000 participants at Minh Khai High School, Nov. 12, 2018

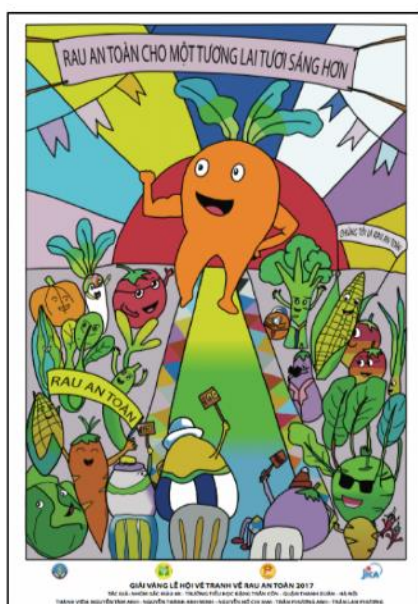
Source: JICA Project team



Slideshow contest and award ceremony 2018

Dissemination results

In 2017, the Gold-Prized poster was digitized, and 1,000 copies were distributed widely for promotional purposes: Remind stakeholders about safe vegetable depicted by children. (Fig. 2.13.7) The poster and the unique program captured an attention from Duc Chinh Primary School in Hai Duong Province, and the school decided to run its own poster festival to promote safe vegetable education. This activity thus achieved further awareness raising beyond the target regional scope

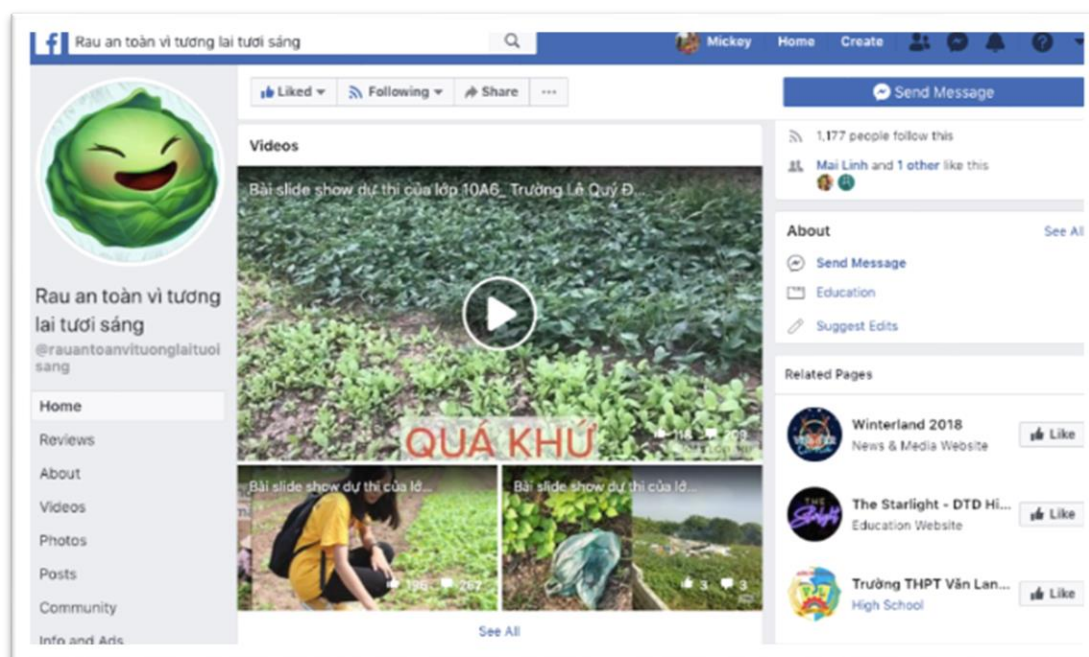


Stakeholders	Total
Target producer groups	35
Buyers	15
Retail shops in Ha Noi	50
Retail shops in 3 pilot provinces	30
Retail shops in 3 semi-pilot provinces	30
District, commune centers, primary schools in 3 pilot provinces	300
District, commune centers, primary schools in 3 semi-pilot provinces	300
CPMU	30
Back-up for 3 pilot provinces	30
Back-up for 3 semi-pilot provinces	30
Knowledge-sharing provinces	140
JICA Viet Nam Office	10
Total	1,000

Source: JICA Project team

Figure 2.13.7 Gold-Prized poster and distribution 2017

In 2018, active dissemination started online. Within 2 weeks after launching the “Most LIKED” campaign, 20,000 views had been gained across finalists’ slideshows posted on Project Facebook <https://www.facebook.com/rauantoanvuonglaituoisang/> (Figure 2.13.8). Fake account incident forced the campaign to be relaunched and the momentum inevitably slowed down; however, 413 shares and likes and up to 8,000 views across 12 award winning slideshows were still earned.



Source: <https://www.facebook.com/rauantoanvituonglaituoisang/>

Figure 2.13.8 2018 Facebook Page

In addition, through the effect of URL introduction by all slideshows posted on FB page, HPA website engaged over 17,375 hits within 2 weeks after the launch of FB online campaign. The 2 weeks had obvious spikes with approximately 170% of the number of access per week, compared with before and after these 2 weeks. Online activities thus have been proven to be effective in mass dissemination.

4) Exhibition at AEON MALL

Following the award ceremony, an exhibition was held at AEON MALL Long Bien. It was a cooperation with a private sector with the event space provided by AEON MALL free of charge as their CSR activity, and other “soft” materials such as promoters and display items provided by Project.

From 26th to 31st December 2017, 30 finalists’ posters were displayed and successfully attracted 3,000 viewers during the 6 days, and 1,500 leaflets were distributed. While it was rather a passive exhibition only to display posters and some banners to introduce Project, the colorful posters successfully drew attention at an event space which was in a high traffic area.



2017 Poster Exhibition

From 8th to 16 December 2018, a TV monitor exhibited 12 award-winning slideshows in streaming. In order to create a hype to drive more traffic and customer involvement, voting for the favorite slideshow was put in place in the event space. The number of on-site votes were added to the online “LIKE” counts to determine the “Most LIKEd” Award. An opening ceremony and the “Most LIKEd” Award ceremony were planned in a formal manner with speeches from AEON MALL, CPMU, DARD, and Project. The 10-day exhibition attracted approximately 2,500 viewers and obtained 530 live votes. Approximately 4,000 leaflets were distributed.



2018 Slideshow Exhibition & Award Ceremony

2.13.2 Face-to-face dissemination program for the elderly segment

(1) Execution principles

To reach elderly segment efficiently, the educational leaflets and award-winning visuals are distributed to Women’s Union and Hanoi Women Consumer Club for their face-to-face dissemination activities.

(2) Execution details and results

In Women's Union meetings, the leaflet has been distributed to participants in a gift bag and contents were well introduced. As of January 2019, 23,200 units of 2017 leaflet have been distributed to Women's Union in Hanoi, Ha Nam, Hung Yen, Hai Duong, and Thai Binh; 8,650 units of 2018 version to Women's Union in Hanoi, Hung Yen, Ha Nam, and Vinh Phuc. Hanoi Women Consumer Club also received 100 of 2018 version.

Women's Union is eager to distribute Project's educational leaflets to two segments: 1) their members through meetings, and 2) young mothers with babies through Me&be magazine. Project and Women's Union signed an agreement that Women's Union could print on their own for future usage.

2.13.3 Face-to-face dissemination program for producers and trades

(1) Execution principles

The same educational leaflets are utilized in this program but with one-page modification: Smart Moms' testimonials are replaced with ones of "happy producers and trade who are engaged in safe vegetable business". The leaflets are typically introduced in ToT and ToF or distributed by PPMU; therefore, these functional and emotional benefits of producers' and trades' in dealing with safe vegetables are disseminated, so they become motivated to participate in safe vegetable business.

(2) Execution details and results

Producer/Trade leaflets had been widely distributed. As of January 2019, 3,890 units of 2017 version and 26,980 units of 2018 version had been distributed to producers and trades through provincial PPMUs, HPA, and Marketing Team in related events.

2.13.4 Hanoi Promotion Agency website as an information hub

(1) Execution principles

Once consumers become interested in purchasing safe vegetable, the first action is to access internet to find information: Primarily to find safe vegetable selling points near their work or house to incorporate into their everyday routine. Therefore, three key components were to be featured: i) retailers' information for safe vegetable purchase, ii) producers' profile for traceability, and iii) educational contents to learn distinction between safe and unsafe vegetables and various certificates.

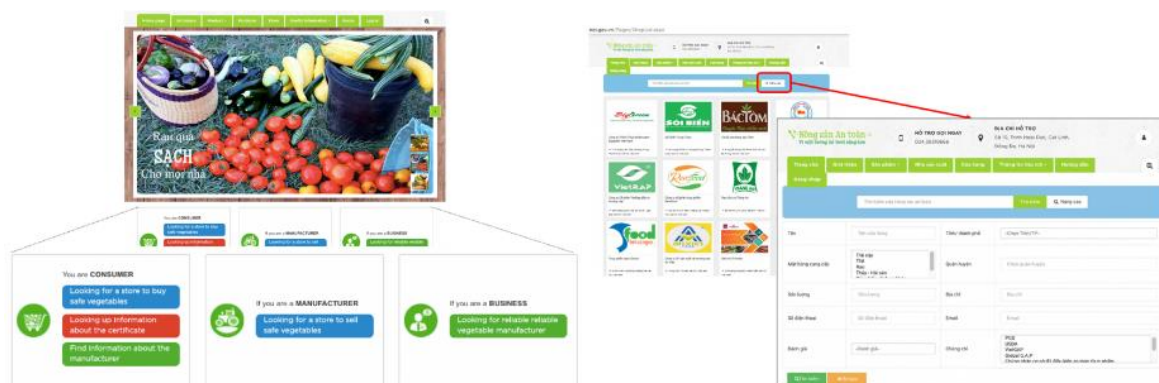
(2) Execution details and results

Cooperation with HPA

Since 2016, Project started discussion on development of a website with Hanoi Trade Promotion Center, of which trade promotion functions were taken over by Hanoi Promotion Agency. Development of an online platform to serve as a new information hub about food safety, was welcomed and a primary agreement had been reached.

Once Hanoi Promotion Agency officially took over the related functions, ~~established~~, the website development started in 2017 based on Project’s proposal to include the following basic functions. The site has been established at www.nonsangantoanhanoi.gov.vn . (Figure 2.13.9)

- Develop retailers’ directory, producers’ directory, and educational page about safe vegetable distinction and certificates.
- Incorporate a search function for the directories.
- Provide information in an amateur-friendly manner by avoiding technical expressions.
- Direct each segment to the page of their interest on the landing page:
 - ✧ Direct consumers to retailers’ directory to search selling points, producers’ directory for traceability, or educational page to learn about safe vegetables.
 - ✧ Direct retailers to producers’ directory to search potential suppliers.
 - ✧ Direct producers to retailers’ directory to search potential buyers.



Source: Edited by JICA project team based on website (www.nonsangantoanhanoi.gov.vn)

Figure 2.13.9 HPA Website landing page and search function

Launch and dissemination of URL

The official launch event was held on August 27, 2018, and HPA recognizes the value of this new website for two reasons: 1) it serves as a safe food information hub for consumers by incorporating not only safe vegetable information but also information about other products such as meat, dairy, etc., and 2) it serves as a business matching platform between producers and trades.

In addition to the URL introduction incorporated in 2018 school program (leaflet and slideshows), HPA has been actively promoting the website through their events with their own leaflet (Fig. 2.13.10); and a continuous growth of website traffic during the first 4 months has been observed.



HPA Website launch event

Source: HPA

Figure 2.13.10 HPA introduction leaflet

Results and future outlook

Based on feedback from CPMU, Hanoi DARD, and Hanoi Women Consumer Club, they all appreciate the following points, which reflect our original intentions: 1) Convenient to find reliable selling points, 2) good information about producers, and 3) good information to distinguish safe vs unsafe food.

As of 16 December 2018, after 16 weeks of its launch, the website accumulated 73,851 hits with a constant growth with the number of access.

As of January 2019, HPA already had designated new personnel to be in charge of the website contents and to monitor information accuracy for the future.

2.13.5 In-store promotion by safe vegetable retailers

(1) Execution principles

As discussed in the sequence of behavioral stages, this activity relates to the final stage, F. In order to drive a wider population to reach this stage, awareness and interest level must be raised first.

Therefore, this program was planned only at the end of the 3rd year, not earlier.

Regarding the execution plan, a supermarket channel was selected as the primary candidate to carry this program, as consumers seem to have mixed images and understanding about the supermarket channel without proper understanding of how this type of channel approaches provision of safety.

(2) Execution details and results

As of Phase 1, it is still in a planning phase. In order to drive a larger traffic to a purchase experience, the current plan is to maximize the traffic synergy and image impact. By tagging along with a poster exhibition at AEON MALL. A few events related to safe vegetables will be held simultaneously and the visitors will be directed to AEON VIETNAM supermarket, which is located near-by.

< Activities for Completion of Phase 1 >

2.14 Preparation of Project Progress Report for Phase 1

JICA project team compiled whole activities and prepared the project progress report for phase 1. JICA project team explained the results of phase 1 at CPMU meeting and received approval from CPMU.

2.15 Preparation and Discussion for Draft Work Plan for Phase 2

JICA project team prepared the draft work plan for phase 2 including basic approaches and methodologies based on the results of phase 1. Draft work plan for phase 2 was prepared in 3 languages (English, Japanese and Vietnamese) and agreed by JICA Vietnam office. JICA project team also discussed the draft work plan at CPMU meeting and received agreement from CPMU.

Phase 2 (May 2019 – June 2021)**2.16 Preparation and Discussion for Work Plan for Phase 2**

JICA Project Team drafted the work plan for phase 2 consisting of basic approaches, methodologies and work process and organization structure, in consideration with annual work plans of CPMU and PPMU mentioned on R/D and activities of both pilot provinces and semi-pilot provinces through the discussion with CPMU and PPMU. The JICA Project Team organized a CPMU meeting on 11 June 2019. On the CPMU meeting, JICA Project Team together with CPMU reviewed the project activities during Phase 1 and discussed the revision of PDM, draft work plan, preparation for the Action Plan to replicate the trial activities even after the termination of the Project, selection of target groups in knowledge sharing provinces, and presentation material for 3rd JCC meeting held on 21 June 2019. After the revision based on the comment from CPMU and JICA Long-term experts team, the work plan for Phase 2 was finalized and submitted to JICA on 13 August 2019.

On 3rd JCC meeting, it was discussed that safe vegetable production area shall be expanded to more than 180 ha to achieve the project purpose in winter season 2020-21 as the table below.

Table 2.16.1 Expansion image of safe vegetable production area by 2020-21

Province	Target groups	Joint sales	Actual 2017-18	Actual 2018-19	Target 2020-21	Safe production area
Hai Duong	Tan Minh Duc coop.	88%	7.5	9.65	27.2	27.2
	Thanh Ha company	100%	5	7.62	20	20
	Duc Chinh coop.	41%	30	30.07	30	200
	Gia Gia company	100%	-	4.98	5	5
	Green farm company	100%	-	2.48	5	5
	Lua farmer group	70%	-	4.42	15	27.5
Ha Nam	Ha Vi coop.	93%	1.0	2.13	5	10.4
	Hiep farm company	100%	2.5	2.05	3	3
	Cat Lai coop.	0%	-	2.35	2.35	2.35
	Thanh Tan group	100%	-	1.01	1	1
Hung Yen	Japan Vietnam company	100%	1.7	1.76	3	3
	Yen Phu coop.	100%	3.15	4.54	15	20
	Chien Thang coop.	100%	-	4.85	10	4.85
Phu Tho	Huong Non coop.	17%	-	3.51	3.51	3.51
	Truong Thinh coop.	100%	-	2.12	4	12
Vinh Phuc	Visa coop.	100%	-	2.96	5	5
	Dai Loi coop.	100%	-	10.03	10.03	10.1
	Vinh Phuc coop.	100%	-	5.32	8.32	5.32
Thai Binh	Quynh Hai coop.	100%	-	2.38	8	8
	Thanh Tan coop.	100%	-	2.36	6	6
Total	20 groups (target=180ha)		50.85	106.61	186.5	379.2
			28%	59%	>100%	

Source: JICA Project team

Through the discussion, the following actions were confirmed to be taken:

- JICA project team discusses with each target group and PPMU to expand the safe vegetable production area.
- The target groups which organize joint sales well and have more potential demand from buyers should expand the production area up to the certified safe production area.

- Chien Thang coop. and Vinh Phuc coop. expand area beyond certified area as they plan to expand production area by formulating linkage with farmers.
- Lua farmer group, Ha Vy coop., Yen Phu coop. and Truong Tinh coop. expand the area to some extent but not up to the certified safe production area in consideration with the capacity of cooperative and market condition.
- The target groups which are under development of joint sales prioritize increasing the number of farmers who join joint sales. (Duc Chinh coop., Cat Lai coop. and Huong Non coop.)

Detailed schedule of project activity for phase 2 is shown in figure 2.16.1.

No.	Activity	Implementati on by	Support by	2019												2020												2021					
				May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				
				Summer				Winter				Summer				Winter				Summer													
Safe Crop Production Management System																																	
2 Confirmation of safety of production area																																	
2-1	Review of the safety of production area	PPMU	JICA Project team																														
2-2	Soil and water sampling and testing	PPMU	JICA Project team																														
2-3	Issue of certificate of safe production area by DARD	PPMU	JICA Project team																														
3 Trainings for basic GAP																																	
3-1	TOT for basic GAP	JICA Project team	PPMU																														
3-2	TOT for cultivation method	JICA Project team	PPMU																														
3-3	TOF for basic GAP	PPMU	JICA Project team																														
3-4	Post harvest training	JICA Project team	PPMU																														
3-5	Technical assessment for safety conditions	PPMU	JICA Project team																														
3-6	TOF Follow-up training	JICA Project team	PPMU																														
3-7	Study tour to advanced model	JICA Project team	PPMU																														
3-8	Exposure visit among target groups	JICA Project team	PPMU																														
4 Formulation of safe crop production group																																	
4-1	Nomination of management board members	PPMU	JICA Project team																														
4-2	Confirmation of agreement among group members	PPMU	JICA Project team																														
4-3	Formulation of Safe Crop Production Group	PPMU	JICA Project team																														
5 Cultivation Planning based on Market Demand																																	
5-1	Preparation of production planning	PPMU	JICA Project team																														
5-2	Procurement of materials (joint purchase)	PPMU	JICA Project team																														
6 Cultivation method for Safe Vegetable																																	
6-1	Planning of demonstration farm	JICA Project team	PPMU																														
6-2	Implementation of demonstration	JICA Project team	PPMU																														
	Soil improvement (compost and soil sterilization)	JICA Project team	PPMU																														
	Introduction of new variety seeds	JICA Project team	PPMU																														
	Seedling improvement	JICA Project team	PPMU																														
	New agriculture materials (non-woven textile, etc.)	JICA Project team	PPMU																														
6-3	Field visit on demonstration farm	JICA Project team	PPMU																														
7 On field instruction for basic GAP application																																	
7-1	Field Instruction of application of basic GAP	PPMU	JICA Project team																														
	Instruction on record keeping	PPMU	JICA Project team																														
	Instruction on chemical application, etc.	PPMU	JICA Project team																														
7-2	Internal meeting	PPMU	JICA Project team																														
7-3	Internal audit	PPMU	JICA Project team																														
8 Upgrading conditions to ensure food hygiene and safety																																	
8-1	Technical assessment for upgrading conditions	PPMU	JICA Project team																														
8-2	Draft a list of necessary equipment and materials	PPMU	JICA Project team																														
8-3	Upgrading of facilities and equipment	JICA Project team	PPMU																														
9 Joint sales management																																	
9-1	Establishment of joint sales system	PPMU	JICA Project team																														
9-2	Field instruction for joint sales	PPMU	JICA Project team																														
10 External inspection and auditing																																	
10-1	Guidance of sampling testing plan and external auditing	JICA Project team	PPMU																														
10-2	Pesticide residue check (quick test)	PPMU	JICA Project team																														
10-3	Pesticide residue check (laboratory test)	PPMU	JICA Project team																														
10-4	External audit (by Gov. officer and JICA Project team)	PPMU	JICA Project team																														
11 Monitoring and Evaluation																																	
11-1	Review of pilot activities	PPMU	JICA Project team																														
11-2	Monitoring	PPMU	JICA Project team																														
11-3	Evaluation	CPMU	JICA Project team																														
12 Review of "Safe Crop Production Management System"																																	
12-1	To extract lessons from pilot project activities	CPMU	JICA Project team																														
12-2	To review "Safe Crop Production Management System"	CPMU	JICA Project team																														

Source: JICA Project team

Figure 2.16.1 (1) Detailed schedule for Phase 2 (May 2019 to June 2021)

Project Work Completion Report

No.	Activity	Implementati on by	Support by	2019												2020												2021					
				May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				
				Summer				Winter				Summer				Winter				Summer													
Supply Chain Development System (Marketing)																																	
1 Dialogue with Market																																	
1-1	TOT and TOF on marketing																																
	TOT marketing in Hanoi	JICA Project team	PPMU																														
	TOF on marketing in each province	PPMU	JICA Project team																														
1-2	Developing marketing tools	JICA Project team	PPMU																														
1-3	Matching with buyers																																
	One-to-one matching for each TG	PPMU	JICA Project team																														
	Safe vegetable business forum in Hanoi	HPA	JICA Project team																														
	Provincial safe vegetable business forum in each province	PPMU	JICA Project team																														
	Trade fair in each province	PPMU	JICA Project team																														
1-4	Assisting in making contract for each TG	PPMU	JICA Project team																														
2 Post Harvest and Distribution																																	
2-1	Mezoroekai for each TG	PPMU	JICA Project team																														
2-2	Monitoring of collection and delivery for each TG																																
	Initial check by PPMU and TG	PPMU	JICA Project team																														
	Random check by PPMU	PPMU	JICA Project team																														
2-3	Review and planning next season for each TG																																
	Review meeting for each TG	PPMU	JICA Project team																														
	TOF on marketing action plan in each province	PPMU	JICA Project team																														
3 Monitoring and Evaluation																																	
3-1	Monitoring	PPMU	JICA Project team																														
3-2	Evaluation	CPMU	JICA Project team																														
4 Review of "Supply Chain Development System"																																	
4-1	To extract lessons from pilot project activities	CPMU	JICA Project team																														
4-2	To review "Supply Chain Development System"	CPMU	JICA Project team																														
Communication																																	
1	To develop 2019 shool leaflet	JICA Project team	Hanoi DARD																														
2	To develop 2019 leaflet for the elder and for the producers and traders	JICA Project team	Hanoi DARD																														
3	To develop shool program materials (instructions, homework, poster festival proposal, etc.)	JICA Project team	Hanoi DARD																														
4	To conduct school program kick-off meeting	Hanoi DARD	JICA Project team																														
5	To conduct and monitor the progress of school education program	Hanoi DARD	JICA Project team																														
6	To monitor the progress of creating posters in assigned schools	Hanoi DARD	JICA Project team																														
7	To monitor the pre-selection of school-level winners for poster festival	Hanoi DARD	JICA Project team																														
8	To hold poster evaluation committee	Hanoi DARD	JICA Project team																														
9	To organize poster award ceremony in Hanoi	Hanoi DARD	JICA Project team																														
10	To manage online dissemination of poster festival on FB with "LIKE" voting	JICA Project team	Hanoi DARD																														
11	To develop HPA collateral designs for Website dissemination activities	JICA Project team	HPA																														
12	To coordinate HPA to disseminate HPA Website through school program & exhibition	JICA Project team	Hanoi DARD & HPA																														
13	To collect and analyze homework	JICA Project team	JICA Project team																														
14	To track and monitor HPA website traffic associated with school program & festival	JICA Project team	HPA																														
15	To develop event materials for in-store promotion with AEON Vietnam & Keiwpie	JICA Project team	Hanoi DARD & HPA																														
16	To coordinate and manage poster exhibition with AEON Mall	JICA Project team	Hanoi DARD & HPA																														
17	To review activities in 2019 and discuss about 2020 plans with Hanoi DARD and DOET in Hanoi	JICA Project team	Hanoi DARD																														
18	To develop templates and program manuals for future school program	JICA Project team	Hanoi DARD																														
19	To develop templates and event manuals for future in-store promotion	JICA Project team	JICA Project team																														
Action Plan																																	
1	Preparation of Draft manuals (Production, Marketing)	JICA project team	CPMU																														
2	PPMU meeting for Action plan preparation	JICA project team	PPMU, CPMU																														
3	Drafting of Action plan	PPMU pilot province	JICA team, CPMU																														
4	Action Plan workshop in 3 pilot provinces	PPMU pilot province	JICA team, CPMU																														
5	Mobilization/ monitoring of budget preparation	PPMU pilot province	CPMU																														
6	Execution/ monitoring of activities according to Action Plan	PPMU pilot province	CPMU																														
Project Management																																	
1	To restructure CPMU within DCP/MARD	CPMU																															
2	To establish official PPMU in pilot provinces/city and semi pilot provinces	PPMU	CPMU																														
3	Seminar on production management and supply chain development	CPMU	JICA Project team																														
4	Monitoring Sheet	JICA Project team	CPMU																														
5	JCC meeting	CPMU	JICA Project team																														

Source: JICA Project team

Figure 2.16.1 (2) Detailed schedule for Phase 2 (May 2019 to June 2021)

< Activities for Output 1 >

2.17 Implementation of Trial Activities in Phase 2**2.17.1 Confirmation of the safety of production area**

(1) Assessment of safety of production area

Based on Circular 49/2013/TT-BNNPTNT that stipulated for guideline for establishment of Safe Agriculture Production Zone, JICA project team together with PPMU conducted the assessment of safety of production area in 2019 and 2020 periodically as shown in Attachment 9.

(2) Soil and water sampling and testing

According to the assessment result in August 2019, 3 target groups were identified the necessity of soil and water sampling as they expand the new production area: Tan Minh Duc cooperative, Thanh Tan cooperative (Thai Binh) and Vinh Phuc cooperative.

According to the assessment result in May 2020, 6 target groups were identified for soil and water sampling as both certificates of safe production condition and VietGAP were expired: Duc Chinh cooperative, Tan Minh Duc cooperative, Lua farmer group, Gia Gia company, Dai Loi cooperative and Quynh Hai cooperative. JICA project team request Hai Duong, Vinh Phuc and Thai Binh PPMUs to undertake soil and water sampling and send the samples to the laboratory.

Table 2.17.1 Soil and water sampling and testing

Province	Target Group	Safe production area (ha)	Date of sampling	Number of samples	
				Soil	Water
Hai Duong	Tan Minh Duc Cooperative	11	Sep.2019	2	1
Thai Binh	Thanh Tan cooperative	5		3	3
Vinh Phuc	Vinh Phuc cooperative	4		3	2
Hai Duong	Duc Chinh Cooperative	30	Aug-Oct.2020	6	6
	Tan Minh Duc Cooperative	27.5		7	6
	Gia Gia company	5		2	1
	Lua farmer group	27		6	6
Thai Binh	Quynh Hai cooperative	12		3	2
Vinh Phuc	Dai Loi cooperative	10		3	2
Total	9 groups	131.5		35	29

Source: JICA Project team

Laboratory test was conducted for heavy metals residue (Zn, Cu, As, Cd, Pb, and Cr) in soil sample, and for heavy metals residue (As, Cd, Hg, and Pb) and Coliforms in water sample. As the result of laboratory test, all soil and water samples were analyzed as below the maximum residue limits (MRLs), the production area was confirmed as safe area.

(3) Issue of certificate of safe production condition and VietGAP

During the project period, the certificate of safe production condition was issued to 17 target groups and VietGAP certificate was issued to 12 target groups as shown in the table below.

Table 2.17.2 Issue of certificate of safe production condition and VietGAP during project period

Province	Target groups	Certificate of Safe Production condition	VietGAP Certificate
----------	---------------	--	---------------------

Hai Duong	Duc Chinh coop.	Renewed on 19/1/2021	Certified on 4/1/2017
	Tan Minh Duc coop.	Renewed on 19/11/2020	Renewed on 26/12/2019
	Thanh Ha company	-	Renewed on 17/12/2019
	Gia Gia company	Certified on 14/2/2017	Certified on 21/12/2016
	Green Farm company	Certified on 14/11/2016	Certified on 3/12/2017
	Lua farmer group	-	Certified on 21/12/2016
Ha Nam	Ha Vi coop.	Renewed on 6/5/2020	-
	Lien Hiep Coop.	Renewed on 6/5/2020	Certified on 09/12/2019 (Global GAP)
	Cat Lai coop.	Certified on 18/6/2019	Certified on 27/12/2019
	Thanh Tan coop.	Certified on 29/12/2017	-
Hung Yen	Japan Vietnam company	Certified on 29/12/2017	-
	Yen Phu coop.	Certified on 1/11/2017	Renewed on 12/06/2020
	Binh Minh coop.	-	Renewed on 29/07/2020
Phu Tho	Huong Non coop.	Certified on 7/1/2020	-
	Truong Thinh coop.	Certified on 21/12/2017	-
Thai Binh	Quynh Hai coop.	Certified on 2/5/2018	-
	Thanh Tan coop.	Renewed on 3/9/2020	-
Vinh Phuc	Dai Loi coop.	Certified on 10/3/2017	Renewed on 25/11/2020
	Vinh Phuc coop.	Renewed on 25/5/2020	Certified on 16/10/2018
	Visa coop.	Certified on 16/3/2018	-
	Total	17	12

Note: Production area of a target group is confirmed as safety if one of both certificate of safe production area and Viet GAP certificate is valid and there is no change/expansion of production area.

Source: JICA Project Team

(4) An issue on certificate of safe production condition

As of end March 2021, Lua Farmer Group in Hai Duong Province has applied for the certificate of safe production condition to DARD, and DARD has checked the application. Under the new Circular 38/2018/TT-BNNPTNT issued by MARD, however, registration of agricultural cooperative or agricultural company is required to obtain the certificate. But Lua farmer group has not been registered as cooperative or company since the group is willing to continue activity as a farmers group.

Originally, the certificate of safe production condition was issued based on Circular 45/2014/TT-BNNPTNT, but it was replaced to the new circular as described in Article 25 of Circular 38/2018/TT-BNNPTNT. The major difference is that it has changed to a voluntary application from agricultural cooperatives instead of being requested by DARD. This application is not enforceable to the group.

Hai Duong PPMU is promoting Lua farmers group to register as agricultural cooperative.

2.17.2 Training for Basic GAP

(1) TOT follow-up for Basic GAP

One day TOT follow-up training was organized for each pilot and semi-pilot province to review and share experiences on Basic GAP and post-harvest handling practices. TOT was organized by JICA project team once in each year, 2019 and 2020. The training results are shown in the tables below.

Table 2.17.3 Result of TOT follow-up for Basic GAP in 2019

Province	Date	Gov. staff	Others	Total Participants
Hai Duong	6 Sep., 2019	8	27	35
Ha Nam	11 Sep., 2019	12	26	38
Hung Yen	5 Sep., 2019	10	13	23

Phu Tho	18 Sep., 2019	4	21	25
Thai Binh	9 Sep., 2019	25	15	40
Vinh Phuc	17 Sep., 2019	10	13	23

Source: JICA Project team

Table 2.17.4 Result of TOT follow-up for Basic GAP in 2020

Province	Date	Gov. staff	Others	Total Participants
Hai Duong	27 Oct, 2020	8	17	25
Ha Nam	16 Oct, 2020	10	16	26
Hung Yen	21 Oct, 2020	13	15	28
Phu Tho	23 Oct, 2020	21	14	35
Thai Binh	22 Oct, 2020	18	20	38
Vinh Phuc	30 Oct, 2020	12	12	24

Source: JICA Project team

(2) TOF follow-up for Basic GAP

TOF follow-up for Basic GAP was conducted by PPMUs of pilot and semi-pilot provinces once in each year of 2019 and 2020. The training results are shown in the tables below. TOF follow-up was organized in 4 pilot and semi-pilot provinces except for Phu Tho and Vinh Phuc provinces as main farmers of the target groups participated into TOT follow-up training in which PPMU staff give instructions as lecturers.

Table 2.17.5 Result of TOF follow-up for Basic GAP in 2019

Province	Target Group	Date	Gov. staff	Others	Total Participants
Hai Duong	Duc Chinh coop.	15 Dec., 2019	1	64	65
	Tan Minh Duc coop.	15 Oct., 2019	1	55	56
	Thanh Ha company	8 Dec., 2019	1	9	10
	Gia Gia company	11 Nov., 2019	1	11	12
	Green Farm company	4 Nov., 2019	1	9	10
	Lua farmer group	19 Nov., 2019	1	34	35
Ha Nam	Ha Vi coop.	11 Oct., 2019	1	44	45
	Lien Hiep Coop.	12 Nov., 2019	1	11	12
	Cat Lai coop.	21 Nov., 2019	1	24	25
	Thanh Tan coop.	17 Oct., 2019	1	29	30
Hung Yen	Japan Vietnam company	22 May, 2019	1	9	10
	Yen Phu coop.	22 May, 2019	1	21	33
	Binh Minh coop.	24 May, 2019	1	12	13
Thai Binh	Quynh Hai coop.	21 Aug., 2019	1	64	65
	Thanh Tan coop.	20 Aug., 2019	1	39	40

Source: JICA Project team

Table 2.17.6 Result of TOF follow-up for Basic GAP in 2020

Province	Target group	Date	Gov. staff	Others	Total Participants
Hai Duong	Duc Chinh coop.	05 Jul. 2020	1	49	50
	Tan Minh Duc coop.	12 May 2020	1	39	40
	Thanh Ha company	20 April 2020	1	9	10
	Gia Gia company	20 July 2020	1	9	10
	Green Farm company	22 May 2020	1	9	10
	Lua farmer group	26 June 2020	1	24	25
Ha Nam	Ha Vi coop.	12 May 2020	1	29	30
	Lien Hiep Coop.	18 Sep. 2020	1	9	10
	Cat Lai coop.	23 May 2020	1	29	30

	Thanh Tan coop.	15 Sep. 2020	1	17	18
Hung Yen	Japan Vietnam company	25 May 2020	1	7	8
	Yen Phu coop.	29 May 2020	1	26	27
	Binh Minh coop.	25 May 2020	1	20	21
Thai Binh	Quynh Hai coop.	4/06/2020	1	59	60
	Thanh Tan coop.	8/06/2020	1	39	40

Source: JICA Project team

(3) Technical assessment for safety conditions on harvesting and post-harvest procedures

The objective of technical assessment for safety conditions on harvesting and post-harvest procedures is to assess the whole procedure from production to post harvesting to identify good practices and issues to be improved. There are total 87 check points in the whole procedure from harvesting, delivery from field, collecting to packaging to assess safety conditions and good practices⁷.

Technical assessment has been conducted for 20 target groups by PPMU staff once in a year and The monitoring and re-assessment have been conducted for the groups when they failed any of check points at the first assessment in order to check the improvement. The assessment results were reflected into field instruction and upgrading of safety conditions on production and post harvesting area. The result of technical assessment in 2019 is shown in the table below.

Table 2.17.7 Summary of technical assessment for safety conditions in 2019-20

Province	Target group	Date	Number of passed check points	Number of failed check points	Assessment Result
Hai Duong	Duc Chinh coop.	23/02/2020	49	0	(38 checked points at storage practices and processing house are not applicable)
	Tan Minh Duc coop.	21/11/2019	87	0	-
	Thanh Ha company	22/12/2019	87	0	-
	Gia Gia company	18/11/2019	73	0	(14 checked points at storage practices are not applicable)
	Green Farm company	9/12/2019	87	0	-
	Lua farmers group	19/11/2019	49	0	(38 checked points at storage practices and processing house are not applicable)
Ha Nam	Ha Vi coop.	11/12/2019	83	4	<p>+ Collection point: Do not keep vegetable where animals (ducks) can enter</p> <p>+ Preprocessing point:</p> <ul style="list-style-type: none"> - Do not store seed, production tools in the separated area from preprocessing point. - Do not have hand wash basin for washing hand after workers went rest room or after workers did another works. - Do not have health check for workers.

⁷ 87 check points were developed and exercised in the trial activity by JICA project team and PPMU, and compiled as Attachment 4.4 of the manual for production management system for GAP promotion.

	Lien Hiep coop.	09/12/2019	86	1	+ Preprocessing point: Do not store seed, production tools in the separated area from preprocessing point.
	Cat Lai Coop.	27/11/2019	49	0	(38 checked points at storage practices and processing house are not applicable)
	Thanh Tan Coop.	02/12/2019	49	0	(38 checked points at storage practices and processing house are not applicable)
Hung Yen	Japan-Vietnam company	25/11/2019	85	2	+ Preprocessing point: - Scatter garbage such as removed leaf or root on the floor. - Garbage is thrown away in the open field.
	Yen Phu coop.	21/11/2019	87	0	-
	Chien Thang coop.	03/12/2019	86	1	+ Preprocessing point: Garbage is thrown away in the open field.
Phú Thọ	Hương Nộn Coop.	12/12/2019	49	2	(38 checked points at storage practices and processing house are not applicable)
	Trường Thịnh Coop.	11/12/2019	73	0	(14 checked points at storage practices are not applicable)
Thai Binh	Quỳnh Hải coop.	18/12/2019	73	0	(14 checked points at storage practices are not applicable)
	Thanh Tân coop.	19/12/2019	73	0	(14 checked points at storage practices are not applicable)
Vinh Phuc	Đại Lợi Coop.	9/12/2019	49	0	(38 checked points at storage practices and processing house are not applicable)
	Vĩnh Phúc coop.	2/12/2019	87	0	-
	Visa coop.	3/12/2019	87	0	-

Source: JICA Project team

According to the result of technical assessment, 4 target groups were identified there were several checking points failed to meet the criteria. PPMU staff together with JICA project team instructed to improve the failed points and confirmed their improvement through re-assessment as shown in the table below:

Table 2.17.8 Follow-up assessment for safety conditions in 2019-20

Target group	Date	Follow-up assessment result
Ha Vi Coop.	3/Mar/2020	<ul style="list-style-type: none"> - It is confirmed the cooperative leader requested the farmer to keep cow and ducks in his yard, not to release to vegetable field especially harvesting season, then the farmer agreed. - The cooperative arranged seeds and production tools separately with processing house. - Wash basin was installed. - The cooperative members mutually start checking health conditions.
Lien Hiep coop.	12/Feb/2020	- It is confirmed that the cooperative has kept seed and production tools out of processing house.
Japan Vietnam Company	13/Feb/2020	- It is confirmed that no garbage in field or on floor.
Chien Thang Coop.	13/Feb/2020	- It is confirmed that no garbage in field or on floor.

Source: JICA Project team

Technical assessment was conducted for 20 target groups by PPMU staff in 2020-21 and the results are shown in the table below.

Table 2.17.9 Summary of technical assessment for safety conditions in 2020-21

Province	Target group	Date	Number of passed check points	Number of failed check points	Assessment Result
Hai Duong	Duc Chinh coop.	16/1/2021	49	0	(38 checked points at storage practices and processing house are not applicable)
	Tan Minh Duc coop.	18/1/2021	87	0	
	Thanh Ha company	20/1/2021	87	0	
	Gia Gia company	19/1/2021	73	0	(14 checked points at storage practices are not applicable)
	Green Farm company	22/1/2021	87	0	
	Lua farmers group	21/1/2021	87	0	
Ha Nam	Ha Vi coop.	19/1/2021	87	0	
	Lien Hiep coop.	27/1/2021	87	0	
	Cat Lai Coop.	18/1/2021	87	0	
	Thanh Tan Coop.	28/1/2021	87	0	
Hung Yen	Japan-Vietnam company	19/1/2021	87	0	
	Yen Phu coop.	20/1/2021	87	0	
	Binh Minh coop.	22/1/2021	87	0	
Phú Thọ	Hương Nộn Coop.	21/1/2021	72	1	+ Collection point: mix with vegetable which was harvested outside the project area. (14 checked points at storage practices are not applicable)
	Trường Thịnh Coop.	20/1/2021	87	0	
Thai Binh	Quỳnh Hải coop.	27/1/2021	87	0	
	Thanh Tân coop.	28/1/2021	87	0	
Vinh Phuc	Đại Lợi Coop.	25/1/2021	87	0	
	Vinh Phúc coop.	29/1/2021	87	0	
	Visa coop.	26/1/2021	87	0	

According to the technical assessment, PPMU Phu Tho reported that Huong Non cooperative was identified that there was one check point failed to meet the criteria as mixing vegetable with the one harvested outside of the project area. As the result, the JICA project team inquired PPMU staff and the target group about the details of conditions, it was confirmed that there was no mixing of vegetable from outside of the project area and PPMU staff mis-recorded the harvesting of many kinds of vegetables in the project area as “mixing.” Therefore, the JICA project team instructed to PPMU about the check points and criteria on the assessment.

(4) Study tour to advanced model – Moc Chau, Son La

1) General information about the production conditions

Moc Chau is a mountainous district of Son La province, which is about 120 km from Son La city to the West, 190 km from Hanoi to the Southeast, with a total area of 107,170 ha, of which the agricultural land area is 33,890 ha approximate to 31.6% of total areas. Having an altitude of 1,050 m above the sea level and cool weather with average temperature from 18 to 23 °C and average

humidity of 85%, Moc Chau is endowed with favorable conditions to develop a variety of crops, especially temperate vegetables.

Being aware of the advantages of Moc Chau conditions, many years ago, many safe vegetable companies, farms and cooperatives were established to produce temperate vegetables to serve the great needs of Northern market especially during summer and early fall (from May to November) when the other northern provinces, especially the provinces around Hanoi are too hot to grow temperate vegetables. Over the years, a number of safe vegetable companies, farms and cooperatives have been developed successfully and emerged as good examples of sustainable production with stable quality and output. Their experiences are worth sharing with less developed farmers.

2) Participants

58 persons including: 32 directors, managers and farmers of target groups, 14 PPMU staff of Hung Yen, Hai Duong, Ha Nam, Thai Binh, Phu Tho, and Vinh Phuc, 1 CPMU staff, and 11 experts and staff of JICA project team.

3) Objectives of study tour

- Provide the target groups with good practices on quality and safety management, post-harvest management and marketing, introduce to the target groups several companies / cooperatives in Moc Chau who have successfully sold their products to some supermarkets in Hanoi.
- Help the target groups identify their existing problems, and provide suggestion for the solutions.
- Provide technical staff with good practices on management of product quality and safety which will be a good reference for them during the implementation of trial activities.
- Provide opportunities for the target groups to meet and exchange experiences with each other about difficulties and solutions during project implementation.

4) Study tour program and findings

(a) Exchange opinions with staff of Moc Chau District People's Committee and DARD (2:00 PM-5:00 PM on Nov 9, 2020)

During the first session, the delegation was shared about Moc Chau natural conditions and achievements of agricultural development and introduced some agricultural companies, farms and cooperatives who have sustainable the production model with stable quality and output by the leaders of the district People's Committee and the Moc Chau agricultural department.

The delegation also introduced their own agriculture models and shared experiences and achievements during the participation in JICA project.



Exchange opinions with staff of Moc Chau District People's Committee and DARD

(b) Hoang Hai Cooperatives: (8:00 AM – 9:30 AM on Nov 10, 2020)

General information

- Address: Tan Loc commune, Moc Chau District, Son La province
- Area: 27.6 ha
- Number of linked farmers: 10
- Certificate: VietGAP
- Vegetables: Temperature vegetables such as Cabbage, Chinese cabbage, green beans, chayote
- Crop: Growing temperate vegetables all year round, especially in summer and early autumn to take advantage of the weather.
- Quantity: 3,500 ton/year. The product is packaged and labeled at the preliminary processing house of the cooperatives.
- Customers: Mainly supplies to supermarkets in Hanoi such as Vin Commerce, Vinmart + and companies' kitchens in Hanoi and in the provinces around Hanoi.

Findings:

- Applying crop structure to take advantage of the region's strengths while ensuring sustainable farming: Basically the climate in Moc Chau allows to grow temperate vegetables all year round, however, based on the needs of the market, Hoang Hai cooperatives decides to focus only on the production from April to November. In this period, the northern market has high demand for temperate vegetables while the farms around Hanoi could not cultivate these vegetables due to the hot weather of the summer season. In the winter season from December to March next year when the northern markets are flooded with temperate vegetables from the surrounding farms, Hoang Hai cooperative decides to reduce their production to avoid the competition and let the land rest. This period will help restore the land that in turn sustains the agriculture production.



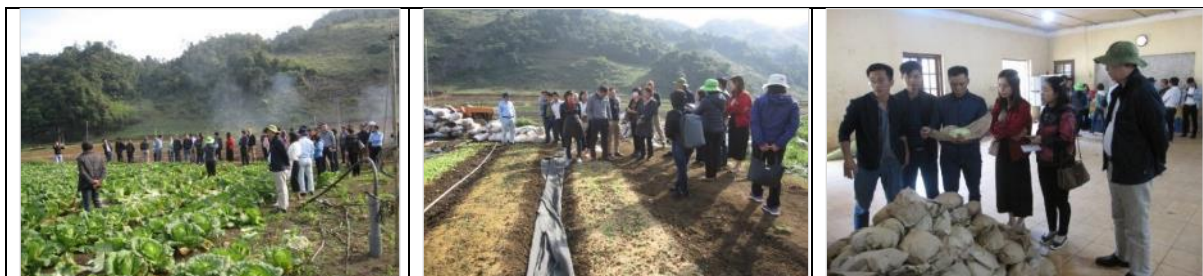
Chinese cabbage to be harvested in November

- Applying safely pest management methods to minimize pesticide spraying and make products safer: Hoang Hai Cooperative is applying good agricultural practices (VietGAP) that requires to use pesticides according to regulations such as the farmers can use only the pesticides in the permitted list and have to comply with quarantine restriction, etc. In addition, the cooperative also uses other advanced measures to minimize the use of pesticides such as light traps to reduce pest.

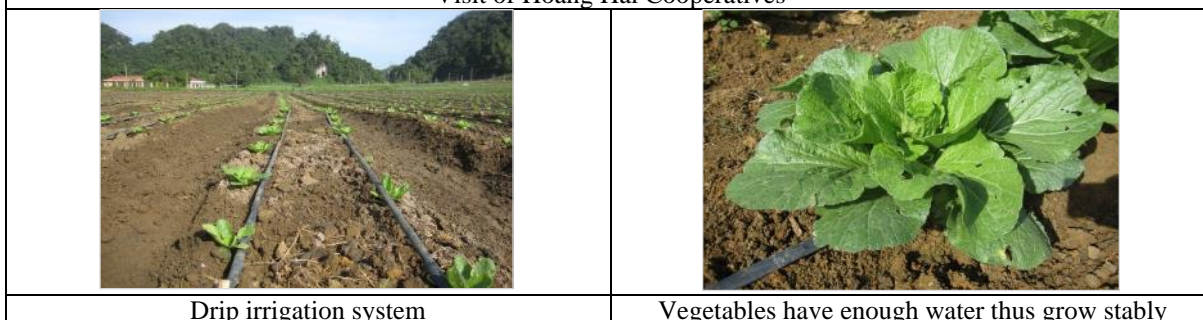


A butterfly trap by LED lights

- Applying drip irrigation technology to save water: Unlike the delta provinces, which have abundant surface water from rivers, Moc Chau is a highland area thus agricultural farms often have to drill wells to get water for irrigation. Although the ground water is available, but it is not much, therefore Hoang Hai Cooperative has invested in drip irrigation to save water.



Visit of Hoang Hai Cooperatives



Drip irrigation system

Vegetables have enough water thus grow stably

(c) Green Farm JSC (9:30 AM -11:30 AM on Nov10, 2020)






General information

- Address: Ang village, Dong Sang commune, Moc Chau District, Son La province
- Area: 10 ha
- Certificate: VietGAP
- Vegetables: temperate vegetables such as Tomato, cauliflower, asparagus, cucumber, etc.
- Crop structure: Grow temperate vegetables all year round
- Quantity: 3,000 tons/year. The vegetables are packaged and labeled at the company's preliminary processing house
- Customers: Vin Commerce, AEON, Lotte supermarket and vegetable shops in Hanoi

Findings

- The company applies technologies in production such as building greenhouses to grow tomatoes, using seeders and drip irrigation system in order to reduce labor costs, improve productivity and stabilize the production.
- The company constantly updates and grows new varieties that provide high yield, quality, and disease resistance to improve their products.
- The company has their own production and also provides input materials such as quality seedlings, technical advisory service to farmers. After that they buy qualified products from farmers and distribute to their customers. By these activities, they can create a close relationship with farmers.

- Invest in vehicles to transport products to their customers, which help them manage their time better and create professional image.

		
Grow tomatoes in greenhouse	Plant in baskets and use drip	Use seeders
		
Sakata's baby cauliflower		High yield tomatoes variety

(d) An Thai safety vegetable cooperative: (2:00 PM -4:00 PM on Nov 10, 2020).

General information

- Address: Muong Sang commune, Moc Chau district, Son La Province
- Area: 4.66 ha
- Number of farmers: 19
- Certificates: VietGAP
- Vegetables: Grow temperate vegetables such as Carrot, potato, cucumber, mustard greens, lettuce, celery, etc.
- Seasonal structure: Grow temperate vegetables all year round
- Production: 300 tons / year, packaged and labeled by cooperative itself.
- Customers: Mainly supplies to safe vegetable shops in Hanoi (Tam Dat, Uncle Tom, Big Green) and Ha Nam, Ninh Binh, Bac Ninh.
- Picture of study tour in An Thai cooperatives

Findings

- The cooperative frequently participates in seminars, fairs and business forums in Hanoi to promote their products and find buyers.
- Since the scale of the cooperative is small, An Thai cooperative aims to supply their vegetables to small-scale safe vegetable stores who have stable demand such as Tam Dat, Uncle Tom, Big Green in Hanoi.

- Although they are a small-scale cooperative, An Thai cooperative has equipped with trucks to transport products to the customers in order to manage their time better and create professional image.



(e) Dung Tien agricultural cooperative: (8:00 PM -9:30 PM on Nov 11, 2020)

General information

- Address: N 83 village, Phieng Luong commune, Moc Chau district, Son La province
- Area: 12 ha
- Number of farmers: 12.
- Certificate: VietGAP
- Type of vegetables: Temperature vegetables such as cabbage, potato, etc.
- Crop structure: Grow temperate vegetables all year round
- Production: 1,650 tons /year, products are packaged, labeled with the cooperative's brand
- Customers: Mainly supplies to food suppliers who provide foods to schools in Hanoi such as Huong Viet Sinh, Bao An, supermarkets such as Vin Commerce, safe vegetable shops, wholesale markets in Hanoi.

Findings

- Most of cooperative members are ethnic minorities with limited cultivation skills, therefore the cooperative chooses to focus on cabbage to create specialization in production and suitable with the soil, climate conditions and the technical lever of their members.
- Solution for the post-harvest processing problem: At the beginning when the cooperative could not afford to invest in preliminary processing houses, they hired a company in Hanoi (NatuPro Company) to pre-process and labeled products with their own name before distributing to their customers, since their customers are supermarkets who accept only semi-processed vegetables. Currently, they have enough fund to build their own preliminary processing house in Moc Chau.
- The cooperative invested in vehicles to transport products in order to manage their time better and create professional image to the buyers.

		
<p>Visiting cabbage field</p>	<p>Explanation by the cooperative leader</p>	<p>Visiting a trial strawberry field</p>

Support by Australian Government

Dung Tien agricultural cooperative receives a support to introduce smart agriculture technologies, such as remote operation of sprinkler irrigation, field monitoring camera and environmental measurement sensors.

- Project name: Gender Responsive Equitable Agriculture and Tourism (GREAT)
- Funded by: Australian government
- Target area: Son La and Lao Cai provinces
- Budget: AUD 33.7 million (equivalent to VND 600 billion)
- Period: 2017-2021 (4 years)
- Objective: to promote gender equality and women’s economic empowerment, with a focus on the ethnically diverse provinces of Son La and Lao Cai in Vietnam’s north-west.
- Expected Results:
 - Improve the income of 40,000 women in Son La and Lao Cai.
 - Contribute to the creation of 4,000 jobs for women.
 - Leverage over \$US 6 million in private sector investment.
 - Increase the self-reported confidence, enthusiasm and self-esteem of 80% of women beneficiaries.
 - Increase the number of women leading and managing businesses or cooperatives by 15%.

5) Conclusion of the study tour

The target groups have understood more about crop structure of a different regions. In Moc Chau, farmers can produce temperate vegetables all year round, however, they focus on April to November to utilize their strength since other regions cannot cultivate temperate vegetables in this period. And from October until next March (Winter season) they reduce production to avoid competition and utilize this period to restore their land in order to improve the productivity of the next crops.

Through the study tour, the target groups again affirmed that choosing to produce safe vegetables is a right direction, which has been proved by many successful cases in Moc Chau. And farmers can improve product quality and reduce production cost by applying technology, and enhance their competitiveness by building an appropriate strategy.

During the study tour, target groups had close discussions to share the experience obtained from JICA project, solution and technology to deal with the difficulties and suggestion on development directions in the future. This exchange led to the following activities by the participants of the study tour.

- Japan Vietnam company started to procure cabbage as an off-season vegetable from Dung Tien cooperative.
- Visa cooperative ordered grafted tomato seedlings to Green Farm JSC.

(5) Exposure visit among target groups

Upon requested from target groups, Consultant team organized exposure visit among target groups.

The objectives are the following:

- To learn the advanced cultivation method of some main winter vegetables,
- To share experience on establishment and management on joint sales,
- To learn safe vegetable production method on properly chemical application,
- To observe field production applying new agricultural materials such as plastic sheet for covering soil for kohlrabi and cabbage production fields
- To exposure models to cultivate cucurbit vegetables in green house
- To observe the pre-processing model to learn good post-harvest handling practice (washing, packaging, storing product)

3 exposure visits were organized in Phase 2 as shown in the table below.

Table 2.17.10 Summary of exposure visits organized in Phase 2 (2019-21)

Province	Target groups	Date	Participants	PPMU
Ha Nam	Ha Vy coop.	27/11/2020	15	1
	Cat Lai coop.		13	
	Thanh Tan coop.		6	
	Lien Hiep coop.		10	
Phu Tho	Huong Non coop.	6/1/2021	17	2
	Truong Thinh coop.		15	
Vinh Phuc	Dai Loi coop.	29/12/2020	8	3
	Vinh Phuc coop.		10	
Total			94	6

Source: JICA Project team

On 27th November, 2020, 44 participants of 4 target groups in Ha Nam with 1 PPMU staff visited Quynh Hai and Tan Minh Duc cooperatives.

On 29th December, 2020, 18 participants of 3 target groups in Vinh Phuc with 3 PPMU staff visited Quynh Hai and Tan Minh Duc cooperatives.

On 6th January, 2021, 21 participants from 2 target groups in Phu Tho with 2 PPMU staff visited Vinh Phuc cooperative.

Exposure visit was not arranged for the target groups in Hai Duong, Hung Yen and Thai Binh provinces in Phase 2 since they had already visited to target groups by themselves or attended an exposure visit in Phase 1.

2.17.3 Formulation of safe crop production group

(1) Nomination of management board members

All target groups established management teams consisting of group leader, production manager, logistic manager, sales manager and internal auditor, and updated the list of management team on the producer profiles every year.

(2) Formulation of safe vegetable production groups

20 target groups established a safe vegetable production group for winter season 2019-20 consisting of 94 management members, 97 workers, 911 farmers including linkage farmers and 162ha of production area.

Table 2.17.11 Safe vegetable production group in winter season 2019-20

Province	Target groups	Mgt. board members	Workers	Number of farmers	Area (ha)
Hai Duong	Duc Chinh coop.	5	-	278	30.07
	Tan Minh Duc coop.	5	-	131	33.20
	Thanh Ha company	5	10	8*	7.62
	Gia Gia company	5	10	-	5.12
	Green farm company	3	10	-	2.48
	Lua farmer group	6	-	50	10.77
Ha Nam	Ha Vi coop	6	-	37	3.46
	Lien Hiep coop.	4	13	-	3.65
	Cat Lai coop.	4	-	22	3.21
	Thanh Tan coop.	6	-	6	1.11
Hung Yen	Japan Vietnam company	4	11	-	1.90
	Yen Phu coop.	4	-	32	6.00
	Binh Minh coop.	3	8	13*	11.90
Phu Tho	Huong Non coop	6	-	86	3.51
	Truong Thinh coop	5	-	57	3.81
Thai Binh	Quynh Hai coop	6	-	114	8.00
	Thanh Tan coop	3	10	-	3.42
Vinh Phuc	Dai Loi coop	4	-	14	10.03
	Vinh Phuc coop	5	-	53	8.32
	Visa coop	5	25	10*	5.00
Total	20 groups	94	97	911	162.58

Note: * Number of linkage farmers contracting with the target group

Source: JICA Project team

20 target groups also established a safe vegetable production group for winter season 2020-21 consisting of 94 management members, 86 workers, 1,027 farmers including linkage farmers and 190ha of production area.

Table 2.17.12 Safe vegetable production group in winter season 2020-21

Province	Target groups	Mgt. board members	Workers	Number of farmers	Area (ha)
Hai Duong	Duc Chinh coop.	5	-	278	30.08
	Tan Minh Duc coop.	5	-	121	37.24**
	Thanh Ha company	5	10	8*	7.62
	Gia Gia company	5	6	-	5.52
	Green farm company	3	10	2	5.80
	Lua farmer group	5	-	68	15.79

Ha Nam	Ha Vi coop	6	-	37	3.49
	Lien Hiep coop.	4	10	-	4.02
	Cat Lai coop.	4	-	43	6.26
	Thanh Tan coop.	6	-	11	3.06
Hung Yen	Japan Vietnam company	4	11	-	2.02
	Yen Phu coop.	4	-	38	7.60
	Binh Minh coop.	3	8	13*	9.85
Phu Tho	Huong Non coop	6	-	86	3.51
	Truong Thinh coop	5	-	57	3.81
Thai Binh	Quynh Hai coop	6	-	115	10.00
	Thanh Tan coop	4	6	60	8.50
Vinh Phuc	Dai Loi coop	4	-	14	10.03
	Vinh Phuc coop	5	-	66	10.81
	Visa coop	5	25	10*	5.00
Total	20 groups	94	86	1,027	190.01

Note: * Number of linkage farmers contracting with the target group, ** Production area of Tan Minh Duc cooperative was reduced to 35.76ha during the season due to re-design according to market demand.

Source: JICA Project team

2.17.4 Production Planning based on Market Demand

20 target groups prepared production plan for winter season 2019-2020 in cooperation with PPMU staff and Consultant team. Production plans of 20 target groups are summarized below.

Table 2.17.13 Production Plan in winter season 2019-20

Province	Target Group	Target crops	Area (ha)	Harvesting period	Production (ton)	Target Buyers
Hai Duong	Duc Chinh coop.	Carrot	30.07	Jan 2020-Mar 2020	1,234	Vinmart; Coopfood; Big C; Thanh Ha safe vegetable company;
	Tan Minh Duc coop.	Cabbage, kohlrabi, broccoli, tomato, cucumber, sponger gourd, pumpkin, gourd,	33.20	Aug 2019-Mar 2020	1,251	Big C; VinEco; Collector (Nguyễn Xuân Vinh) and wholesale markets
	Thanh Ha company	Cabbage, tomato, broccoli, kohlrabi, leafy vegetables; kale, pink eggplant, pumpkin, morning glory, Jute plant, malabar nightshade, asparagus, cucumber, okra, melon, potato.	7.62	Aug 2019-Mar 2020	271	AEON; Big C Hai Duong, Hai Phong; Mega Market Vietnam (Metro); VINECO; COOP MART; INTIMEX Việt Nam JS company
	Gia Gia company	Cabbage, kohlrabi, tomato, Leafy vegetables.	5.12	Sep 2019-Mar 2020	148	HD green; Duc Phuc company; Cici Mart; Tan Minh Đức cooperative; Mr Tuan.
	Green Farm company	Squash, tomato, chili, cucumber, Pink eggplants.	2.48	Sep 2019-Mar 2020	130	VinEco; HD green
	Lua farmer group	Kohlrabi, broccoli, celery, leek, pink eggplant, cabbage	10.77	Aug 2019-Mar 2020	374	Collector: Truong Hoa Binh; Hung Viet Ltd Company;
Ha Nam	Ha Vi coop.	Cabbage, broccoli, string bean, eggplant, cucumber, leafy vegetables, kohlrabi, baby tomato, Spicy vegetables	3.46	Aug 2019-Feb 2020	75	Trần Ngọc Hiếu – collector supplying for VinEco; Mr. Trần Văn Hùng - Hanam Green Food Company; Nguyễn Văn Quyết- Collector;; Ms. Thắm (canteens of Đồng Văn industrial zone); Women Union of Lý Nhân district; Safe vegetable store in 94B – Nguyễn Việt Xuân
	Lien Hiep Coop.	Tomato, cabbage, broccoli, Leafy vegetable (Bok Choy; green mustard) leafy vegetables (Malabar nightshade, morning glory, vegetables shrinkage), cucumber; carrot, string bean, Okra, potato.	3.65	Sep 2019-Mar 2020	147	VinEco; Lien Hiep's Owner store; 3 safe vegetable stores in Phu Ly; Kindergarten in Quê town, Ha Nam; Nguyen Van Tuyet; Nguyễn Thị Giang- safe vegetable store; Canteen number 2 of But Son JS company

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	Cat Lai coop.	Leafy vegetables, cabbage, string tomato, sweet corn.	3.21	Nov 2019-Mar 2020	69	Trần Ngọc Hiếu- collector; Nguyễn Văn Tuyển- collector; Trần Tuấn Anh (MORICE, Việt Nam joint stock Co.); Trần Văn Hùng (Hanam Green Food production and trading joint stock Co.)
	Thanh Tan coop.	Cabbage, tomato, morning glory, green mustard, kohlrabi.	1.11	Aug 2019-Mar 2020	63	Nguyễn Thị Giang- safe vegetable store; Agricultural department in Thanh Liem district; Women union in Thanh Liem district.
Hung Yen	Japan Vietnam company	Pumpkin, tomato, cabbage, broccoli, green mustard, choyson, flower choyson, Spinach, Malabar nightshade, morning glory, Lettuce, Sweet corn.	1.90	Aug 2019-Feb 2020	67	Citimart supermarket; Safe vegetable store in Ecopark; Safe vegetable store in Linh Dam; Safe vegetable store in Hung Yen city; Safe vegetable store in Thai Binh; Sao Viet company.
	Yen Phu coop.	Leafy vegetables, tomato, pink eggplant, cabbage, cucumber, Leafy vegetables (Choyson, Basil, Malabar nightshade, Amaranth, gourd, bitter gourd; sponge gourd; sweet corn.	6.00	Aug 2019-Mar 2020	524	VinEco; Nhat Minh commercial and food limited company; Co-op Mart Ha Noi; Co-op Food; An Hòa food chain; Tan Phat limited company; Nam Bao limited company; Focesa- Industry canteen; Gia Minh company- Industry canteen; Múa Việt food company.
	Binh Minh coop.	Tomato, cabbage, Chinese cabbage, kohlrabi, broccoli, eggplants, choyson, mustard, spinach, squash; pumpkin, sponge gourd; cucumber, Spring onion, Basil, chilli, Malabar nightshade, morning glory, vegetables shrinkage, string bean, okra.	11.90	Nov 2019-Mar 2020	280	Canteen of TIGER MAX company; T.Vita; Kinder garden in Tien Lu; Kinder garden in Phu Cu; Vinagreen limited company; Hung Long 2 JS company; New Rice company; Tien Hung JS company; Thinh Phat JS company; But Son JS company.
Phu Tho	Huong Non coop.	Cabbage, kohlrabi, tomato, leafy vegetables, cucumber, Zucchini, string bean.	3.51	Oct 2019-Mar 2020	152	Lê Thị lý - 7 hamlet, Huong Non; Cao Hoàng Tuấn - 6 hamlet, Huong Nộn; Kindergarten in Huong Nộn; Hospital of Tam Nông district; Nguyễn Thị Tuyển in Lâm Thao district, Phú Thọ; Ms Định-collector; Tu xa cooperative.
	Truong Thinh coop.	Cabbage, kohlrabi, tomato, leafy vegetables, cucumber, carrot, string bean, broccoli, Spicy vegetables, spring onion.	3.81	Oct 2019-Mar 2020	170	Safe vegetable store in Me market in Phu Tho town; Chau Phong kinder garden; Le Dong kindergarten; High school in Phu Tho Town.
Thai Binh	Quynh Hai coop.	Kohlrabi, Bitter gourd, string bean, chili, spring onion, squash, Coriander, Dill	8.00	Aug 2019-Mar 2020	398	Toan Van JC company; Mr Thiep in Ha Noi; Bao Tin limited company; Mr Tuy- collector; Ms Men-collector; Ms My-collector; Kal company; VinEco; Big C in Hai Phuong; Mr Thiep in Ha Noi.
	Thanh Tan coop.	Cucumber, pumpkin, potato.	3.42	Oct 2019-Feb 2020	153	Van Đạt company; An Duong company; Duc Loc company.
Vinh Phuc	Dai Loi coop.	Cabbage, kohlrabi tomato, chili, lemon grass, cucumber, eggplants, string bean, leafy vegetables, gourd, sponge gourd.	10.03	Sep 2019-Mar 2020	452	Lan Chi supermarket- Phuc Yen; Viglacera company; Store in Phuc Yen; Canteen of TTC company; Dũng Anh JS company.
	Vinh Phuc coop.	Chayote fruit, Chayote fruit, Leafy vegetables (choyson, Green mustard), cabbage	8.32	Aug 2019-Mar 2020	818	VinEco; Horumidori-Viet Nam company (Dong Anh, Ha Noi); Que Binh company (Phuc Yen, Vinh Phuc); Huong Anh safe food limited company (Dong Anh, Ha Noi); Viet Sinh limited company.
	Visa coop.	Vegetables shrinkage; Morning glory; Beetroot Brussel sprout; Basil; Lemon grass.	5.00	Aug 2019-Mar 2020	231	VinEco; Canteens, schools,
Total			162.58		7,007	

Source: JICA Project team

20 target groups prepared production plan for winter season 2020-2021 in cooperation with PPMU staff and Consultant team. In consideration with potential risk of unsold vegetables due to COVID-19 pandemic and the result of actual sales in previous season, PPMU and JICA project team discussed with target groups to design the production plan. As the result, some target groups reduced the

production volume from 7,007 ton to 6,974 ton by reducing the crop rotations in a season even though they expanded the production area from 162.58 ha to 190.01 ha. Production plans of 20 target groups are summarized as below.

Table 2.17.14 Production Plan in winter season 2020-21

Province	Target Group	Target crops	Area (ha)	Harvesting period	Production (ton)	Target Buyers
Hai Duong	Duc Chinh coop.	Carrot	30.08	Dec 2020-Mar 2021	1,234	Vinmart; Green Farm Company; Thanh Ha safe vegetable company; COOP FOOD; Big C;
	Tan Minh Duc coop.	Cabbage, kohlrabi, cucumber, gourd, pumpkin, tomato, net melon, broccoli, sponger gourd, bitter gourd.	37.24	Sep 2020-Mar 2021	1,073	Big C; Huong Anh Company; Hai Minh Company; Viet Long Company; Thanh Ha company; Yen Phu Cooperative; Lua farmer group; Nguyễn Xuân Vinh- Collector and wholesale markets.
	Thanh Ha company	Cabbage, tomato, broccoli, green mustard, choyson, pink eggplant, pumpkin, kohlrabi, morning glory, malabar nightshade, Asparagus, spicy vegetable, cucumber, okra, sponge gourd, water melon	7.62	Sep 2020-Mar 2021	267	AEON; Big C Hai Duong, Hai Phong; MM Mega Market Viet Nam Ltd company; VINECO; COOP MART; INTIMEX Việt Nam JS company.
	Gia Gia company	Cabbage, kohlrabi, broccoli, leafy vegetables (green mustard, choyson)	5.52	Sep 2020-Mar 2021	142	HD green; Duc Phuc company; Cici Mart; Tan Minh Đức cooperative; Mr Tuan.
	Green Farm company	Cabbage, spicy vegetables, sponge gourd, bitter gourd, gourd, kohlrabi, leafy vegetables, carrot, tomato.	5.80	Sep 2020-Mar 2021	284	VinEco; HD green; 6 School Canteens.
	Lua farmer group	Kohlrabi, celery, leek, cabbage, broccoli, pink eggplant,	15.79	Sep 2020-Mar 2021	547	Trương Hòa Bình- collector; Hung Viet Ltd Company; Mai Xuan Vu- collector; Nguyen Van Thuong- collector; Mai Xuan Truong- collector; Nguyen Van Long- collector; Mr. Hoang- collector; Ms Thuy- Hai Duong agrifood Ltd Company.
Ha Nam	Ha Vi coop.	Cabbage, baby tomato, pickle mustard, cove bean, spring onion, cucumber, leafy vegetable (green mustard, choyson), kohlrabi, morning glory, vegetable shrinkage, broccoli, spicy vegetables.	3.49	Sep 2020-Mar 2021	104	Trần Ngọc Hiếu- collector supplying for VinEco; Mr. Trần Văn Hùng – Ha Nam Green Food Company; Nguyễn Văn Quyết- Collector; Ms. Thâm (canteens of Đông Văn industrial zone); Women Union of Lý Nhân district; Safe vegetable store in 94B – Nguyễn Việt Xuân; Đoàn Thị Linh- collector; Đỗ Văn Lực- collector.
	Lien Hiep Coop.	Cabbage, leafy vegetable (green mustard, choyson), Malabar nightshade, tomato, vegetables shrinkage, okra, kohlrabi.	4.02	Sep 2020-Mar 2021	122	Lien Hiep's Owner store; 3 safe vegetable stores in Phu Ly; Nguyen Van Tuyen; Kindergarten in Quê town, Ha Nam; Nguyen Van Tuyet- collector; Nguyễn Thị Giang- safe vegetable store; Canteen number 2 of But Son JS company.
	Cat Lai coop.	Cabbage, tomato, leafy vegetables (green mustard, choyson), pumpkin, spring onion, coriander, cucumber, kohlrabi, cove bean, broccoli	6.26	Oct 2020-Mar 2021	192	Trần Ngọc Hiếu- collector; Đức Huy cooperative (Mr Ước)- Trader/ Collector; Nguyễn Văn Tuyển- Trader/ Collector; 4 Canteen of kindergartens; TDMART Ltd company; Nguyễn Thị Ngát- Trader/ Collector.
	Thanh Tan coop.	Cabbage, tomato, morning glory, leafy vegetable (green mustard, choyson), kohlrabi, potato, pumpkin, sweet corn	3.06	Sep 2020-Mar 2021	125	Nguyễn Thị Giang- safe vegetable store; Agricultural department in Thanh Liem district; Women union in Thanh Liem district; Nguyễn Thị Hòa- Trader/ Collector; Đinh Thị Phương- Trader/ Collector.
Hung Yen	Japan Vietnam company	Tomato, baby tomato, kohlrabi, cabbage, Leafy vegetables (green mustard, choyson, spinach), Broccoli,	2.02	Sep 2020-Mar 2021	53	Citimart supermarket; Safe vegetable store in Ecopark; Safe vegetable store in Linh Dam; Safe vegetable store in Hung Yen city; Store of Ms Dung in

		sponge gourd, okra, pink eggplant, pumpkin, potato, zucchini, lettuce, morning glory, malabar nightshade, cucumber, cove bean, etc.				linh Đàm; Tâm sáng store; Hàng Vui store in Linh Đàm; Store of Mr Mai in Linh Đàm; Safe vegetable store in Linh Đàm; Safe vegetable store of Ms Thắm in Linh Đàm; convenience store of Ms Thanh in Linh Đàm; The Home-Furil store in Ecopark; Liễu Giai kinder garden; V Mart; Store in 224 Hoàng Ngân; Da Lat Farm; Bác Tôm safe food store.
	Yen Phu coop.	Tomato, cucumber, cabbage, gourd, pink eggplant, sweet corn, broccoli, bitter gourd, mustard, choysom flower, choysom, lettuce, spring onion, sponge gourd, Coriander, dill, morning glory, kohlrabi, Chinese cabbage, Amaranth, spinach, pickle mustard, Jute plant, Malabar nightshade, chili.	7.60	Sep 2020-Mar 2021	436	VinEco; Coop Mart Ha Noi; Coop Food; Coop Food; Safe vegetable store of Ms Phuong in Dang Xa, Gia Lam; Hải Phong Ltd company; Thanh Ha Coop.
	Binh Minh coop.	Tomato, malabar nightshade, dill, leafy vegetable (green mustard, choysom), Pickle mustard, chinese cabbage, okra, pink eggplant, round eggplant, sponge gourd, squash, vegetable shrinkage, cucumber, chili, morning glory, kohlrabi, cabbage, celery, leek, spring onion, potato	9.85	Sep 2020-Mar 2021	283	Canteen of TIGER MAX company; Kindergarten in Tien Lu; Kindergarten in Phu Cu; Vinagreen limited company; Hung Long 2 JS company; New Rice company; Tien Hung JS company; Thanh Phat JS company; Thiên Cảnh company; Lâm Anh company.
Phu Tho	Huong Non coop.	Tomato, cabbage, kohlrabi, Choysom, mustard, Amaranth, cucumber, Zucchini, cove bean	3.51	Oct 2020-Mar 2021	127	Lê Thị lý - 7 hamlet, Hương Nộn; Cao Hoàng Tuấn - 6 hamlet, Hương Nộn; Kindergarten in Hương Nộn; Hospital of Tam Nông district; Nguyễn Thị Tuyên in Lâm Thao district, Phú Thọ; Ms Định-collector; Tu xa cooperative.
	Truong Thinh coop.	Cabbage, kohlrabi, tomato, leafy vegetables (mustard, choysom), carrot cucumber, eggplant, broccoli, coriander, dill, cove bean, spring onion.	3.81	Sep 2020-Mar 2021	156	Safe vegetable store in Me market in Phu Tho town; Chau Phong kindergarten; Le Dong kinder garden; High school in Phu Tho Town.
Thai Binh	Quynh Hai coop.	Kohlrabi, spring onion, squash, coriander, dill, pickle mustard.	10.00	Sep 2020-Mar 2021	605	Ms Men- Trader/ Collector; Ms My-Trader/ Collector; Big C in Hai Phuong (In negotiation); Mr Tuy-Trader/ Collector; Mr Cân- Trader/ Collector; VinEco (In negotiation); AEON (In negotiation).
	Thanh Tan coop.	Pumpkin, squash, cucumber, potato, cove bean.	8.50	Dec 2020-Feb 2021	149	Van Đạt company; Minh Duong company; Duc Loc company.
Vinh Phuc	Dai Loi coop.	Vegetable shrinkage, cabbage, cucumber, broccoli, round eggplant, leafy vegetables (mustard, choysom), chili, tomato, Malabar nightshade, kohlrabi, spring onion, lettuce.	10.03	Sep 2020-Mar 2021	263	Lan Chi supermarket- Phuc Yen; Viglacera company; Canteen of TTC company; Dũng Anh JS company; Nguyễn Thị Đứcllocal collector; Linh Dương safe vegetable store; Cat Khanh limited company.
	Vinh Phuc coop.	Chayote fruit, chayote shoot, tomato, kohlrabi, pickle mustard, leafy vegetables (mustard, choysom), morning glory	10.81	Sep 2020-Mar 2021	637	VinEco; Huong Anh safe food limited company (Dong Anh, Ha Noi); Viet Sinh limited company.
	Visa coop.	Vegetables shrinkage; lemon grass, tomato, morning glory, squash shoot.	5.00	Sep 2020-Mar 2021	175	VinEco; Vin Max +; Focesa, company; Well Story; An Phát cooperative; Canteens, schools
Total			190.01		6,974	

Source: JICA Project team

2.17.5 Cultivation method for safe vegetables

(1) Composting for soil improvement

Trial and demonstration of composting were conducted in Phase 1. Consultant team facilitated target groups to continue production of compost for soil improvement. In the meantime, a compost supplier

with reasonable price was identified by the JICA project team, such as Viet Hung limited company in Thai Binh province. It is expected to continue applying compost for both production by the group with locally available resources and/or purchasing from outside.

Monitoring result of dissemination of compost application is shown in the table below. According to the results, all 20 target groups have been applying compost: 2,210 m³ produced by 557 farmers and 871 m³ purchased by 180 farmers. Total applied area is estimated around 200 ha.

Table 2.17.15 Monitoring of dissemination of Compost application

Province	Target Group	Number of farmers		Compost volume (m ³)		Estimated applied area (ha)
		Produced	Bought from outside	Produced	Bought from outside	
Hai Duong	Duc Chinh Coop.	185		345		20.1
	Tan Minh Duc coop.	34	68	137	275	27
	Thanh Ha Company	9	1	85	20	9
	Gia Gia company	-		20		1.4
	Green farm company	-		85		5
	Lua farmers group	65		250		12
Ha Nam	Ha Vy coop.	16		80		5.3
	Lien Hiep coop.	-			80	5.9
	Cat Lai Coop.	20		103		7.3
	Thanh Tan coop.	4		46		3.9
Hung Yen	Japan Vietnam Company	-		135		9.6
	Yen Phu Coop.	10	12	135	160	19.5
	Binh Minh Coop.	7		124		8.1
Phu Tho	Huong Non Coop.	56		144		11.5
	Truong Thinh Coop.	42		117		10.1
Thai Binh	Quynh Hai cooperative	32	83	106	274	15.3
	Thanh Tan cooperative	45		90		9.4
Vinh Phuc	Dai Loi Coop.	10		122		9
	Vinh Phuc Coop.	20	16	78	62	10.6
	Visa Coop.	2		8		0.6
Total		557	180	2,210	871	200.6

Source: JICA Project team

(2) Soil Sterilization

1) Experimental trial of soil sterilization in selected 2 target groups

Experimental trial of soil sterilization was conducted for 3 months from July to September 2019 in the farms of two target groups: Gia Gia company and Japan Vietnam Company.

As shown in the table below, the amount of fertilizer applied was set to 2 types, Type A and Type B, and the soil sterilization period was set to 3 types of 22 days, 10 days, and 0 days, then 6 types of combinations were tested. For soil sterilization, Type A and Type B were fertilized, and the target crop (Kohlrabi in the case of Gia Gia company) was transplanted after covering for a predetermined number of days with a transparent mulch sheet. No pesticides were sprayed after transplanting.

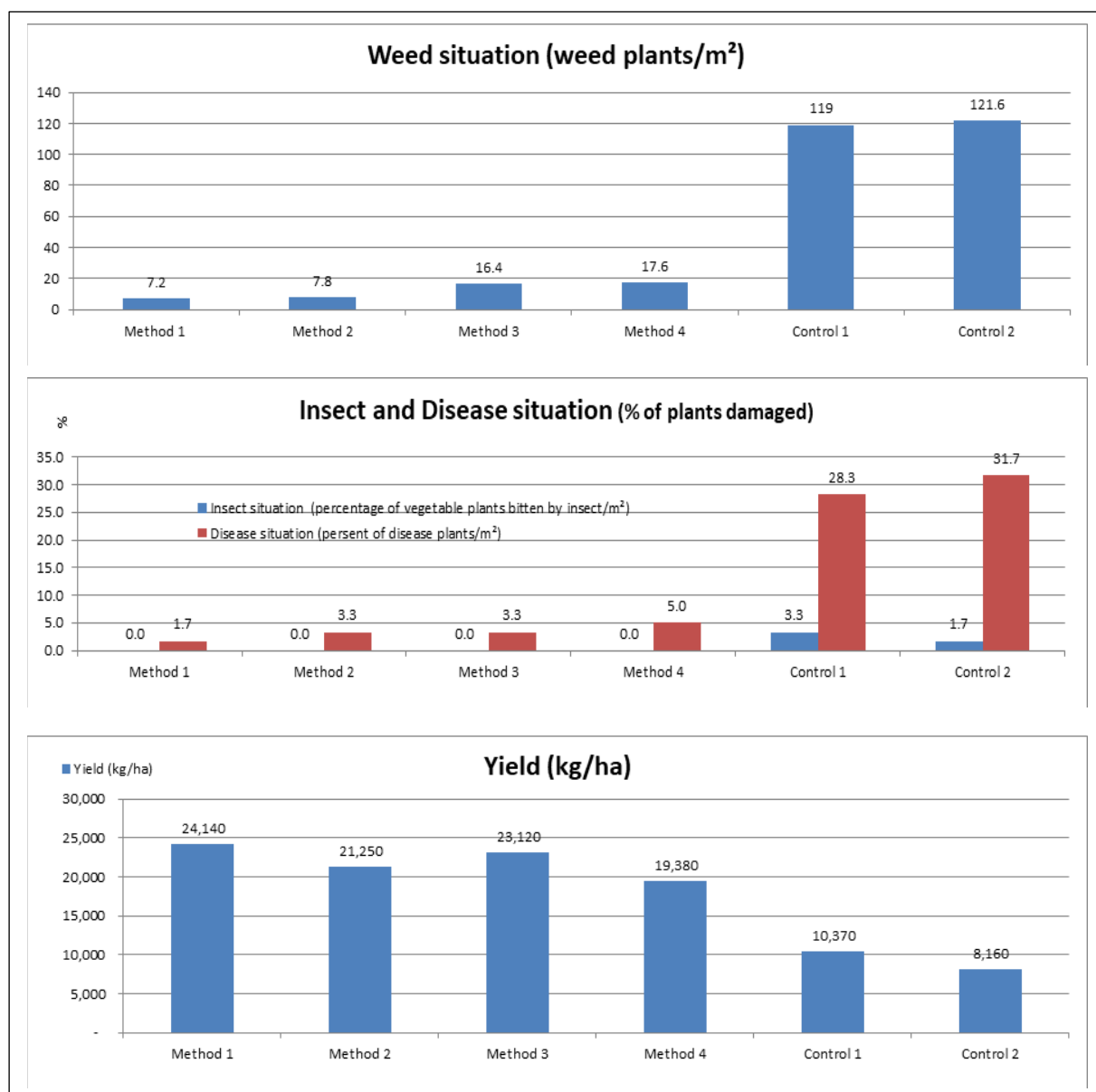
Table 2.17.16 Field design of experimental trial of soil sterilization

No	Method	Area	Material*	Duration of sterilization	Accumulated Temperature
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		(m ²)		(days)	(degree Celsius)
1	Method 1	270	Type A	22	1,163
2	Method 2	270	Type B	22	1,165
3	Method 3	270	Type A	10	991
4	Method 4	270	Type B	10	994
5	Control 1	270	Type A	-	835
6	Control 2	270	Type B	-	841

Note: * Material Type A: Compost 270kg, NPK 22.5kg, Material Type B: Compost 0kg, NPK 22.5kg
 Source: JICA Project team

The trial result of soil sterilization was analyzed in three aspects: weed situation, insect and disease situation and yield, and the results are shown in the figures below.



Source: JICA Project team

Figure 2.17.1 Experimental trial results of soil sterilization

As a result, large differences in weeds, diseases, and yields were confirmed between fields with and without soil sterilization. In the comparison between Method 1 and 2 (sterilized for 22 days) and Control 2, weeds decreased by 94%, diseases decreased by 90-95%, and yield increased by 260-296%. A significant difference was also confirmed in Methods 3 and 4 (sterilized for 10 days). Similarly, significant differences were confirmed in weeds, diseases, and yield in Japan Vietnam company where Choy sum was cultivated.

It has been recommended to sterilize the soil for about 3 weeks to 1 month as an ideal period, and there have been various sterilization methods. Especially among the target groups that grow leafy vegetables, there were many cases where soil sterilization was not practiced or was practiced with a fungicide as an easy method because the interval from harvesting to next planting should not be placed due to the pressure from buyers to supply more vegetables. However, such methods are not sustainable and do not contribute to safe cultivation. It is recommended to disseminate the soil sterilization method to other target groups based on the test results.

2) Demonstration of soil sterilization among target groups

The JICA project team fed back the experimental trial results of the two target groups to all 20 target groups. As the result, 19 target groups showed their intentions to implement it excluding the Duc Chinh cooperative. (Duc Chinh cooperative decided not to introduce the soil sterilization method because traditional cultivation method had been established among farmers.) Since the soil sterilization is most effective during the summer cropping season, the JICA project team formulated on farm demonstration plan of the summer season in 2020. By the end May 2020, 367 farmers of 17 groups attended soil sterilization demonstration provided by the JICA project team.

Table 2.17.17 On farm demonstration of soil sterilization

Province	Target Group Name	Date of training	Number of participants	Area (m ²)
Hai Duong	Duc Chinh coop.	-	-	-
	Tan Minh Duc coop.	20 March 2020	35	100
	Thanh Ha company	06 March 2020	6	100
	Gia Gia company	06 March 2020	5	2,160
	Green Farm company	22 May 2020	5	100
	Lua farmer group	19 March 2020	25	100
Ha Nam	Ha Vi coop.		-	-
	Lien Hiep Coop.		-	-
	Cat Lai coop.	03 March 2020	32	50
	Thanh Tan coop.	04 March 2020	21	50
Hung Yen	Japan Vietnam company	12 March 2020	4	400
	Yen Phu coop.	11 May 2020	36	100
	Binh Minh coop.	07 May 2020	11	100
Phu Tho	Huong Non coop.	21 May 2020	21	200
	Truong Thinh coop.	20 May 2020	32	200
Thai Binh	Quynh Hai coop.	10 March 2020	37	50
	Thanh Tan coop.	26 March 2020	40	200
Vinh Phuc	Dai Loi coop.	13 May 2020	5	100
	Vinh Phuc coop.	12 May 2020	21	200
	Visa coop.	14 May 2020	31	200

Total			367	4,410
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Source: JICA Project team

On farm demonstration was not conducted for Ha Vy cooperative and Lien Hiep cooperative. Ha Vy cooperative had already started soil sterilization in 2019 after the trial in Gia Gia and Japan Vietnam with support of JICA project team. Lien Hiep cooperative received a support of soil sterilization method from Department of Science and Technology of Ha Nam province.

3) Trial support of soil sterilization

Each target group identified farmers who were interested in the soil sterilization method. Those farmers were required to prepare compost and fertilizers by themselves. Compost was produced by farmers from January to May 2020. Consultant team supported providing a vinyl sheet for the farmers who were confirmed preparation of materials. The area where soil sterilization was practiced in summer season 2020 is shown in the table below.

Table 2.17.18 Trial of soil sterilization

Province	Target Group	Number of farmers	Area of one farmer (m ²)	Total area (m ²)
Hai Duong	Duc Chinh Coop.	-		
	Tan Minh Duc coop.	20	360	7,200
	Thanh Ha Company	5	720	3,600
	Gia Gia company	1 group	3,600	3,600
	Green farm company	1 group	3,600	3,600
	Lua farmers group	20	360	7,200
Ha Nam	Ha Vy coop.	10	360	3,600
	Lien Hiep coop.	-		
	Cat Lai Coop.	11	360	3,960
	Thanh Tan coop.	6	360	2,160
Hung Yen	Japan Vietnam Company	1 group	3,600	3,600
	Yen Phu Coop.	20	360	7,200
	Binh Minh Coop.	10	360	3,600
Phu Tho	Huong Non Coop.	20	360	7,200
	Truong Thinh Coop.	20	360	7,200
Thai Binh	Quynh Hai coop.	20	360	7,200
	Thanh Tan coop.	10	360	3,600
Vinh Phuc	Đai Loi Coop.	10	360	3,600
	Vinh Phuc Coop.	20	360	7,200
	Visa Coop.	1 group	3,600	3,600
Total		202 + 4 groups	-	88,920

Source: JICA Project team

Soil sterilization was carried out in about 8.9 ha in 18 target groups. During the soil sterilization, JICA project team checked soil temperature, soil humidity and fermentation status of compost, and provided technical guidance to the farmers. Cultivation was started in August 2020 on soil-sterilized farms. In order to disseminate for many farmers about the method and its effect, JICA project team facilitated farmers to visit and see the farms where the soil was sterilized.

4) Dissemination of soil sterilization

Consultant team facilitated target groups to continue applying soil sterilization. Monitoring result of dissemination of soil sterilization is shown in the table below.

Table 2.17.19 Dissemination of soil sterilization

Province	Target Group Name	Number of farmers	Area (ha)
Hai Duong	Duc Chinh Coop.	-	-
	Tan Minh Duc coop.	20	0.72
	Thanh Ha Company	2	0.54
	Gia Gia company	1 group	0.36
	Green farm company	1 group	0.36
	Lua farmers group	20	0.72
Ha Nam	Ha Vy coop.	13	1.46
	Lien Hiep coop.	-	-
	Cat Lai Coop.	14	0.55
	Thanh Tan Coop.	6	0.23
Hung Yen	Japan Vietnam Company	1 group	1,4
	Yen Phu Coop.	12	1.1
	Binh Minh Coop.	6	0.6
Phu Tho	Huong Nhon Coop.	22	1.10
	Trường Thịnh Coop.	20	0.72
Thai Binh	Quỳnh Hải cooperative	28	1.0
	Thanh Tân cooperative	10	0.36
Vinh Phuc	Đại Lợi Coop.	5	0.6
	Vĩnh Phúc Coop.	11	1.22
	Visa Coop.	5	0.18
Total		105	11.82

Source: JICA Project team

(3) Introduction of new variety seeds

Consultant team surveyed the target groups of intention to cultivate broccoli varieties (Imperial, Sakata seeds) which trial cultivation result satisfied farmers in terms of heat tolerance and yield in Phase 1. As a result, there were offers for cultivation in 10 target groups. Therefore, the JICA project team confirmed the cultivation area of each target group for winter 2019-20 and procured seeds from seed dealers. Seed costs were borne by each target group. In winter 2020-21, target groups procured seeds from seed dealers directly. Monitoring result of dissemination of new variety seed is shown in the table below.

Table 2.17.20 Dissemination of introduced new variety seeds

Province	Target Group	Winter 2019-20		Winter 2020-21	
		Number of farmers	Area (ha)	Number of farmers	Area (ha)
Hai Duong	Duc Chinh Coop.				-
	Tan Minh Duc coop.			3	0.18
	Thanh Ha Company	1	0.18	1	0.644
	Gia Gia company			1	1.656
	Green farm company			10	4.065
	Lua farmers group	1	0.072		-
Hà Nam	Ha Vy coop.	1	0.036	2	0.072
	Lien Hiep coop.				
	Cat Lai Coop.	1	0.036	1	0.036

	Thanh Tan Coop.				
Hung Yen	Japan Vietnam Company	1	0.18	1	0.072
	Yen Phu Coop.	2	0.18	4	1.44
	Binh Minh Coop.	1	0.108		
Phu Tho	Huong Non Coop.			4	0.15
	Trường Thịnh Coop.	17	0.36	9	0.36
Thai Binh	Quỳnh Hải cooperative	4	0.18		
	Thanh Tân cooperative				
Vinh Phuc	Đại Lợi Coop.	10	0.72	4	0.48
	Vĩnh Phúc Coop.				
	Visa Coop.				
Total:		39	2.052	40	9.155

Note: Introduced new variety seed is Broccoli seed, namely Imperial from Sakata seeds.

Source: JICA Project team

(4) Introduction of new seedling method

1) Trial support for new seedling method

In phase 1, it was concluded that a seedling house (large tunnel) was an solution as low cost and easy to maintain seedlings to the target groups which had not enough capacity to invest in a greenhouse. 11 target groups were identified as applicable for seedling house model as below.

Table 2.17.21 Seedling models

Seedling house model (applicable for smaller groups)	Greenhouse model (applicable for larger groups have investment capacity for greenhouse)	Not applicable (not required for seedling)
Lua farmer group Ha Vi coop. Cat Lai coop. Thanh Tan farmer group Huong Non coop. Truong Thinh coop. Quynh Hai coop. Thanh Tan coop. Dai Loi coop. Vinh Phuc coop. Visa coop.	Tan Minh Duc coop. Thanh Ha company Gia Gia company Green Farm company Lien Hiep Cooperative Japan Vietnam company Yen Phu coop. Binh Minh coop.	Duc Chinh coop.
11 groups	8 groups	1 group

Source: JICA Project team

Each target group identified farmers who interested in the new seedling method. Those farmers were required to prepare seedling trays by themselves. Consultant team supported providing seedling houses to the target groups in collaboration with a Japanese agricultural material company, Watanabe Pipe. 1 seedling house is estimated for 4-8 farmers per each. The number of farmers and materials prepared by farmers and JICA project team in winter season 2019-20 is shown in the table below.

Table 2.17.22 Trial of new seedling method

Province	Target group	Target crops for seedlings production		Number of farmers	Material	
		Target crop for winter	Target crop for summer		Seedling tray prepared by farmers	Seedling house supported by project

Hai Duong	Lua farmer group	Cabbage, Broccoli, Kohlrabi, Chinese cabbage	Watermelon, pear shape melon	36	900	9
Ha Nam	Ha Vy coop.	Cabbage, Broccoli, Kohlrabi	Cucumber	16	400	4
	Thanh Tan coop.	Tomato	Squash	4	100	1
	Cat Lai coop.	Cabbage, Broccoli, Kohlrabi	Cucumber	16	400	4
Phu Tho	Huong Non coop.	Cabbage, Kohlrabi, Tomato	Cucumber	32	500	5
	Truong Thinh coop.	Cabbage, Kohlrabi,	Cucumber, pear shape melon	40	500	5
Thai Binh	Quynh Hai coop.	Kohlrabi	Chili	32	800	8
	Thanh Tan coop.	Cucumber	Cucumber	4	100	1
Vinh Phuc	Dai Loi coop.	Cabbage, Tomato	Squash, bitter gourd, Cucumber	14	400	4
	Vinh Phuc coop.	Chayote	Sponge gourd	40	1,000	10
	Visa coop.	Tomato	Squash	8	200	2
Total	11 groups			242	5,300	53

Source: JICA Project team

2) Dissemination of new seedling method

As the seedling production is in the dissemination stage, the JICA project team monitored the dissemination status of target groups. 19 groups excluding Duc Chinh cooperative introduced the seedling method covering for about 112 ha.

In particular, Tan Minh Duc cooperative has expanded the production scale producing for about 39 ha (1.65 million root stocks) of seedlings. Quynh Hai cooperative has grown to produce seedlings for 10ha (about 650,000 stocks), and Lien Hiep coop. has also grown to produce for 6.6 ha (250,000 stocks).

Table 2.17.23 Dissemination of new seedling method

Province	Target group	Seedling Model	Number of farmers	Number of seedlings	Area (ha)
Hai Duong	Duc Chinh Coop.	<i>Not applicable</i>	-	-	-
	Tan Minh Duc Coop.	Greenhouse model	130	1,650,000	39.1
	Thanh Ha Company	Greenhouse model	5	143,200	5.0
	Gia Gia company	Greenhouse model		150,000	5.1
	Green farm company	Greenhouse model		60,000	2.0
	Lua farmer group	Seedling house model	45	180,000	7.0
Ha Nam	Ha Vi coop.	Seedling house model	5	93,000	3.6
	Lien Hiep coop.	Greenhouse model		250,000	6.6
	Cat lai coop.	Seedling house model	4	90,000	2.7
	Thanh Tan coop.	Seedling house model	1	55,000	1.6
Hung Yen	Japan-Vietnam Company	Greenhouse model		87,596	2.6
	Yen Phu Coop.	Greenhouse model	14	198,558	5.9
	Binh Minh coop.	Greenhouse model	6	102,400	3.1
Phu Tho	Huong Non coop.	Seedling house model	19	60,000	2.5
	Truong Thinh coop.	Seedling house model	27	65,000	2.3
Thai Binh	Quynh Hai coop.	Seedling house model	58	648,000	10.0
	Thanh tan coop.	Seedling house model	1	27,500	0.8
Vinh Phuc	Dai Loi coop.	Seedling house model	14	200,000	7.4
	Vinh Phuc coop.	Seedling house model	21	153,000	5.3

	Visa coop.	Seedling house model	10	10,000	0.3
Total			360	4,223,254	112.9

Source: JICA Project team

(4) Introduction of grafting technology

1) On farm training for grafting

Grafting technology is applicable in summer season when the diseases are likely to happen, especially for tomato cultivation. Based on the production history of tomato and the request from target groups, on farm training for tomato grafting was provided for 41 farmers of 6 target groups. Tomato seedlings were grafted with eggplant rootstocks and planted in 0.74ha and the plant growth were satisfied with the target groups as showing disease tolerance in summer season.

Table 2.17.24 On farm training for grafting

Province	Target groups	Number of farmers	Sowing date	Number of grafted seedlings	Number of good grafted seedlings	Production area of grafted tomato (ha)
Hai Duong	Tan Minh Duc coop.	20	26/5/2019	1,100	850	0.04
	Gia Gia Company	10	5/7/2019	1,100	900	0.04
Ha Nam	Lien Hiep coop.	1	14/6/2019	2,000	1,200	0.07
	Thanh Tan coop.	1	13/6/2019	4,800	4,500	0.15
Hung Yen	Yen Phu coop.	3	1/6/2019	8,000	7,200	0.24
Vinh Phuc	Visa coop.	6	12-22/6/2019	10,000	6,000	0.20
Total		41		27,000	20,650	0.74

Source: JICA Project team

On the other hand, percentage of grafted seedling in good condition was only 76% (20,650 out of 27,000 seedlings) and 24% of seedlings were died or unhealthy condition as grafting requires skilled laborers with experience. It was a challenge to gain more experiences of grafting to improve the percentage.

In the meantime, a grafted seedling supplier in Hai Duong province has expanded the seedling production. And also through the study tour to Moc Chau, Son La province, another grafted seedling supply (Green farm company) was identified which produced big volume of seedlings upon the order and supplied to Northern Vietnam including pilot and semi-pilot provinces with competitive price even including transportation cost.

As main objective of grafting technology is to produce tomato in summer season by using quality seedling with disease tolerance. Therefore, it is recommended to continue using grafted seedlings by both production by the group and/or purchasing from outside supplies.

2) Dissemination of grafting technology

The JICA project team monitored the dissemination status of target groups as shown in the table below. 14 farmers in 3 target groups purchased grafted seedlings from a supplier in Hai Duong province. Visa cooperative ordered to the supplier in Moc Chau bigger volume of seedlings, however they were unable to supply this year because the farmer had to order 8 months in advance as full of orders.

On the other hand, 4 target groups which received trainings for grafting technology did not produce or purchase any grafted seedlings this year because demand of tomato was limited, and the price was even low in 2020. It is expected to expand the production of tomato with grafted seedlings in Visa, Yen Phu and Binh Minh cooperatives.

Table 2.17.25 Dissemination of grafting technology

Province	Target groups	Number of farmers		Number of seedlings		Area (ha)	Remark
		produced grafted seedlings	bought grafted seedlings	Produced	Bought		
Hai Duong	Tan Minh Duc coop.	-	-	-	-	-	No tomato cultivation in 2020 due to low demand and price
	Gia Gia Company	-	-	-	-	-	
Ha Nam	Lien Hiep coop.	-	-	-	-	-	
	Thanh Tan coop.	-	-	-	-	-	
Hung Yen	Yen Phu Coop	-	2	-	2,400	0.072	
	Binh Minh Coop	-	3	-	3,600	0.108	
Vinh Phuc	Visa Coop	-	9	-	27,330	0.820	
Total		0	14	0	33,330	1.000	

Source: JICA Project team

(5) Introduction of new agriculture materials

1) Trial of Non Woven Textile (NWT)

Trial of Non-woven Textile (NWT) was implemented in cooperation with Unitika Ltd. The theme of the summer 2019 crop was to grasp the growth situation by using NWT under high temperature conditions. There were two types of cultivated items: Green mustard and Choy sum. 12 groups sown in July 2019 and finished harvesting by 13 August 2019. The test results are as shown in the table below and Attachment 10.

Table 2.17.26 Trial of Non Woven Textile (NWT) in summer 2019

Province	Target group	Vegetable	NWF		Control (m ²)	Harvesting time	Remark
			Direct (m ²)	Tunnel (m ²)			
Hai Duong	Gia gia	Choy sum	10	100	50	August 13, 2019	Harvested on 13 August. Result: Vegetable is not good appearance Reason: Disease started to attack vegetable after heavy rain of storm.
Ha Nam	Ha Vi	Choy sum		100	50	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture (wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged.
	Lien Hiep	Choy sum		100	50	No harvest	The trial failed because Hiep did not water. Conclusion: Mr. Hiep has no interest on trial
	Cat Lai	Choy sum		100	50	No harvest	Could not harvest because flooding after storm
	Thanh Tan	Choy sum		100	50	August 09, 2019	Harvested on 08, 09 August
Hung Yen	Japan-Vietnam	Green mustard	10	100	50	August 02, 2019	Harvested on 02 Aug.

	Yen Phu	Green mustard		100	50	August 05, 2019	Harvested on 05 August (Immediately harvested after heavy rain and storm to prevent damage by disease)
Phu Tho	Huong Non	Choy sum		100	50	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture (wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged.
	Truong Thinh	Choy sum		100	50	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture (wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged.
Thai Binh	Quynh Hai	Green mustard	10	100	50	August 12, 2019	Harvested on 16 Aug.
Vinh Phuc	Dai Loi	Choy sum		100	50	No harvest	Could not harvest Reason: After the heavy rain which continued 36 hours (03 and 04 August) creating high moisture ((wet condition), the weather abruptly turned to very hot with strong sunshine (05 and 06 August), this tough condition made the vegetables attacked by disease and most of them damaged
	Vinh Phuc	Green mustard		100	50	August 06, 2019	Harvested on 06 August (Harvested after storm to prevent damage by disease)
Total			30	1,200	600		

Source: JICA Project team

As a result, 6 of 12 groups were able to harvest. The reasons for the failure to harvest were the death due to heavy rain caused by the typhoon on 3 and 4 August 2019 (5 groups) and poor management (1 group). 6 groups which succeeded to harvest were generally satisfied with the fact that they were able to harvest without using pesticides despite the summer cropping. In the case of direct covering of NWT, there were some cases where the leaves were burnt by heat on the contact point with textile and the internal temperature and humidity increased. In comparison, tunnel method avoided such problems and grew well.

2) Dissemination of Non Woven Textile (NWT)

Although the advantage of NWT was confirmed in summer crops as shown in Attachment 10, the purchase of NWT has not progressed because the diseases have been suppressed by conventional cultivation methods in winter crops. Unitika has been introduced to agricultural cooperatives in Hanoi city through a subsidy project from DARD in Hanoi city and has been evaluated as high effectiveness. Since the price of NWT is one of the obstacles to the introduction among farmers, the company is looking forward to the government's subsidy project to promote the introduction. Unitika requested consultation with PPMUs of pilot provinces and has discussed the possibility of subsidies.

Through the discussion with Ha Nam DARD, they decided to introduce NWT made by Unitika to the Lieu Doi cooperative under the project funded by Rikolto, a Belgian NGO. In September 2019, DARD organized a workshop inviting Unitika as a lecturer and 25 farmers from the cooperative. Unitika introduced NWT and its benefit based on past experiences. After the lecture, the participants visited a demonstration site and NWT application was demonstrated in field practically. Besides NWT, DARD also introduced farmers to soil sterilization method. According to Ha Nam DARD, 70% of material cost will be borne by farmers and 30% of cost will be borne by DARD, which applied a same supporting policy with other materials such as net house construction.



In 2019, JICA project team interviewed with target groups about the intention to introduce NWT. The groups answered it was difficult to purchase due to high price, 11 groups used NWT as small scale. On the other hand, the use of Vietnamese-made NWT has been confirmed in 4 target groups covering 31,000 m².

Table 2.17.27 Dissemination of Non-Woven Textile in 2019-20

Province	Target group	Number of farmers applying NWT	Amount of NWT	
			Vietnamese NWT (m ²)	Japanese NWT (m ²)
Hai Duong	Thanh Ha Company	1 group		540
	Gia gia company	1 group	12,000	
	Green farm company	1 group	5,000	
Ha Nam	Ha Vi coop.	1		400
	Lien Hiep coop.	1 group		400
	Cat lai coop.	2		400
	Thanh Tan coop.	1		400
Hung Yen	Japan-Vietnam Company	1 group	7,000	
	Yen Phu Coop.	3	7,000	1,260
Phu Tho	Huong Non coop.	1		350
	Truong Thinh coop.	2		260
Thai Binh	Quynh Hai coop.	2		540
Vinh Phuc	Dai Loi coop.	2		350
	Vinh Phuc coop.	1		350
Total		15 + 5 groups	31,000	5,250

Source: JICA Project team

In 2020, JICA project team again interviewed with target groups about the intention to introduce NWT. However, they answered it was still difficult to purchase due to high price even though they knew the effectiveness. Among the target groups, only Japan Vietnam company newly ordered NWT and applied in 1,680 m². 2 target groups from Phu Tho province received NWT under the program of Phu Tho DARD and applied in 3,180m² in total. However, the intentions of purchasing NWT by their own cost were low in both groups.

Table 2.17.28 Dissemination of Non-Woven Textile in 2020-21

Province	Target group	Number of farmers applying NWT	Amount of NWT	
			Vietnamese NWT (m ²)	Japanese NWT (m ²)
Hung Yen	Japan-Vietnam Company	1 group		1,680
Phu Tho	Huong Non coop.	4		1,680
	Truong Thinh coop.	7		1,500
Total		11 + 1 group	0	4,860

Source: JICA Project team

2.17.6 On-field instruction of Basic GAP

(1) Monitoring result of record keeping

Monitoring items for record keeping are defined below.

- (i) No. of farmers mistook on record keeping
 - Necessary item is not recorded (e.g. basic information such as cultivation area and crop name, date of chemical application, dosage amount, etc.)
 - There is a mistake on record (e.g. wrong chemical name, wrong dosage amount, etc.)
- (ii) No. of misuse of agro-chemical (casual)
 - There is a mistake on calculation of dilution rate for agrochemical.
 - Agrochemical not permitted to use for target vegetable is applied (except for illegal agrochemicals).
 - There is a mistake on application method of agrochemicals. (e.g. mixing with many kinds of chemicals)
- (iii) No. of misuse of agro-chemical (serious)
 - Illegal chemical is applied.
 - Pre-harvest interval (PHI) is not enough before harvesting.

In winter season 2019-20, the number of farmers/ land plots were 1,040. Monitoring result of record keeping in winter 2019-20 is shown in the table below.

Table 2.17.29 Monitoring result of record keeping in winter season 2019-20

Province	Target groups	No. of farmer/ land plot, original	No. of farmer/ plot checked	No. of farmers correct*1	No. of farmers mistake on recording*2	Number of farmers mistake of chemical usage (casual)*3	Number of farmers mistake of chemical usage (serious)*4
Hai Duong	Duc Chinh coop.	278	278	236	42	0	0
	Tan Minh Duc coop.	131	131	116	15	0	0
	Thanh Ha company	30	30	30	0	0	0

	Gia Gia company	14	14	14	0	0	0
	Green Farm company	11	11	11	0	0	0
	Lua farmer group	50	50	44	6	0	0
Ha Nam	Ha Vi coop.	37	37	34	3	0	0
	Lien Hiep Coop.	12	12	12	0	0	0
	Cat Lai coop.	22	22	16	6	0	0
	Thanh Tan farmer group	6	6	6	0	0	0
Hung Yen	Japan Vietnam company	22	22	22	0	0	0
	Yen Phu coop.	34	34	34	0	0	0
	Binh Minh coop.	14	14	10	1	3	0
Phu Tho	Huong Non coop.	86	86	70	16	0	0
	Truong Thinh coop.	57	57	48	9	0	0
Thai Binh	Quynh Hai coop.	114	114	100	14	0	0
	Thanh Tan coop.	5	5	5	0	0	0
Vinh Phuc	Dai Loi coop.	14	14	12	2	0	0
	Vinh Phuc coop.	53	53	49	4	0	0
	Visa coop.	50	50	48	2	0	0
Total	20 groups	1,040	1,040	917	120	3	0
				88%	12%	0.3%	0%

Note

*1: All information was confirmed correct checked by PPMU and Consultant team.

*2: Mistake of recording method (such as no information of date, area, dosage) was found.

*3 Minus mistake of agrochemical usage (such as over dose usage and usage of legal agrochemical but not recommended for vegetables)

*4: Serious mistake of agrochemical usage (such as usage of illegal agrochemical or not allowed agrochemical for target crop and harvesting at time is not enough PHI)

Source: JICA Project team

The JICA project team and PPMU staff checked all records and found 917 farmers/plots (88%) had no mistake on record, though there were 120 cases of mistakes on recording (13%) and 3 casual mistakes on chemical usage (0.3%). There was no serious mistake on chemical usage.

In winter season 2020-21, the number of farmers/ land plots were 1,150. Monitoring result of record keeping in winter 2020-21 is shown in the table below.

Table 2.17.30 Monitoring result of record keeping in winter season 2020-21

Province	Target groups	No. of farmer/ land plot, original	No. of farmer/ plot checked	No. of farmers correct*1	No. of farmers mistake on recording*2	Number of farmers mistake of chemical usage (casual)*3	Number of farmers mistake of chemical usage (serious)*4
Hai Duong	Duc Chinh coop.	278	278	267	11	0	0
	Tan Minh Duc coop.	121	121	113	8	0	0
	Thanh Ha company	22	22	22	0	0	0
	Gia Gia company	12	12	12	0	0	0
	Green Farm company	16	16	16	0	0	0
	Lua farmer group	68	68	61	7	0	0
Ha Nam	Ha Vi coop.	37	37	37	0	0	0
	Lien Hiep Coop.	18	18	18	0	0	0
	Cat Lai coop.	43	43	37	6	0	0
	Thanh Tan farmer group	11	11	9	2	0	0
Hung Yen	Japan Vietnam company	19	19	19	0	0	0
	Yen Phu coop.	38	38	38	0	0	0
	Binh Minh coop.	13	13	13	0	0	0
Phu Tho	Huong Non coop.	86	86	79	7	0	0
	Truong Thinh coop.	57	57	53	4	0	0
Thai Binh	Quynh Hai coop.	115	115	110	5	0	0
	Thanh Tan coop.	66	66	63	3	0	0
Vinh Phuc	Dai Loi coop.	14	14	14	0	0	0
	Vinh Phuc coop.	66	66	66	0	0	0
	Visa coop.	50	50	50	0	0	0

Total	20 groups	1,150	1,150	1,097	53	0	0
				95.4%	4.6%	0.0%	0.0%

Note

- *1: All information was confirmed correct checked by PPMU and Consultant team.
 - *2: Mistake of recording method (such as no information of date, area, dosage) was found.
 - *3 Minus mistake of agrochemical usage (such as over dose usage and usage of legal agrochemical but not recommended for vegetables)
 - *4: Serious mistake of agrochemical usage (such as usage of illegal agrochemical or not allowed agrochemical for target crop and harvesting at time is not enough PHI)
- Source: JICA Project team

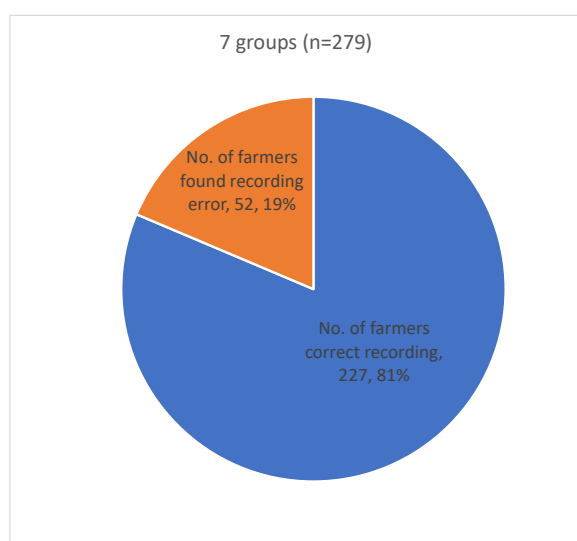
The JICA project team and PPMU staff checked all records and found 1,097 farmers/plots (95%) had no mistake on record, though there were 53 cases of mistakes on recording (4.6%). There was no casual mistake or serious mistake on chemical usage.

Overall results of monitoring of record keeping for 4 years are shown in the figures below.

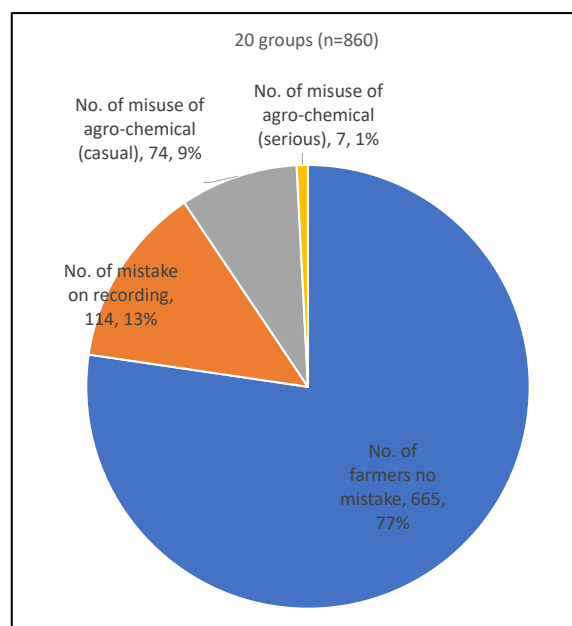
Table 2.17.31 Monitoring result of record keeping from 2017 to 2021

Season	Total farmers/land plots	Number of farmers/land plots were checked	Number of farmers no mistake	Number of farmers Mistake of recording method	Number of farmers Mistake of agrochemical usage	
					Minor mistake	Serious mistake
2017-18 Winter	407	279 (69%)	227 (81%)	52 (19%)	- (-)	- (-)
2018 Summer	458	361 (79%)	257 (71%)	104 (29%)	- (-)	- (-)
2018-19 Winter	861	860 (99.9%)	665 (77%)	114 (13%)	74 (9%)	7 (1%)
2019 Summer	452	452 (100%)	412 (91%)	35 (8%)	5 (1%)	0 (0%)
2019-20 Winter	1,040	1,040 (100%)	917 (88.2%)	120 (11.5%)	3 (0.3%)	0 (0%)
2020 Summer	787	787 (100%)	745 (94.7%)	42 (5.3%)	0 (0%)	0 (0%)
2020-21 Winter	1,150	1,150 (100%)	1,097 (95.4%)	53 (4.6%)	0 (0%)	0 (0%)

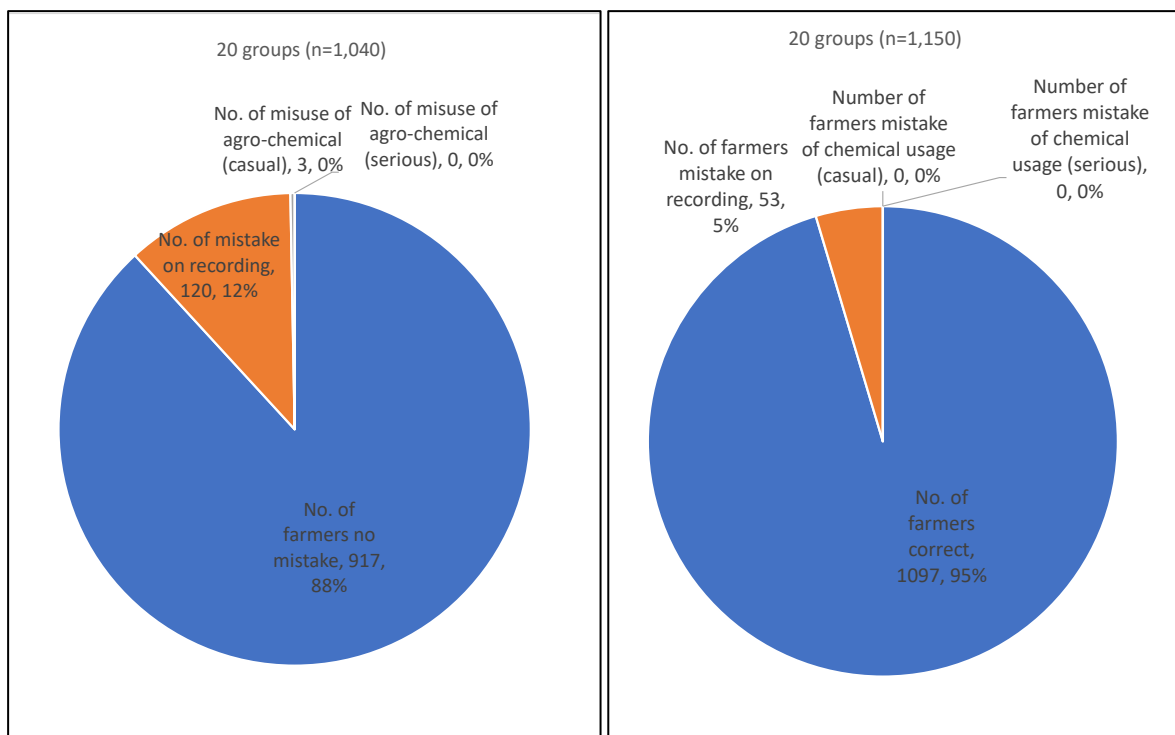
Source: JICA Project team



Record keeping in winter 2017-18



Record keeping in winter 2018-19



Record keeping in winter 2019-20

Record keeping in winter 2020-21

Source: JICA Project team

Figure 2.17.2 Monitoring result of record keeping from 2017 to 2021



Source: JICA Project team

Figure 2.17.3 Number of mistakes and misuse of chemicals from 2018 to 2021

(2) Trial of digital recording

1) Outline

Trial of digital recording was conducted to verify the improvement of the safety of agriculture product and enhancement of the reliability of safe crop production by applying ICT technology on recordkeeping of production activities, together with Nagase Vietnam Co., Ltd. and TMA Innovation company.

In the project, JICA Project team has been considering the introduction of a traceability system utilizing ICT technology since the beginning of the project. However, as the result of baseline survey, smartphone owners accounted for only 6 to 10% of target farmers and even recordkeeping on paper had not been practiced by the them yet. Therefore, JICA Project team decided to put priority to start by developing a habit of recordkeeping on paper at initial stage. Through the trial activities, the continuity of recordkeeping was confirmed and the interests in digital recording were also confirmed in several target groups.

In addition, as a feature of the project, it was expected to encourage the participation of private sector so that Japanese companies and the project would be mutually beneficial through cooperation. So far JICA Project team had collaborated with more than 10 Japanese agricultural material companies for trial and demonstration purpose. Regarding this trial of digital recording, Nagase Vietnam proposed a plan for trial with provision of technical guidance to farmers and necessary materials and system at its own expense, and JICA Project team provided a trial field with technical support.

2 target groups were selected in consideration with type of group (cooperative type and company type), experiences of correct recording and enthusiasm about trial of digital recording.

Table 2.17.32 Selected target groups of trial of digital recording

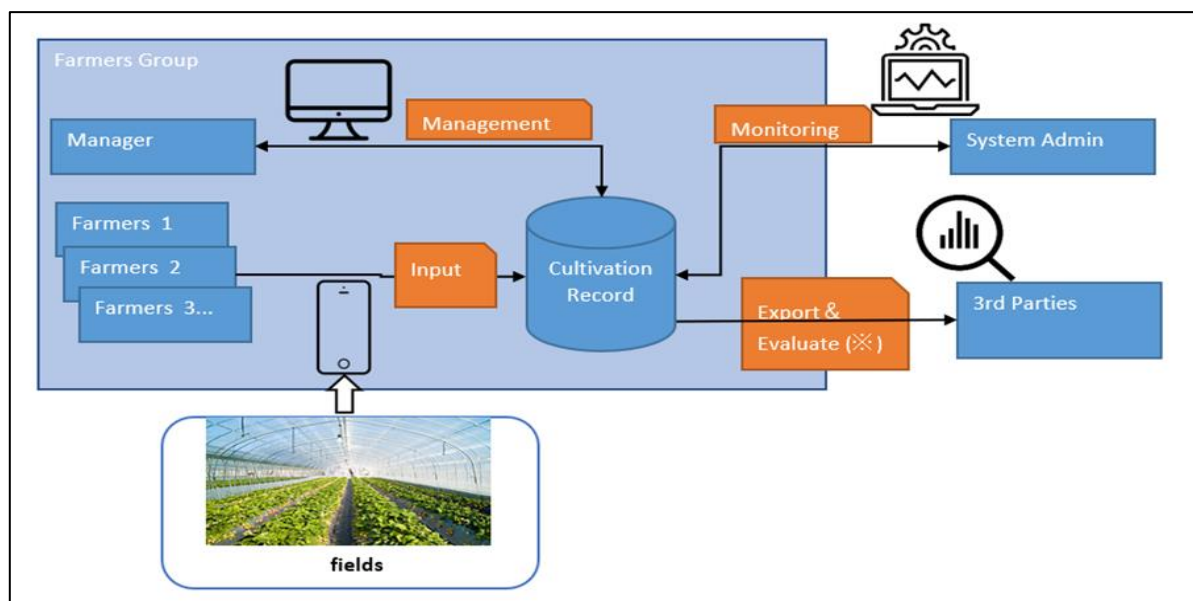
Type	Group Name	Characteristic	Participant	Participation Rate (%)
A	Tan Minh Duc coop.	Total 131 members/sell to Big C, etc.	15 farmers	11%
B	Japan Vietnam company	Total 22 fields / sell to Citimart, etc.	19 fields	86%

Source: JICA Project team

Trial was conducted for 8 months from September 2020 to April 2021.

- Preparation: September - November 2020 (Including interview with farmers)
- Verification test: December 2020 – March 2021
- Evaluation / Reporting: April 2021

Nagase/TMA developed necessary digital system (JIC software) for trial as below.



Source: Nagase Vietnam Co., Ltd.

Figure 2.17.4 System image of digital recording

The target groups input data on the application. Nagase/TMA checked the input status of the target group to confirm the content was input in a timely and appropriate manner. Nagase/TMA also recorded error and instruction as a log. JICA Project team monitored the input status of the target groups and supported input guidance to farmers in response to requests from Nagase/TMA.

2) Results of Trial

Tan Minh Duc cooperative and Japan Vietnam company successfully completed the trial. All 15 farmers in Tan Minh Duc have been recording production activities on application. Japan Vietnam also have been recording for all 19 fields.

A. Tan Minh Duc cooperative

10 of 15 farmers recorded the production activities proactively. However, remaining 5 farmers needed support for recording due to weak eyesight, busy with other business, and no sales affected by COVID-19. Farmers and managers had positive feedbacks and suggestions as below:

(a) Positive feedbacks

- Easy-to-use: just select activities (fertilize, pesticides and harvesting) and click to recording.
- Pesticides: support in recording the name of pesticides.
- The data is kept in the phone. Farmers can check recording data anywhere, even in the field.
- Supervise the farmers/recorder activities: If farmers do not record frequently, JIC software reminds them in time. It reduces the mistake in recordings.
- Save the audit time and checking the production process of members.
- Share the information to customer when they request
- Store and save data for a long time

(b) Suggestions:

- They can't record the crops activities in the fields or when they're free but no network.

- Add expense and revenue to the APP so that farmers could check their crop result by the APP
- The list of pesticide in the APP only covers a small partial of the pesticides that are allowed by government.
- Farmers who don't have a smart phone can't join the project.
- The farmers cannot record activities when there is no network (Wi-Fi or 3G).

B. Japan Vietnam Company

Japan Vietnam company had total 22 fields, but 3 out of 22 fields were completed production before starting trial, then they recorded for 19 fields. The company had positive feedbacks and suggestions.

(a) Positive feedbacks

- Check/control crop information from anywhere, anytime. Don't need to be at the company
- Easily to detect if farmers/workers use the wrong pesticide (the software has warning sign)
- Easy to show crop information to buyers (through smartphone, excel file)
- Japan Vietnam has stop using hand-written booking thanks to the convenience of software.

(b) Suggestions:

- Add more activities in crop activities such as weeding, tillage, seeding and others so that he could manage whole crop activities as actual situation.

3) Retailers' opinion

Nagase/TMA visited 9 retailers (5 supermarkets and 4 food shops) to ask their opinions about the software based on the trial.

- 7 out of 9 buyers had willingness to introduce the software to use at their suppliers/farmers due to the following reasons:
 - Retailers can check the production of their supplier at the desktop/smartphone any time. At the moment, they visit suppliers (farmers, cooperative) once per quarter for long-term suppliers and once month for new suppliers due to lack of manpower. Once per quarter is not enough especially for crop having short-time growth (30-50days usually).
 - One retailer wants to check recordkeeping when products delivery to warehouse but farmers normally don't carry books that record production activities. The software can support to check the recording.
 - Retailers can show how their products are produced to consumers to build up credibility of their products to consumers.
- One retailer responded that they were not interested in this software and would not introduce to their suppliers/farmers due to the products are sold under suppliers/farmers' name.
- Another retailer showed interest in the software and wanted their farmers to use software to check the records easily. However, they would not introduce the third parties' products to their suppliers/farmers due to the company's fair-trade policy.

(3) Internal Audit

Internal audit for winter 2019-20 was organized for 19 target groups except for Chien Thang cooperative (Binh Minh cooperative) in February 2020 with attendance of PPMU staff. Internal audit for Chien

Thang cooperative was suspended as per the request from Hung Yen PPMU due to check the status of establishment of new cooperative as Binh Minh cooperative. Summary of internal audit is shown in the table below:

Table 2.17.33 Summary of internal audit in winter 2019-20

Province	Target groups	Date of internal audit	No. of passed criteria	No. of failure criteria	Remarks
Hai Duong	Duc Chinh coop.	26/02/2020	20	6	(Criteria No. 14) Pesticide packages are not destroyed strictly in compliance with the State's regulations. (Criteria No. 17) Do not have processing, packaging, and storage house (Criteria No. 18) Do not use clean water used to wash products after harvesting (Criteria No. 19) Do not test the quality of clean water (meet the standard) used to wash products. (Criteria No. 20) Is wastewater, garbage collected and treated properly in accordance with regulations. (criteria No. 22) Farmers do not have warning signs in the production site those just spraying pesticides.
	Tan Minh Duc coop.	19/02/2019	24	2	(Criteria No. 14) (criteria No. 22)
	Thanh Ha company	21/02/2020	25	1	(Criteria No. 14)
	Gia Gia Company	17/02/2020	25	1	(Criteria No. 14)
	Green farm company	20/02/2020	25	1	(Criteria No. 14)
	Lua farmers group	18/02/2020	20	6	(Criteria No. 14) (Criteria No. 17) (Criteria No. 18) (Criteria No. 19) (Criteria No. 20) (criteria No. 22)
Ha Nam	Ha Vi coop	13/02/2020	26	0	
	Lien Hiep coop	20/02/2020	26	0	
	Cat Lai coop	17/02/2020	25	1	(Criteria No. 17)
	Thanh Tan coop	20/02/2020	25	1	(Criteria No. 17)
Hung Yen	Japan-Vietnam company	20/02/2020	26	0	
	Yen Phu coop	19/02/2020	26	0	
	Binh Minh coop	-			
Phú Thọ	Huong Non coop	12/02/2020	24	2	(Criteria No. 17) (Criteria No. 22)
	Truong Thinh coop	11/02/2020	25	1	(criteria No. 22)
Thai Binh	Quynh Hai coop	26/02/2020	26	0	
	Thanh Tan coop	27/02/2020	25	1	(Criteria No. 17)
Vinh Phuc	Dai Loi coop	27/02/2020	26	0	
	Vinh Phuc coop	20/02/2020	26	0	
	Visa coop	26/02/2020	26	0	

Source: JICA Project team

There was no problem found in 8 of 19 groups and there were several problems in 11 groups. The points to be pointed out are as follows.

- (Criteria No. 14) Pesticide packages are not destroyed strictly in compliance with the State's regulations: 6 groups
- (Criteria No. 17) Do not have processing, packaging, and storage house: 6 groups
- (Criteria No. 18) Do not use clean water used to wash products after harvesting: 2 groups
- (Criteria No. 19) Do not test the quality of clean water (meet the standard) used to wash products: 2 groups
- (Criteria No. 20) Is wastewater, garbage collected and treated properly in accordance with regulations: 2 groups
- (criteria No. 22) Farmers do not have warning signs in the production site those just spraying pesticides: 5 groups

Of these, criteria 17, 18, 19, and 20 were not applicable because there was no pre-processing facility for the groups. For the remaining criteria 14 and 22, PPMU gave a guidance to the relevant target groups to improve the status.

Another internal audit for winter 2020-21 was organized for all 20 target groups in March 2021 with attendance of PPMU staff. Summary of internal audit is shown in the table below:

Table 2.17.34 Summary of internal audit in winter 2020-21

Province	Target groups	Date of internal audit	No. of passed criteria	No. of failure criteria	Remarks
Hai Duong	Duc Chinh coop.	25/03/2021	25	1	(criteria No. 22) Farmers do not have warning signs in the production site those just spraying pesticides.
	Tan Minh Duc coop.	24/03/2021	25	1	(criteria No. 22)
	Thanh Ha company	26/03/2021	26	0	
	Gia Gia Company	23/03/2021	26	0	
	Green farm coop.	26/03/2021	26	0	
	Lua farmers group	22/03/2021	25	1	(criteria No. 22)
Ha Nam	Ha Vi coop.	11/03/2021	26	0	
	Lien Hiep coop.	09/03/2021	26	0	
	Cat Lai coop.	10/03/2021	26	0	
	Thanh Tan coop.	12/03/2021	26	0	
Hung Yen	Japan-Vietnam company	15/03/2021	26	0	
	Yen Phu coop.	23/03/2021	26	0	
	Binh Minh coop.	15/03/2021	26	0	
Phu Thọ	Huong Non coop.	18/03/2021	25	1	(Criteria No. 17) Do not have processing, packaging, and storage house
	Truong Thinh coop.	16/03/2021	26	0	
Thai Binh	Quynh Hai coop.	22/03/2021	26	0	
	Thanh Tan coop.	23/03/2021	26	0	
Vinh Phuc	Dai Loi coop.	22/03/2021	26	0	
	Vinh Phuc coop.	23/03/2021	26	0	
	Visa coop.	29/03/2021	26	0	

Source: JICA Project team

There was no problem found in 16 of 20 groups and there was a problem in 4 groups. The points to be pointed out are as follows.

- (criteria No. 22) Farmers do not have warning signs in the production site those just spraying pesticides: 3 groups
- (Criteria No. 17) Do not have processing, packaging, and storage house: 1 group

Of these, criteria 17 was not applicable for Huong Non cooperative because there was no pre-processing facility. For criteria 22, PPMU gave a guidance to the relevant target groups to improve the status.

The JICA project team analyzed the major criteria of Basic GAP failed by target groups last 3 years from 2018 to 2021 and the result is shown in the table below. Through the trial activity, all target groups improved their production management which satisfies almost criteria of Basic GAP except for few criteria. Regular internal audits by PPMU made both PPMU and target groups clear the points should be improved. Regarding the remaining failed criteria, it is important to promote the improvement of target under the guidance of PPMU.

Table 2.17.35 Major criteria of Basic GAP failed by target groups from 2018 to 2021

No	Criteria	Level	2018-19 (n=20)	2019-20 (n=19)	2020-21 (n=20)	Comment
22	Have farmers worked on warning signs in the production site those just spraying pesticides?	B	6	5	3	Farmers do not have warning signs in the production site those just spraying pesticides
17	Are processing, packaging, and storage areas isolated from storehouses and containing sites of pesticides, fertilizers and other hazardous chemicals?	A	6	6	1	Do not have processing, packaging, and storage house
14	Are chemicals and those packages destroyed strictly in compliance with the State's regulations?	A	5	6	0	Pesticide packages are not destroyed strictly in compliance with the State's regulations
20	Is waste water, garbage collected and treated properly in accordance with regulations?	A	3	2	0	Liquid waste is not collected in compliance with regulation
18	Is clean water used to wash products after harvesting?	A	1	2	0	Do not have processing, packaging, and storage house
19	Does the quality of clean water used to wash products meet the standard?	A	1	2	0	Do not have processing, packaging, and storage house
	Other criteria		4	0	0	
	Total numbers failed		26	23	4	

Note: Other criteria are No.1,6,12, and 25.

Source: JICA Project team

2.17.7 Upgrading conditions to ensure food hygiene and safety

All 20 groups completed technical assessment of food hygiene and safety conditions on pre-processing facilities. As the assessment results, 19 target groups were confirmed to upgrade the pre-processing facilities and equipment except for Duc Chinh cooperative. Duc Chinh cooperative assessed not to construct any pre-processing facility since those were already run by private companies in commune.

19 groups completed to prepare an upgrading plan and 18 groups completed the upgrading of facilities except for Huong Non cooperative. Huong Non cooperative had limited capacity of joint sales and pre-processing facility was not required according to the buyers' demand, then JICA project team supported only equipment such as plastic basket and blue sheet to improve safety condition of harvesting.

Result of upgrading of pre-processing facility and equipment is shown in the table below.

Table 2.17.36 Result of upgrading of pre-processing facility and equipment

Province	Target groups	Technical Assessment	Upgrading planning	Upgrade of facilities
Hai Duong	Tan Minh Duc coop.	Done	Done	Done
	Thanh Ha company	Done	Done	Done
	Duc Chinh coop.	Done	Not necessary	Not necessary
	Gia gia company	Done	Done	Done
	Green farm company	Done	Done	Done
	Lua farmer group	Done	Done	Done
Ha Nam	Ha Vi coop	Done	Done	Done
	Hiep farm company	Done	Done	Done
	Cat Lai coop.	Done	Done	Done
	Thanh Tan farmer group	Done	Done	Done
Hung Yen	Japan Vietnam company	Done	Done	Done
	Yen Phu coop.	Done	Done	Done
	Binh Minh coop.	Done	Done	Done
Phu Tho	Huong Non coop	Done	Done	Done (only for equipment)
	Truong Thinh coop	Done	Done	Done
Vinh Phuc	Visa coop	Done	Done	Done
	Dai Loi coop	Done	Done	Done
	Vinh Phuc coop	Done	Done	Done
Thai Binh	Quynh Hai coop	Done	Done	Done
	Thanh Tan coop	Done	Done	Done
Total	Ongoing/ Not yet	0	0	0
	Done	20	19	19
	Not necessary	0	1	1

Note: Duc Chinh cooperative used a pre-processing facility run by a private company, then upgraded a fertilizer and agrochemical storage instead.

Source: JICA Project team

2.17.8 Joint Sales

(1) Number of farmers who join joint sales

In winter 2019-20, it was confirmed that 77% of farmers in 20 target groups have joined the joint sales. Only 2 cooperatives, Huon Nong cooperative in Phu Tho and Dai Loi cooperative in Vinh Phuc were below 50%. Duc Chinh cooperative improved to 73% though it was 41% in winter 2018-19.

Table 2.17.37 Number of farmers who joined joint sales in winter season 2019-20

Province	Target Group	Number of Farmers/ Groups	Number of Farmers who join Joint Sales	Percentage (%)
Hai Duong	Duc Chinh Coop.	278	203	73%
	Tan Minh Duc Coop.	131	131	100%
	Thanh Ha Company	9	9	100%
	Gia Gia Company	1	1	100%
	Green farm Coop.	1	1	100%
	Lua farmers group	50	50	100%
Hà Nam	Ha Vi Coop.	37	32	86%

	Lien Hiep coop.	<u>1</u>	1	100%
	Cat Lai Cooperative	22	16	73%
	Thanh Tan farmer group	6	6	100%
Hung Yên	Japan Vietnam Company	<u>1</u>	1	100%
	Yen Phu Coop.	34	22	65%
	Binh Minh Coop.	14	10	71%
Phú Thọ	Huong Non Coop.	86	26	30%
	Truong Thinh Coop.	57	42	74%
Thái Bình	Quynh Hai Coop.	114	90	79%
	Thanh Tan Coop.	<u>1</u>	1	100%
Vĩnh Phúc	Dai Loi Coop.	14	6	43%
	Vinh Phuc Coop.	53	53	100%
	Visa Coop.	11	11	100%
Total:	20 groups	921	712	77%
	<u>Production as a group</u>	8	8	100%
	Production by farmers	913	704	77%

Note: Underline = Production as a group, **Italic** = Number of groups and farmers

Source: JICA Project team

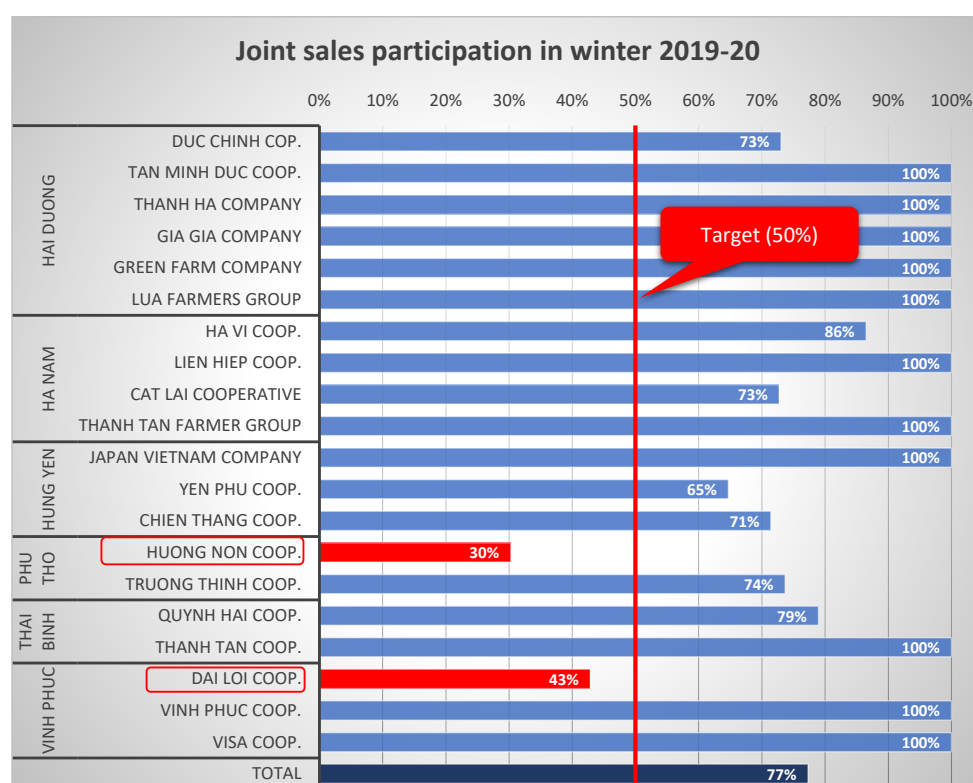


Figure 2.17.5 Percentage of participation to joint sales in winter season 2019-20

In winter 2020-21, it was confirmed that 86% of farmers in 20 target groups have joined the joint sales. All 20 target groups were more than 50% of farmers joined joint sales. 17 target groups were above 80%, Huong Non cooperative in Phu Tho was the lowest as 53%.

Table 2.17.38 Number of farmers who joined joint sales in winter season 2020-21

Province	Target Group	Number of Farmers/ Groups	Number of Farmers who join Joint Sales	Percentage (%)
Hai Duong	Duc Chinh Coop.	278	236	85%
	Tan Minh Duc Coop.	121	121	100%
	Thanh Ha Company	9	9	100%

	Gia Gia Company	<u>1</u>	1	100%
	Green farm Coop.	<u>3</u>	3	100%
	Lua farmers group	<u>68</u>	68	100%
Hà Nam	Ha Vi Coop.	<u>37</u>	37	100%
	Lien Hiep coop.	<u>1</u>	1	100%
	Cat Lai Cooperative	<u>43</u>	41	95%
	Thanh Tan farmer group	<u>11</u>	10	91%
Hưng Yên	Japan Vietnam Company	<u>1</u>	1	100%
	Yen Phu Coop.	<u>38</u>	32	84%
	Binh Minh Coop.	<u>13</u>	12	92%
Phú Thọ	Huong Non Coop.	<u>86</u>	46	53%
	Truong Thinh Coop.	<u>57</u>	42	74%
Thái Bình	Quynh Hai Coop.	<u>115</u>	92	80%
	Thanh Tan Coop.	<u>61</u>	48	79%
Vĩnh Phúc	Dai Loi Coop.	<u>14</u>	14	100%
	Vinh Phuc Coop.	<u>66</u>	66	100%
	Visa Coop.	<u>11</u>	11	100%
Total:	20 groups	1,034	891	86%
	<u>Production as a group</u>	<u>9</u>	<u>9</u>	<u>100%</u>
	Production by farmers	1,025	882	86%

Note: Underline = Production as a group, **Italic** = Number of groups and farmers

Source: JICA Project team

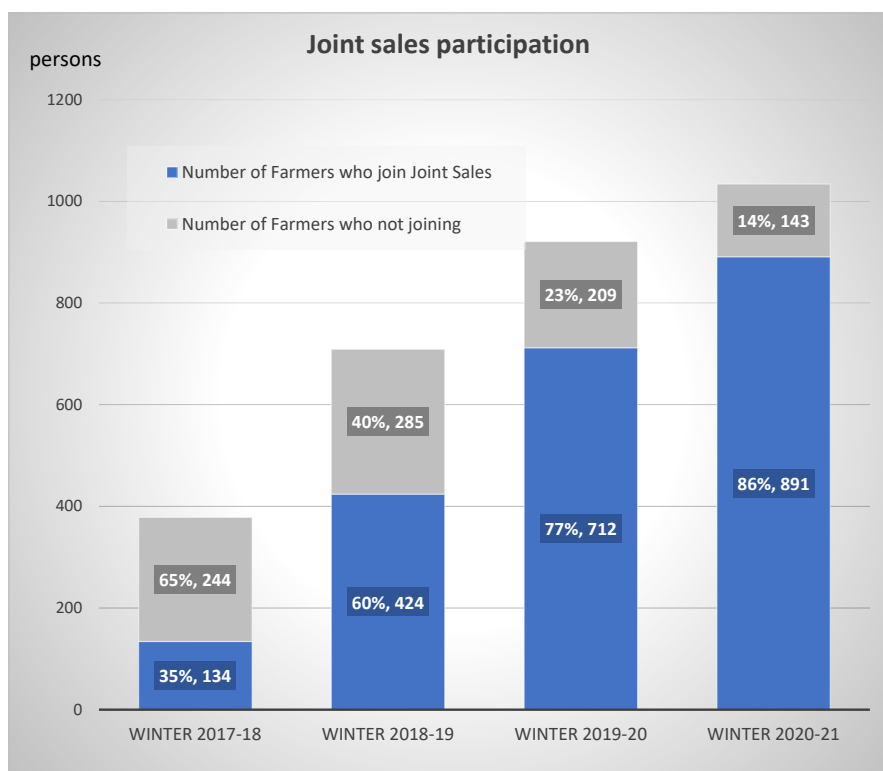


Source: JICA Project team

Figure 2.17.6 Percentage of participation to joint sales in winter season 2020-21

The following figure shows the result of joint sales participation for last 4 years. In winter 2017-18, only 35% of farmers (134 out of 378 farmers) in 7 target groups joined joint sales. But the percentage was improved year by year, and 86% of farmers (891 out of 1,034 farmers) in 20 target groups joined in

winter 2020-21.

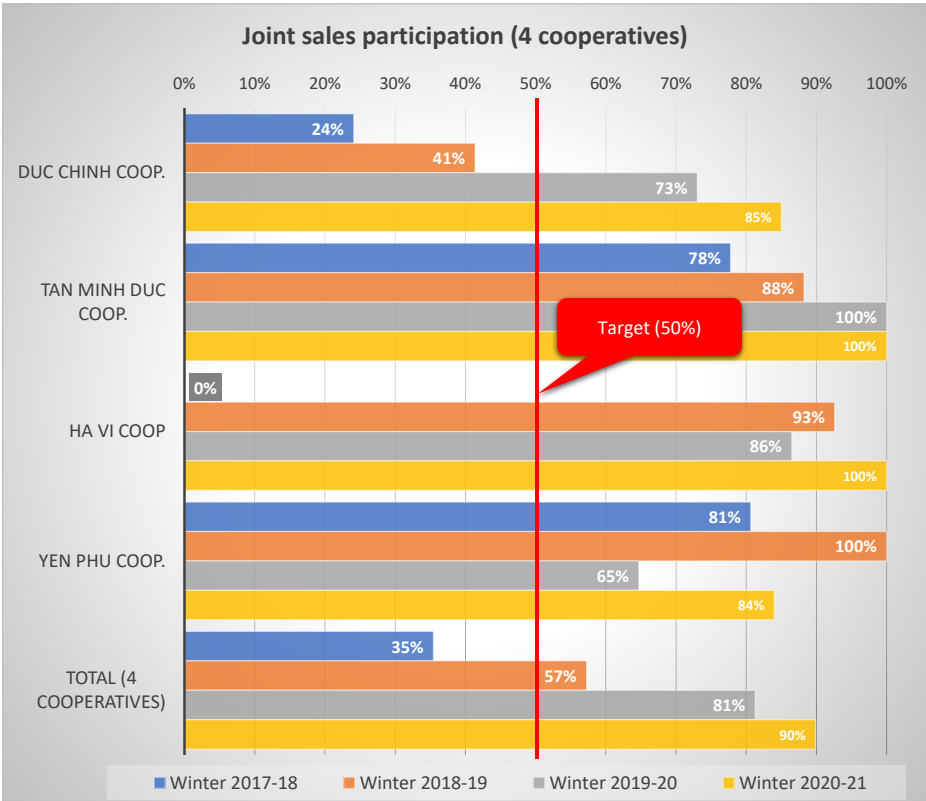


Note: 7 target groups in winter 2017-18, 20 target groups in winter 2018-19 and afterward
 Source: JICA Project team

Figure 2.17.7 Joint sales participation from 2017 to 2021

The following figure shows the result of joint sales participation for last 4 years of 4 cooperatives in pilot province which were selected as initial target groups in 2017 except for other 3 target groups as company model. 3 target groups, Duc Chinh cooperative, Tan Minh Duc cooperatives and Ha Vi cooperative improved the percentage year by year.

Yen Phu cooperative started as 81% (25/31) in winter 2017-18 and increased to 100% (32/32) in winter 2018-19, however, it decreased to 65% (22/34) in winter 2019-20 and ended as 84% (32/38) in winter 2020-21. In winter 2019-20, 12 farmers did not supply vegetables to cooperative. Those farmers produced herbs but it was difficult to sell to existing buyers as the demand was limited, so they sold to other buyers individually.



Source: JICA Project team

Figure 2.17.8 Joint sales participation of 4 cooperatives from 2017 to 2021

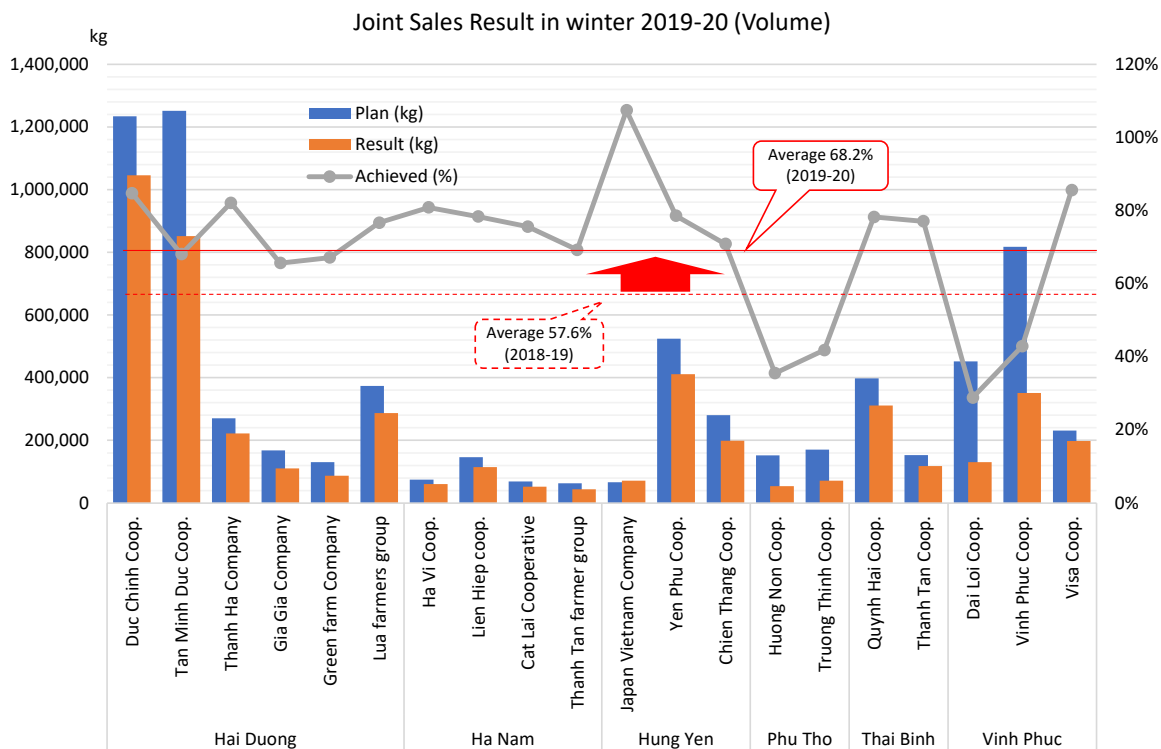
(2) Joint sales plan and result in volume

The plans and results of joint sales in volume in winter 2019-20 and in winter 2020-21 are shown in the figures below and the details are in Attachment 11.

In winter 2019-20, the average of joint sales of 20 target groups in volume was 68.2%, about 10% improved from previous year (57.6%). More than 65% of products were sold in 16 groups, though 4 groups were below 50%.

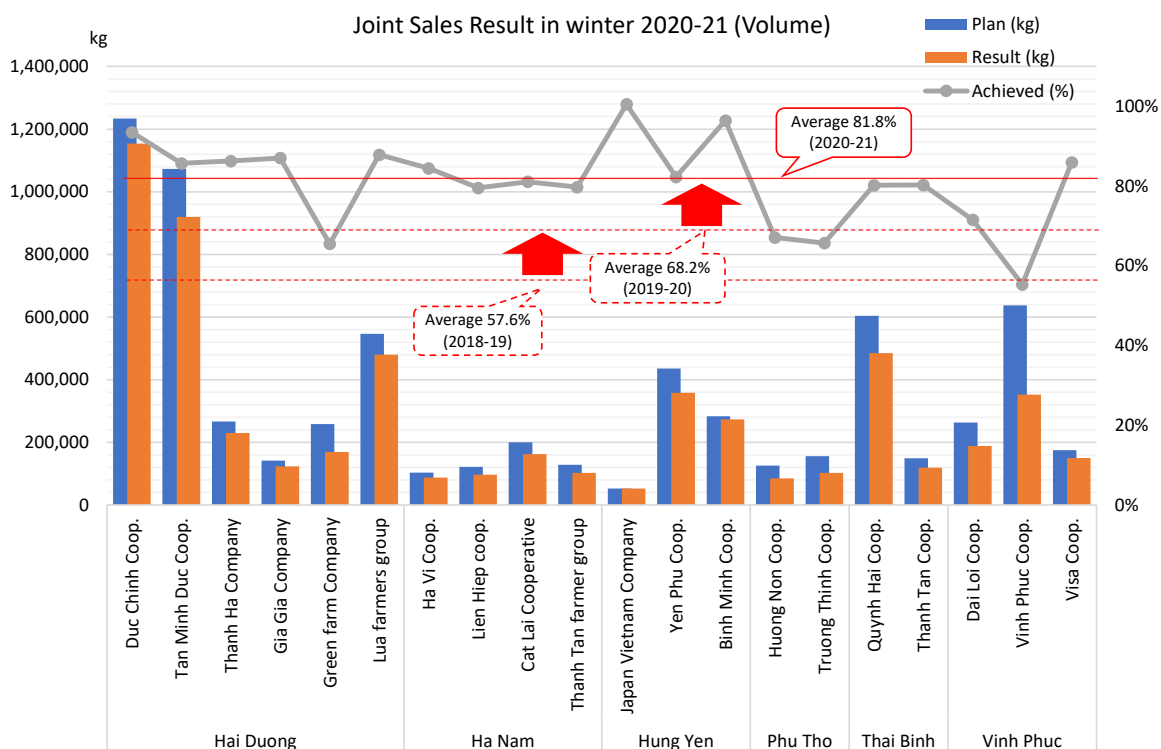
There was a lesson that the set target volume on production plan was too large to achieve then the remaining volume were sold by individual farmers. Furthermore, several target groups faced shortage of orders from existing buyers. Especially the canteens cancelled orders since industrial companies and schools were closed due to COVID-19 in this winter season.

Considering the lesson in previous season, the target groups reviewed the production plan for winter 2020-21. Then planned production volume of 20 target groups was slightly reduced from 7,026,696 in winter 2019-20 to 6,906,739 in winter 2020-21 though the production area was expanded from 162.58ha to 190.01 ha. As the result, the average of joint sales was 81.8%, more than 13% improved from previous year. 19 groups sold more than 65% of vegetables as joint sales, though Vinh Phuc cooperative sold only 55%.



Source: JICA Project team

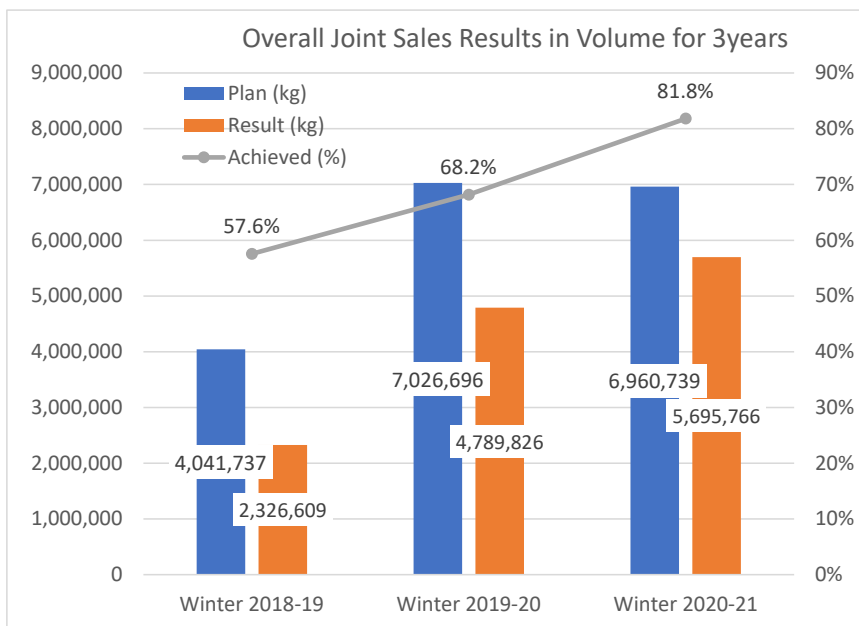
Figure 2.17.9 Joint sales result in volume in winter 2019-20



Source: JICA Project team

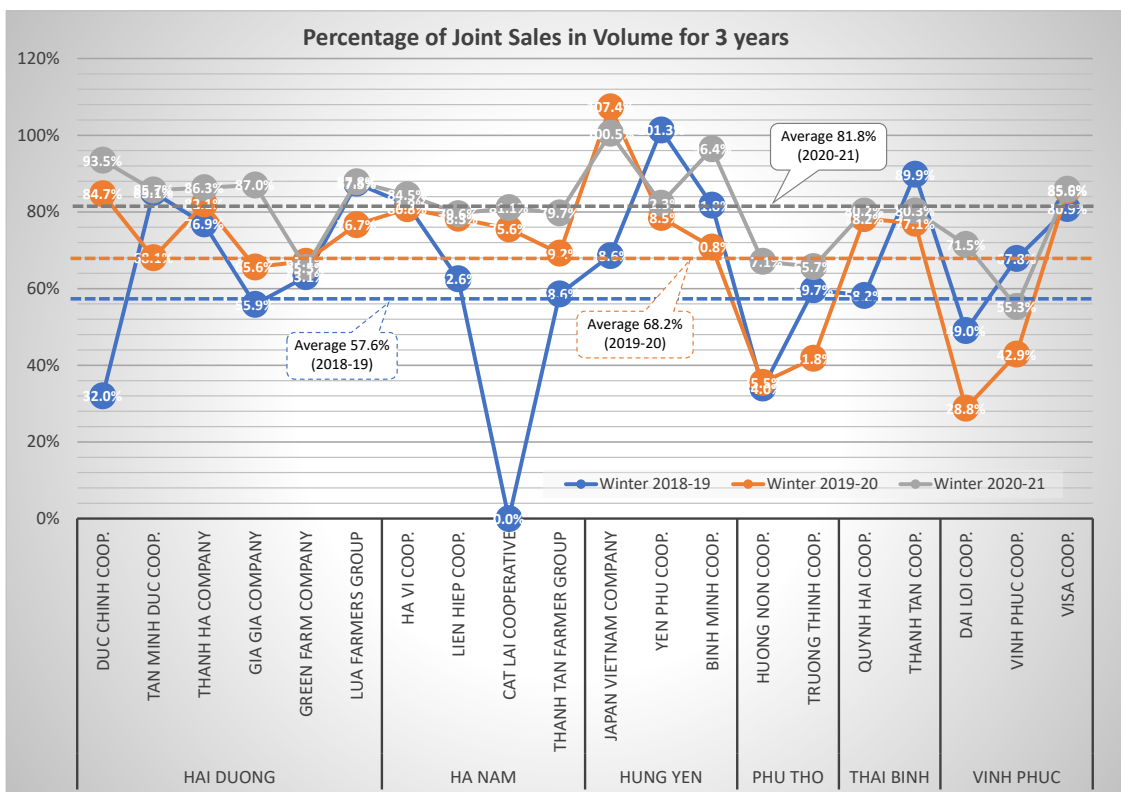
Figure 2.17.10 Joint sales result in volume in winter 2020-21

The following figures shows the results of joint sales for last 3 years. Both total volume of joint sales and average percentage of joint sales in volume increased.



Source: JICA Project team

Figure 2.17.11 Joint sales result in volume from 2018 to 2021



Source: JICA Project team

Figure 2.17.12 Joint sales result in volume per target group from 2018 to 2021

(3) Review of result of joint sales

The JICA project team assessed the result of joint sales in winter 2020-21 and identified the issues of each group. In order to improve the situation, the JICA project team commented key ideas as solution for next season as shown in the Attachment 12, and those were shared with PPMUs to implement in their activities.

2.17.9 External inspection and auditing

(1) Quick test for pesticide residue

Total 704 samples were tested for pesticide residue by quick test conducted by PPMU. Result of quick test per target group is shown in figure below. 2 samples were detected as unsafe in winter 2017-18 as pesticide residues were above Maximum Residue Level (MRL), however there was no sample detected as unsafe in the following seasons. 702 out of 704 samples (99.7%) were checked as safe. Among safe samples, pesticide residue was detected below MRL in 171 samples (24.3%).

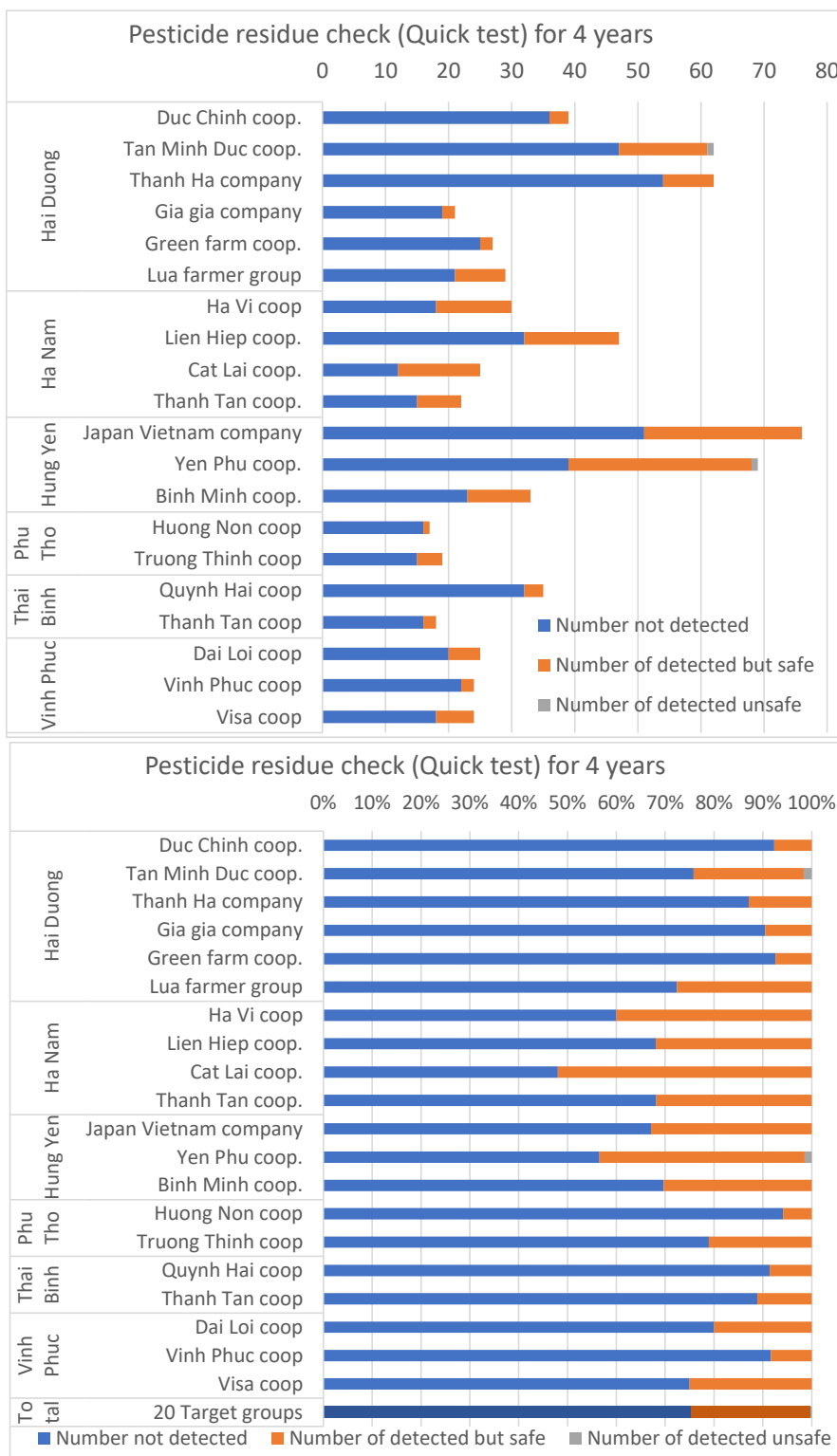
Table 2.17.39 Pesticide residue check (Quick test) for 4 years

Pilot province	No. of sample	No. of safe sample	No. of detected but safe	No. of detected unsafe
Winter 2017-18	105	84	19	2
Summer 2018	31	28	3	0
Winter 2018-19	135	78	57	0
Summer 2019	0	0	0	0
Winter 2019-20	81	62	19	0
Summer 2020	78	67	11	0
Winter 2020-21	112	73	39	0
Sub-Total	542	392	148	2
Semi Pilot province				
Winter 2017-18	-	-	-	-
Summer 2018	-	-	-	-
Winter 2018-19	33	26	7	0
Summer 2019	0	0	0	0
Winter 2019-20	29	26	3	0
Summer 2020	38	38	0	0
Winter 2020-21	62	49	13	0
Sub-Total	162	139	23	0
Overall				
Winter 2017-18	105	84	19	2
Summer 2018	31	28	3	0
Winter 2018-19	168	104	64	0
Summer 2019	0	0	0	0
Winter 2019-20	110	88	22	0
Summer 2020	116	105	11	0
Winter 2020-21	174	122	52	0
Total	704	531	171	2

Source: JICA Project team

The following figures shows the result of quick test per target groups for 4 years. Japan Vietnam company (76 samples) and Yen Phu cooperative (69 samples) checked most large number of samples as these groups cultivated many kinds of vegetables.

Regarding the percentage of samples detected chemical residue (both below and above MRL), Cat Lai cooperative was the highest (52%, 13/25), followed by Yen Phu cooperative (44%, 29/69) and Ha Vi cooperative (40%, 12/30). 3 lowest percentages were in Huong Non cooperative (6%, 1/17), Green farm company (7%, 2/27) and Duc Chinh cooperative (8%, 3/39).



Source: JICA Project team

Figure 2.17.13 Pesticide residue check by quick test per target group from 2017 to 2021

(2) Laboratory test for pesticide residue

1) Result of laboratory test

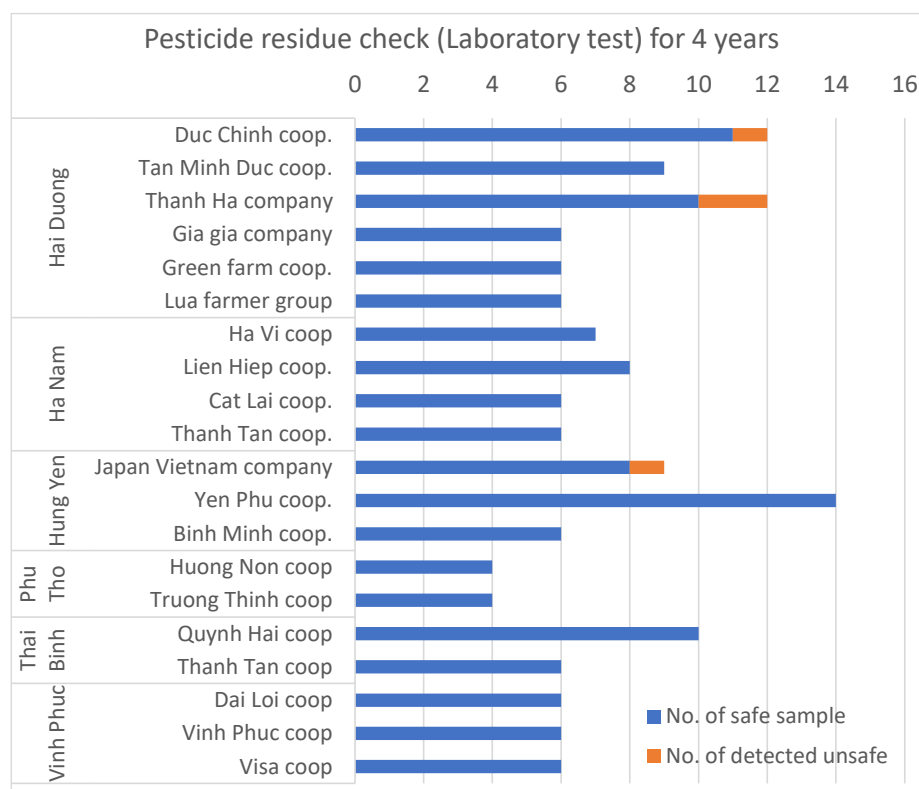
The sampling for laboratory test were conducted by PPMU technical staff with support of JICA project team every winter seasons. PPMU technical staff took 2-3 samples per target group and sent them to a qualified laboratory for checking food safety indicators including residues of heavy metal, pesticides, microbiological contamination.

40 samples in winter 2019-20 and 46 samples in winter 2020-21 were taken from 20 target groups and analyzed at the National Agri-Forestry-Fisheries Quality Assurance Department - region1 (NAFIQAD1). In winter 2019-20, all 40 samples were safe according to MRL of heavy metal and pesticide residues and microbiological contamination. In winter 2020-21, 44 out of 46 samples were safe, but 2 samples were detected as unsafe.

Table 2.17.40 Pesticide residue check (Laboratory test) for 4 years

Pilot province	No. of sample	No. of safe sample	No. of detected unsafe
Winter 2017-18	25	23	2
Winter 2018-19	28	28	0
Winter 2019-20	25	25	0
Winter 2020-21	29	27	2
Sub-Total	107	103	4
Semi Pilot province			
Winter 2017-18	-	-	-
Winter 2018-19	10	10	0
Winter 2019-20	15	15	0
Winter 2020-21	17	17	0
Sub-Total	42	42	0
Overall			
Winter 2017-18	25	23	2
Winter 2018-19	38	38	0
Winter 2019-20	40	40	0
Winter 2020-21	46	44	2
Total	149	145	4

Source: JICA Project team



Source: JICA Project team

Figure 2.17.14 Pesticide residue check by laboratory test per target group from 2017 to 2021

2) Investigation of contaminated samples

2 samples were detected from Thanh Ha company that residue of a pesticide (α,β Cypermethrin) was above Maximum Residue Level (MRL) stipulated in Circular 50/2016/BYT. (1.965 mg/kg from spinach and 1.925 mg/kg from Chinese kale; MRL is 1mg/kg).

Table 2.17.41 Review of Laboratory test result on the samples detected over MRL

Target Group	Vegetable Sample	Substances	Unit	Results	Maximum Residue Level (MRL)
Thanh Ha Company	Spinach	Lead (Pb)	mg/kg	0.052mg/kg	0.3 mg/kg (*)
		Cadomin (Cd)	mg/kg	0.038mg/kg	0.05 mg/kg (*)
		E.coli,	cfu/g	<10	1.10 ² - 1.10 ³ (*)
		Salmonella	Impositive	Negative	Absence in 25g (*)
		Chlorpyrifos	mg/kg	0.490 mg/kg	1mg/kg (**)
		α,β Cypermethrin	mg/kg	1.965 mg/kg	1 mg/kg (***)
	Chinese kale	Lead (Pb)	mg/kg	0.047 mg/kg	0.3 mg/kg (*)
		Cadomin (Cd)	mg/kg	0.031 mg/kg	0.1 mg/kg (*)
		E.coli,	cfu/g	<10	1.10 ² - 1.10 ³ (*)
		Salmonella	Impositive	Negative	Absence in 25g (*)
		Chlorpyrifos	mg/kg	0.247 mg/kg	1mg/kg (**)
		α,β Cypermethrin	mg/kg	1.925 mg/kg	1 mg/kg (***)

Remarks: (*) Compared to MRL in Circular 50/2016/TT-BYT dated 30/12/2016; QCVN 8-2:2011/BYT National technical regulation on the limits of heavy metals contamination in food dated 13/1/2011; QCVN 8-3: 2012/BYT National technical regulation of Microbiological contaminants in food; Decision 46/2007/QĐ-BYT dated 19/12/2007.

(**) MRL of Chlorpyrifos in mustard is 1.0 mg/kg, and cabbage is 1.0 mg/kg according to Circular 50/2016/TT-BYT dated 30/12/2016.

(***) MRL of α, β Cypermethrin in Cabbage, Broccoli and Kohlrabi is 1 mg/kg in according to Circular 50/2016/TT-BYT dated 30/12/2016.

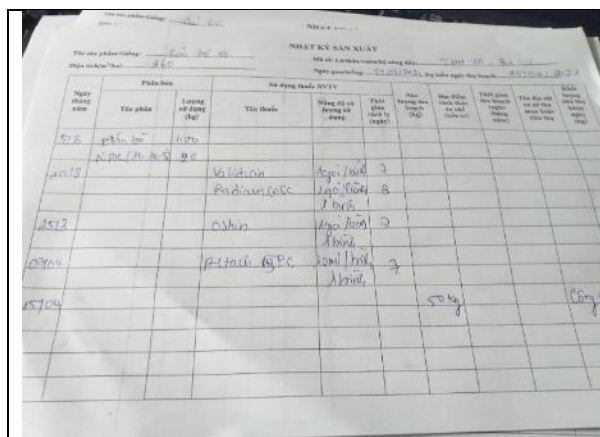
Consultant team together with PPMU staff conducted the investigation of Thanh Ha company to identify the cause of contamination on 22 April 2021. Sample vegetable, date of sampling and location are as shown below. Both vegetables were grown by a same farmer, who was one of linkage farmers registered in the production plan.

Table 2.17.42 Detail of sampling and testing

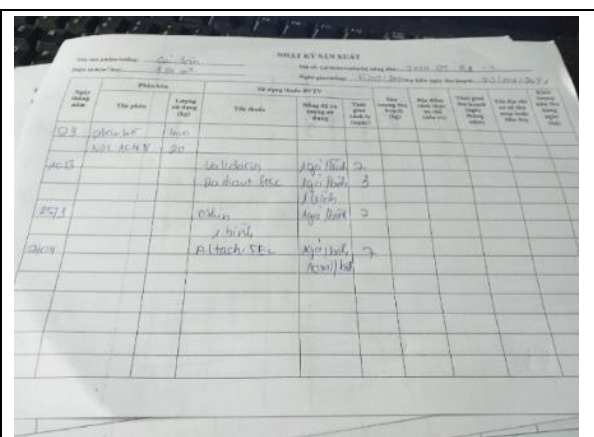
Sample	No. of sample	Date of sampling	Location of sampling	Arrival date of samples to laboratory	Name of laboratory
Spinach	1	12/04/2021	A plot of a farmer (THH-05)	12/04/2021	NAFIQAD 1
Chinese kale	1	12/04/2021	A plot of a farmer (THH-05)	12/04/2021	NAFIQAD 1

Consultant team with PPMU staff checked the farmer’s field dairy and identified the farmer applied “Altach 5EC” on 7 April, which contains Alpha-cypermethrin. Despite the recommend quarantine period before harvesting was 7 days for this pesticide, the samples were taken by a PPMU staff on 12 April, only 5 days after the application. Consultant team and PPMU staff also visited the farm where the samples were taken and confirmed the vegetables were grown as stated in the field record, but no other possible cause was found in field.

Therefore, it was concluded that the most likely cause was that the sampling was taken 2 days earlier than the recommended Pre-Harvest Interval (PHI) period without confirmation on the field record.



Field record of Chinese Kale. Altach 5EC was applied on 7 April 2021. (Hai Duong, 22 April 2021)



Field record of Spinach. Altach 5EC was applied on 7 April 2021. (Hai Duong, 22 April 2021)



Field condition of Chinese kale (Hai Duong, 22 April 2021)	Field condition of spinach (Hai Duong, 22 April 2021)
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Consultant team made recommendations on PPMU and target groups as below:

- PPMU staff should check the PHI of target samples on the field dairy.
- PPMU staff should instruct farmers to minimize the use of pesticides which have α , β cypermethrin substances for vegetables, as this pesticide was a legal pesticide but recommended applying for rice according to the list of legal pesticides on the Circular 10/2020/TT-BNNPTNT.
- Thanh Ha company should guide workers and linkage farmers apply pesticides following the correct principles: avoid over dosage and over concentration and confirm the PHI before harvesting.

2.18 Monitoring and Evaluation of Trial Activities

2.18.1 Supporting monitoring activities of PPMUs

As explained in 2.7, PPMUs were asked to monitor and provide support to target groups based on the framework explained in Table 2.7.1. As each target group developed production procedures according to the check list on Basic GAP consisting of formulation of safe vegetable production group, record keeping of field diary, and execution of internal audit, PPMUs were also supposed to develop the capacity by JICA Project team in terms of:

- Confirmation of safety of production area by soil and water sampling analysis,
- Provision of technical guidance to target groups through field visit,
- Witness of internal audit of target groups, and
- Inspection of products by pesticide residue check

The progress of these activities was monitored every 6 months by Monitoring Sheet and evaluated as Terminal evaluation report.

PPMUs also monitored the trial activities and prepared the monitoring report every 3 months with support of JICA Project team. Technical staff of PPMU prepares a field report of the field activities of target groups and submit to PPMU, all the data and records of trial activities were compiled as a monitoring report by PPMU. As the project progresses, the commitment as well as capacity of PPMU officers to support production activities of target groups were strengthened.

Table 2.18.1 PPMU Monitoring report of Production Activities

Report	Timing	Ha Nam	Hai Duong	Hung Yen	Phu Tho	Vinh Phuc	Thai Binh
1st Monitoring report	Jul-Sep, 2017	Submitted	Submitted	Submitted	-	-	-
2nd Monitoring report	Oct-Dec, 2017	Submitted	Submitted	Submitted	-	-	-
3rd Monitoring report	Jan-Mar, 2018	Submitted	Submitted	Submitted	-	-	-
4th Monitoring report	Apr-Jun, 2018	Submitted	Submitted	Submitted	-	-	-
5th Monitoring report	Jul-Sep, 2018	Submitted	Submitted	Submitted	-	-	-

6th Monitoring report	Oct-Dec, 2018	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
7th Monitoring report	Jan-Mar, 2019	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
8th Monitoring report	Apr-Jun, 2019	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
9th Monitoring report	Jul-Sep, 2019	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
10th Monitoring report	Oct-Dec, 2019	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
11th Monitoring report	Jan-Mar, 2020	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
12th Monitoring report	Apr-Jun, 2020	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
13th Monitoring report	Jul-Sep, 2020	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
14th Monitoring report	Oct-Dec, 2020	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
15th Monitoring report	Jan-Mar, 2021	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted

Source: JICA Project team

2.18.2 Development of the Manual for Production Management System for GAP Promotion

First version of the manual for production management system for GAP promotion was developed based on the pilot project implementation plan developed in phase 1. The manual incorporated all the good practices and lessons learnt from trial activities. Since the draft manual was supposed to be used for developing the Action Plan to replicate the trial activities even after the end of the Project by PPMUs, the manual was developed in three phases according to the schedule of the Action Plan development explained below.

Table 2.18.2 Evolution of production management system manual

Draft	Date	Concept	Usage
First draft	July 2019	It was written based on the pilot project implementation plan developed in Phase 1. The draft targeted PPMU staff in Pilot as well as Semi-pilot provinces for them to utilize it to develop the Action Plans to replicate the trial activities.	The draft was shared with PPMUs in Pilot provinces to prepare the Action Plan to replicate the trial activities for 2020.
Second draft	August 2020	It was revised to target DARD officers in any provinces which promote safe crop production and marketing. In order for any officers who had no experiences in the Project to understand the contents easily, the contents were simplified and explanation about concept and terminology was added.	The draft was shared with PPMUs in Pilot and Semi-pilot provinces to prepare the Action Plan to replicate the trial activities for 2021.
Final draft	January 2021	All comments from CPMU and PPMUs were reflected in the draft.	The manual will be used by any DARD interested in safe crop production and marketing

Source: JICA Project Team

Finalized table of contents for the manual is shown below and the manual is shown in Attachment 13.

Table 2.18.3 Table of contents for production management system manual

Chapter	Topic	Contents
Chapter 1	Introduction	
1.1	Why Basic GAP?	<ul style="list-style-type: none"> - Introduction of Basic GAP - Introduction of project concept
1.2	Produce what the market wants	
1.3	Joint Sales	
1.4	Structure of safe vegetable promotion plan	
1.5	Stage-wise Approach	
Chapter 2	Selection of Target Group	
2.1	Nomination of candidate target groups	<ul style="list-style-type: none"> - Listing up of candidate target groups with basic information
2.2	Implementation of field survey to the candidate target groups	<ul style="list-style-type: none"> - Assessment item of candidate target groups - Check point of willingness and eagerness
2.3	Confirmation of target groups	<ul style="list-style-type: none"> - Selection criteria for target group - Evaluation sheet of candidate target groups
2.4	Support for being selected as target group	<ul style="list-style-type: none"> - Countermeasures to meet selection criteria
Chapter 3	Confirmation of Safety of Production Area	
3.1	Review of the safety of production area	<ul style="list-style-type: none"> - Assessment of safety of production area by checking certificates and field visit
3.2	Soil and water sampling and testing	<ul style="list-style-type: none"> - MRL of selected heavy metals in soil - MRL of selected heavy metals and microbiological in irrigation water
3.3	Issue of certificate of safe production area	<ul style="list-style-type: none"> - Sample certificate
Chapter 4	Trainings for Basic GAP	
4.1	Training concept	<ul style="list-style-type: none"> - Training flow from TOT to TOF
4.2	TOT for Basic GAP	<ul style="list-style-type: none"> - Outline and proposed agenda of TOT for Basic GAP
4.3	TOF for Basic GAP	<ul style="list-style-type: none"> - Outline and proposed agenda of TOF for Basic GAP
4.4	Post Harvest Training	<ul style="list-style-type: none"> - Outline and proposed agenda of Post harvest training
4.5	Technical assessment for safety conditions on production, harvest and post harvest procedures	<ul style="list-style-type: none"> - Outline and check points on technical assessment
4.6	TOT Follow-up training	<ul style="list-style-type: none"> - Outline of TOT follow-up training
4.7	Study tour to advanced model	<ul style="list-style-type: none"> - Sample outline of study tour
4.8	Exposure visit to target groups	<ul style="list-style-type: none"> - Sample outline of exposure visit
Chapter 5	Formulation of Safe Crop Production Group	
5.1	Nomination of management board members	<ul style="list-style-type: none"> - Management structure - Roles and responsibilities of each management member
5.2	Confirmation of agreement among group members	<ul style="list-style-type: none"> - Recommended internal rules
5.3	Formulation of safe crop production group	<ul style="list-style-type: none"> - How to formulate the production group
Chapter 6	Production Planning based on Market Demand	
6.1	Preparation of production plan	<ul style="list-style-type: none"> - Format of production plan - Production planning when a group does not have any buyer - Production planning when a group has buyer
6.2	Procurement of materials (Joint purchase)	<ul style="list-style-type: none"> - Recommended approach to support joint purchase
Chapter 7	On-Field Instructions Applying Basic GAP, Other GAP and TCVN 11892-1:2017	
7.1	Field instruction for farmers applying basic GAP	<ul style="list-style-type: none"> - Ensure the safety of products - Clarify profitability - Ensure sustainability
7.2	Internal meeting	<ul style="list-style-type: none"> - Objective of internal meeting
7.3	Internal audit	<ul style="list-style-type: none"> - How to assist internal audit

Chapter	Topic	Contents
Chapter 8	Upgrading Conditions to Ensure Food Safety	Hygiene and Safety
8.1	Technical assessment for upgrading conditions	<ul style="list-style-type: none"> - Mobilize evaluators - Prepare the assessment sheet - Organize a field visit for technical assessment - Reporting of technical assessment
8.2	Draft a list of necessary equipment and materials	<ul style="list-style-type: none"> - Sample list of tools, facilities for safe vegetable production
8.3	Upgrading of facilities and equipment	<ul style="list-style-type: none"> - Supervise and evaluate the installation and usage of equipment and facility
Chapter 9	Joint Sales Management	
9.1	Establishment of joint sales system	<ul style="list-style-type: none"> - Coordination with buyer for delivery and payment - Coordination with member farmers for collection of products and payment
9.2	Field Instruction for Joint Sales	<ul style="list-style-type: none"> - Instruct and monitor the joint sales
Chapter 10	External Inspection and Auditing	
10.1	Guidance of sampling testing plan and external auditing	<ul style="list-style-type: none"> - Design a sampling and testing plan
10.2	Pesticide residue check (Quick Sampling Test)	<ul style="list-style-type: none"> - Objective and procedure of quick sampling test
10.3	Pesticide residue check (Laboratory Test)	<ul style="list-style-type: none"> - Objective and procedure of laboratory test
10.4	External Audit by DARD	<ul style="list-style-type: none"> - How to implement external audit
Chapter 11	Implementation structure	
11.1	Implementation Structure	<ul style="list-style-type: none"> - Sample implementation structure
11.2	Roles and Responsibilities of Farmers' Group	<ul style="list-style-type: none"> - Roles and Responsibilities of Farmers' Group
11.3	Roles and Responsibilities of Stakeholders	<ul style="list-style-type: none"> - Roles and Responsibilities of Stakeholders
Chapter 12	Implementation schedule	
Chapter 13	Budget	

Source: JICA Project Team

The manual is expected to be used by DARD officials involved in promoting safe vegetable promotion.

2.19 Support for Preparation of the Action Plan to replicate the trial activities

As explained in the previous section, the manual for production management system for GAP promotion was shared with PPMUs in Pilot provinces in 2019 for preparing the Action Plan to replicate the trial activities for 2020 and with PPMUs in Semi-pilot provinces in 2020 for preparing the Action Plan for 2021. The JICA project team provided advice on the prepared the Action Plans as well as its implementation.

In formulating and implementing the Action Plan, the pilot provinces were required to select the activities that were feasible and necessary for the selected groups within the existing government program and its budget and to secure the necessary input (budget and human resources) to put the plan into practice while referring to the said two Manuals. The pilot provinces formulated the Action Plan in August 2020 based on drafted "Production Management System Development Manual" and "Supply Chain Development Manual". Based on the Action Plans, PPMUs in Ha Nam and Hai Duong already selected farmers' groups independently and started their own support to them. Hung Yen Province planned to select its own farmers' groups in 2021 and start supporting it.

In November 2020, discussions were held with the semi-pilot provinces to formulate Action Plans for 2021. Phu Tho province and Vinh Phuc province formulated the Action Plan in December 2020 based on the second draft of two Manuals. Based on the Action Plans, PPMUs in Phu Tho and Vinh Phuc already selected farmers' groups independently and started their own support to them. Thai Binh province planned to select its own farmers' groups in 2021 and start supporting it.

2.20 Support for Implementation of Trial Activities and Preparation of the Action Plan in Knowledge Sharing Provinces

Based on the experiences and lessons of trial activities in pilot and semi-pilot provinces, CPMU together with JICA Long-term Expert team supported for implementation of trial activities in two knowledge sharing provinces namely Hai Phong and Bac Ninh province.

The experiences and lessons of trial activities in two knowledge sharing provinces were reflected into the two manuals of production management system and supply chain development.

The manual will be shared with remaining 4 knowledge sharing provinces through Project Dissemination Seminar to be held to promote safe crop production and marketing in the respective provinces.

< *Activities for Output 2* >**2.21 Implementation of Trial Activities**

The JICA Project team introduced the marketing action plan which incorporates the annual activity cycle shown below in phase 1. During phase 2, the JICA Project team facilitated target groups (TGs) to carry out the trial activities based on the marketing action plan with the assistance from PPMU.

Month	Hanoi	Province	
By	HPA	Target producer group	PPMU
May		Develop marketing action plan at TOF	TOF marketing
June			
July			
August	Matching event in Hanoi		
September			
October			
November	Matching events/ trade fair in Hanoi	Matching	Trade fair in provinces
December			
January		Monitoring of collection & delivery	
February			
March		Review meeting	Review meeting
April			

Source: JICA Project Team

Figure 2.21.1 Annual activity cycle of marketing activities⁸

The Project team assisted trial activities in three areas, namely marketing training, identifying buyers, and ensuring safety in collection and delivery. The following sections explain each activity in detail.

2.21.1 Marketing training

(1) TOF marketing

TOF marketing to review the activities in a previous year and plan the activities in a coming year was organized once between May and June every year based on the activity cycle. PPMUs organized the training with the assistance of the Project team. Summary of TOF in Phase 2 is shown below:

Table 2.21.1 Summary of TOF in Phase 2

Period	2019/20	2020/21
Target	20 TGs in Pilot as well as Semi-pilot provinces	In addition to 20 TGs in Pilot as well as Semi-pilot provinces, 2TGs in Ha Nam and

⁸ This figure is a revision of Figure 2.8.2. Some activities are adjusted based on the result of Phase 1.

Period	2019/20	2020/21
		1 TG in Hai Duong selected for their own trial activity participated
Timing	May and June 2019	May and June 2020
Program	<ul style="list-style-type: none"> ● Overview of marketing activities ● Review of previous winter crop season ● Presentation of draft marketing action plan by TGs 	<ul style="list-style-type: none"> ● Summary of joint sales for winter crop ● Advertisement strategy ● Review of previous season ● Marketing action plan for new season

Source: JICA Project Team

PPMUs were encouraged to adjust the contents of TOF according to the specific conditions of each province. PPMUs in Hung Yen and Vinh Phuc invited buyers to seek their feedback, while PPMUs in Ha Nam and Thai Binh invited representatives of communes the TGs belong to. TOFs in Hung Yen and Binh were organized for each TG so that more stakeholders especially producers could join the training. The Project team presented the ‘overview of marketing activities’ at TOFs in 2019, which is also included in ‘Supply Chain Development Manual’ in later stage, since the concept of marketing was new for most of producers, and it is considered important for each producer to understand it in order to improve entire production and marketing processes.

For TOFs in 2020, PPMU officers were asked to prepare and present ‘summary of joint sales for winter crop in the province’ as a part of their capacity development. In addition, the Project team conducted a session on ‘Advertisement strategy’ as explained in (2) of 2.21.2.

Overall TOFs provided valuable opportunities for PPMUs and TGs respectively to share information and experiences and discuss common issues of marketing. Some of the common observation arisen from TOF include:

- The awareness on the importance of safety and quality increased both for PPMU officers and TGs. They also realized the importance of good skills for preprocessing such as sorting and packaging in order to improve quality.
- Both PPMUs and TGs are more aware about the importance of appropriate target marketing based on the strengths and weaknesses of TG. As the scale and nature of TGs varies, the target customers of TGs were diversified from small local buyers to big supermarkets in the city. Differentiated support was required based on the different needs of TGs.
- More PPMU officers and TGs understood the necessity of proactive approach to potential buyers. They understood that no buyers would come to buy their product by just waiting.
- More TGs⁹ were interested in export. A part of reasons is that several TGs exported their products to Japan and Korea through Vineco in 2019. They were interested in export as a part of diversification of marketing channels which can sell in big volume and are profitable.

⁹ Tan Minh Duc coop (Hai Duong), Duc Chinh coop (Hai Duong), Yen Phu coop (Hung Yen) and Japan Vietnam company (Hung Yen)

	
<p>Support TOF in Quynh Hai cooperative, Thai Binh (Thai Binh, 21 May 2019)</p>	<p>Support TOF marketing at Yen Phu cooperative and Japan Viet Nam company (Hung Yen, 29 May 2019)</p>
	
<p>TOF Marketing in Ha Nam (Ha Nam, 10 June 2020)</p>	<p>TOF marketing in Vinh Phuc (Vinh Phuc, 29 May 2020)</p>

Source: JICA Project Team

(2) Follow-up TOT on Basic GAP in October 2020

Although there was no TOT on marketing in Phase 2, the marketing session was included in Follow-up TOT on Basic GAP organized in respective provinces in October 2020. The Project team presented the following two topics in the marketing session and exchanged opinions with participants:

- How to avoid mixing with vegetables procured from outside?
- How to avoid non-payment of buyers?

For the first topic, the Project team explained the guidelines formulated by the Project to ensure safety of vegetables procured from outside as explained in (3) in 2.21.3. It is more common for producer groups sourcing some vegetables from outside in order to satisfy requirement of buyers and buyers also think it necessary. Guidelines provide rules and conditions for selecting appropriate producer groups for sourcing, record keeping, packaging, labeling, and storing to ensure safety.

For the second topic, the Project team noticed that several TGs suffered from non-payment of buyers especially after March 2020 when the lockdown was enforced in Northern Vietnam due to COVID-19 pandemic. As explained in (2) in 2.21.3, overview of non-payment issues and measures to prevent it

were presented at TOT.

(3) Study tour

In addition to study tours organized at project level such as Moc Chau tour, the Project team organized several study tours for specific TGs to improve their understanding of marketing activities as well as establish network with other stakeholders. It is especially effective for those TGs with limited joint sales experiences to improve their understanding of marketing by observing advanced joint sales activities.

Table 2.21.2 Summary of study tours

Date	Participants	Destination	Objective
19 February 2020	PPMU, Ha Vy coop., Cat Lai coop., buyers	Bao An coop., Hung Cong coop.	To learn advanced cooperative management To obtain feedback as buyers
28 April 2020	Binh Minh coop.	Yen Phu coop.	To learn advanced cooperative management To obtain feedback as buyers
22 April 2021	Vinh Phuc coop.	Big Green, Bac Tom	To learn operation of safe food stores To see the possibility of supplying vegetables

Source: JICA Project Team

The first tour was organized by Ha Nam PPMU for TGs and their buyers in the province. The participants visited the advanced cooperatives for joint sales to learn their operation. Since one of the cooperatives also purchase products from TGs to supply supermarket, TGs could learn specific issues to improve based on the feedback as well as observation of real operation.

The second tour was organized by the Project team for TG whose management changed and whose new director had little experience of marketing to learn preprocessing skills required by supermarket from advanced TG in the same province. The tour also served as an opportunity to discuss a possibility for advanced TGs to procure vegetables of the concerned TG until it establishes the system of preprocessing. The third tour was organized by the Project team for TG who was interested in opening its own shop to learn from successful retailers of safe foods. TGs could learn key points of successful operation. They also discussed a possibility for TG to supply its vegetables to the stores.

Study tours served not only as a training opportunity for TGs but also as an opportunity for networking with stakeholders. Thus they were beneficial for both sides.

2.21.2 Identifying buyers

(1) Supporting promotion

The Project team supported TGs for their promotion by assisting in making marketing tools and providing training on advertisements as explained below.

1) Support marketing tools for TGs

Continuing from Phase 1, the Project team supported development of marketing tools for respective

TGs. Marketing tools developed include logo, leaflet, signboard, business card, and packaging.

2) Lecture on advertisement at TOF

Based on the experiences of COVID-19 pandemic in March and April 2020 where many TGs suddenly lost orders, it is considered important for TGs to develop capacity to promote themselves through various tools. If TGs can identify and connect with potential buyers by themselves, TGs can mitigate risk of sudden loss of orders more effectively. In addition to registering HPA website explained in 2.13.4, Social Networking Services (SNS) such as Zalo¹⁰ and Facebook can be an effective tool for this purpose. Although many TGs had used these tools, they were not aware on their effectiveness for promotion.

With this background, the Project team conducted a session on advertisement strategy at TOF marketing in 2020. The Project team presented concept, role and method of advertisement including usage of SNS with some examples. The session emphasized the importance of accurate and timely information sharing. The Project team offered separate sessions for interested TGs.

3) Development of promotional videos for TGs

The Project team supported three TGs, namely Lien Hiep coop. and Ha Vy coop. in Ha Nam and Japan Vietnam company in Hung Yen to develop their promotional video. The video is supposed to be shown at exhibition or trade fairs and be linked to Zalo or Facebook to introduce TGs and their products to potential customers efficiently and effectively. A five minute video includes landscape of production area, interview of Director and member of TG, PPMU staff, and buyers.

Table 2.21.3 Promotion videos of TGs

Province	TG	URL
Ha Nam	Lien Hiep coop..	https://www.youtube.com/watch?v=EvD0dxlY2dg
	Ha Vy coop,	https://www.youtube.com/watch?v=5b-XhRfY1A8
Hung Yen	Japan Vietnam company	https://www.youtube.com/watch?v=yyD2XBWFI-I&t=1s

Source: JICA Project Team

The Project team also supported TGs to develop slide shows and presentation for introducing themselves.

(2) Identifying buyers

From May 2019 when Phase 2 started to the end April 2021, 156 matchings were organized between TGs and their potential buyers. Distribution of matchings among Pilot and Semi-pilot provinces with results are shown in the table below.

Table 2.21.4 Summary of matching in Phase 2

Province	No of TGs	A	B	C	D	Total

¹⁰ One of the most popular SNSs in Vietnam

Ha Nam	4	18	8	0	0	26
Hai Duong	6	13	19	10	0	42
Hung Yen	3	25	11	1	0	37
Thai Binh	2	16	5	7	0	28
Vinh Phuc	3	8	1	2	4	15
Phu Tho	2	4	2	2	0	8
Total	20	84	46	22	4	156

<Result>

A: Successfully concluded. Trading will start soon.

B: Successful. Negotiation will continue.

C: No conclusion.

D: Matching was not successful. No more meeting will happen.

The highest number for respective provinces is highlighted in pink.

Source: JICA Project Team

It is observed that more matchings were conducted in Pilot provinces (Ha Nam, Hai Duong, and Hung Yen) than Semi-pilot provinces (Thai Binh, Vinh Phuc and Phu Tho). It can be partly explained by the number of TGs which is 13 in Pilot provinces compared with 7 in Semi-pilot provinces. However, the more appropriate reason is that PPMUs/TGs in Pilot provinces with the experiences in Phase 1 were more eager for conducting matching than those in Semi-pilot provinces.

In addition, matchings in Phase 2 became more targeted and focused than those in Phase 1. As shown in table below, the rate of successes (result A or B) improved from 69.1% in Phase 1 to 83.3% in Phase 2. It is because the matchings in Phase 1 included a lot of tries and errors in Phase 1 since the number of safe vegetable buyers were very limited and not only producers but also buyers did not have a clear idea of appropriate matching between safe vegetable producers and buyers. Based on experiences in Phase 1, PPMUs and TGs understood market conditions as well as buyers better. This contributed to improving effectiveness of matching.

Table 2.21.5 Distribution of results of matching

	A	B	C	D
Phase1	31.4%	37.7%	12.3%	18.6%
Phase2	53.8%	29.5%	14.1%	2.6%

<Result>

A: Successfully concluded. Trading will start soon.

B: Successful. Negotiation will continue.

C: No conclusion.

D: Matching was not successful. No more meeting will happen.

The highest number for respective provinces is highlighted in pink.

Source: JICA Project Team

The following sections explains major initiatives taken by the Project team to improve capacity of TGs to identify buyers.

1) Matching event and trade fair

(a) Safe crop business forum

Aiming to provide an opportunity for safe vegetable producers and their buyers to meet, the Project team organized the matching events called ‘Safe vegetable business forum’ in Hanoi four times in Phase 1 in collaboration with Hanoi Promotion Agency (HPA) as explained in 2.9. Although the forum served as valuable occasions for TGs to meet and discuss with potential buyers, it was not easy to attract buyers for the events focusing only on vegetables. Therefore, the following two changes were proposed and agreed with HPA for business forum in Phase 2:

Organize business forum only once at the beginning of winter crop season (August-September) and facilitate TGs to participate in existing HPA matching events or trade fairs in the middle of winter crop season (October-November).

Invite not only vegetable producers but also producers of other safe crops to business forum

Two business forums were organized in Phase 2 as shown below. Although sixth forum was originally planned to be held in September 2020, it was postponed twice to November due to COVID-19 pandemic.

Table 2.21.6 Outlines of business forum

	Fifth forum	Sixth forum
Date	13 September 2019	6 November 2020
Venue	Pullman Hotel	AEON mall
Concept	Expand products to cover other safe foods 14 big buyers such as Big C & Vineco set up own booths for matching with suppliers <Program> ➤ Seminar/Panel discussion ➤ Matching and Display	Encourage producers to visit 9 buyers’ table freely <Program> ➤ Seminar ➤ Matching and Display
Outcome	➤ Around 300 participants consisting of government, producers, buyers, agriculture material companies and consumers. ➤ 139 matching sessions were conducted with 14 buyers, of which 27 matchings were successful and 106 will continue negotiation.	➤ 131 participants consisting of producers, buyers, and agriculture material companies ➤ About 70 matching sessions were conducted with 9 buyers, 91% (21/23) answered successful and continue negotiation.

Source: JICA Project Team

Another important change in the business forum was the change of matching mechanism. In the forums in Phase 1, producers set booths to match with buyers. Since the number of buyers especially big buyers who join the forum was limited, not all producers could meet the buyer they want to trade with. Besides buyers were not always eager to talk to producers and they came and left the forum very quickly. It reduced the number of matching and level of satisfaction of producers. With this background, the buyers who have stable demand for safe crops were asked to set the booth for matching, while producers could visit buyer’s booths freely. There were display areas where producers and agriculture input companies display their products for promotion. This drastically

increased the number as well as efficiency of matching.



The 5th Safe Business forum (Ha Noi, 13 September 2019)



The 5th Safe Business forum (Ha Noi, 13 September 2019)



The 6th Safe Business forum (Ha Noi, 6 November 2020)



The 6th Safe Business forum (Ha Noi, 6 November 2020)

Source: JICA Project Team

Good practices and suggestions for effective matching events based on the experiences of six business forums are summarized below:

- The program consisting of seminars, display and matching is most acceptable for government organizers and participants. Presentation made by participants such as producers, buyers and agriculture input companies is easy to organize and will increase the effectiveness of event.
- The event could be good marketing opportunities for agriculture input company. Participation of agriculture input companies is also beneficial for producers to learn about the latest technology. The organizers can promote safe crop production by inviting the companies producing inputs which are effective to ensure safety.
- Setting booths for buyers is an effective way of matching. It is also low cost and easy to organize. Since most buyers deal with various food products, inviting producers of other safe crops in addition to vegetables can increase motivation of buyers to participate. However, the priority should be placed on vegetable producers since there is no other opportunity for matching for vegetable producers.

These suggestions are easy to implement and can be applied by provincial DARDs if they want to provide safe vegetable producers in the province with opportunities for matching with buyers. Since this kind of event is still not common for fresh vegetables, HPA as well as DARD can attract the interests of buyers by inviting various safe crop producers in addition to vegetable producers.

(b) Participation in trade fairs organized by other organizations

The Project team encouraged TGs to join the trade fairs organized by various organizations. Thanks for the cooperation from HPA, the Project team facilitated nine TGs to participate in the trade fair organized at AEON mall Long Bien between 10 and 13 October 2019.

Table 2.21.7 Outlines of trade fair at AEON mall

Date	10 to 13 October 2019 (10:00-22:00)	
Venue	AEON mall Long Bien	
Name of event	One commune, One product trade fair	
Participants	Hung Yen	Yen Phu coop., Japan Vietnam company., Chien Thang coop, Ngọc Bộ coop (Non project group)
	Ha Nam	Ha Vy coop., Lien Hiep coop.
	Hai Duong	Tan Minh Duc coop., Thanh Ha company, Green Farm coop.
	Vinh Phuc	Visa coop.

Source: JICA Project Team

Since four booths were offered free of charge by HPA, the Project team allocated four booths to four provinces most of whose TGs are capable to trade with buyers in Hanoi, namely Hung Yen, Ha Nam, Hai Duong and Vinh Phuc. The Project team asked PPMU to nominate suitable TGs. Although safe vegetables at trade fair were very popular and sold well and some TGs were very punctual and served well, there were many troubles and complaints arising from behavior of TGs. Some of the issues are as follows:

- Some TGs did not attend the fair at all
- Some TGs just sent vegetables and did not send a person to attend at the booth
- Some TGs arrived the venue late or some TGs closed the booth before the closing time
- Some visitors complained about dirtiness around the booth due to vegetable debris

The Project team immediately informed all issues with concerned TGs and PPMU and requested them to solve the issue. The Project team also had a follow-up meeting with HPA after the event to obtain feedbacks from HPA and share them with PPMUs and TGs.

The experience of joining this trade fair gave a lot of insights into appropriate events for promoting TGs. The Project team facilitated the participation of TGs in the concerned trade fair on the belief

that it complements safe vegetable business forum organized by the Project in terms of identifying potential buyers. However, it was found that the concerned trade fair focused more on promotion of safe vegetables to consumers and there was little chance for matching with buyers. As the main focus of trade fair was promotion and sales to the consumers, specialized persons for promotion and sales were required. It was difficult for producers to accommodate such requirement. Besides this kind of trade fair mainly deals with processed foods, not fresh foods like vegetables. It was extremely hard for TGs to harvest vegetables every morning, bring them to the venue and attend the event for 12 hours for four consecutive days. It was especially so that the participants had to comply with many regulations at AEON mall. Trade fairs TGs normally attend are held in open space where the participants do not need to care about vegetable debris, and they come and leave freely. The conditions for participation were not suitable for fresh products like vegetables. On the other hand, participating in the event at AEON mall should be effective to increase recognition of TGs among consumers in Hanoi. Therefore, it is more suitable for TGs who have intention to direct sales to consumers in Hanoi to join the event.

In addition to the event at AEON mall, the Project team facilitated 2 TGs¹¹ to participate in another HPA matching event in Hanoi held on 20 November 2020. The event targeted all provinces and various specialties not only vegetables but also processed foods. TGs met potential buyers at the event.

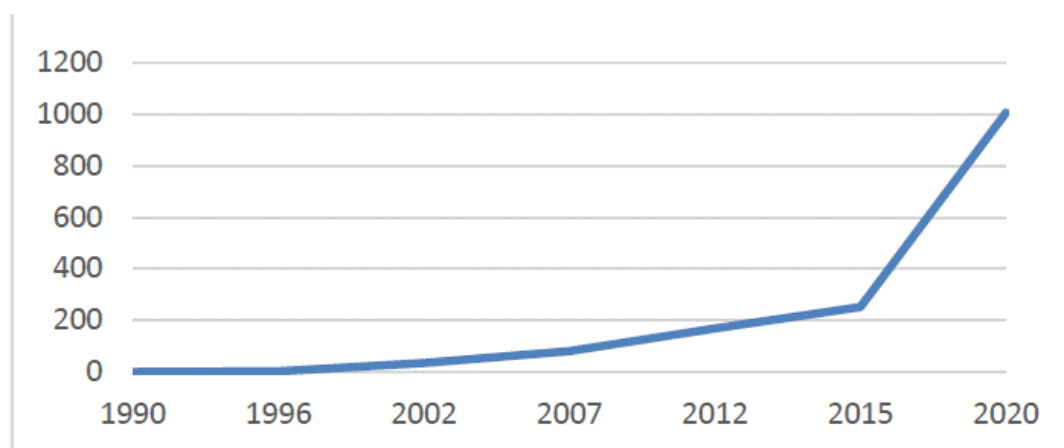
Through assisting TGs in joining the various trade fairs such as the one at AEON mall, the Project team learned very valuable lessons. It is very important to understand the objective and conditions of the event before deciding to join the event. Most of trade fairs target consumers and are not effective in terms of finding buyers. In any case, once decided to join, TGs should prepare themselves to achieve objectives such as preparing effective display or allocating a person who can answer customer's queries.

2) Collaboration with big buyers

The project period corresponds to the rapid expansion of safe vegetable market in Northern Vietnam. As the figure below shows, the number of selling points for safe vegetables increased especially after 2015¹².

¹¹ Tan Minh Duc coop. (Hai Duong) and Gia Gia company (Hai Duong)

¹² The author collected information by visiting the selling points before 2008, used statistics by Department of Trade verified by physical visits between 2009 and 2015, and searched on Internet after 2015.



Source: Nguyễn Thị Tân Lộc et al (2020)¹³

Figure 2.21.2 Number of safe vegetable selling points in Hanoi

The number of selling points for major supermarkets also increased as shown below.

Table 2.21.8 Number of selling points in Northern Vietnam for major supermarket

Name of buyer	As of October 2016	As of January 2021
AEON	1	3
Big C	15	17
Coop Mart	6	13
Coop Food	0	58

Source: Hearing from respective supermarkets

The Project benefitted from the rapid expansion of safe vegetable market. These buyers were eager to find reliable and stable suppliers of safe vegetables. As the number of safe vegetable producers who can supply required volume in a stable manner was limited, TGs supported by the Project were good candidates as their supplier. Since the Project team had contact with these buyers through regular matching activities as well as safe crop business forums, the Project team collaborated with them to identify TGs suitable for their supplier and provide necessary assistance to develop their capacity as explained in the table below.

Table 2.21.9 Summary of collaboration with major buyers

Buyer	Contents of assistance
Vineco (Vin Commerce)	<ul style="list-style-type: none"> The Project team had regular communication with the person in charge of vegetable procurement. The Project gave advice on its procurement policy and coordinated with TGs which match with its policy. When its policy changed after its ownership changed from Vin Group to Masan Group in December 2019, the Project team assisted Vineco to explain

¹³ Nguyễn Thị Tân Lộc et al (2020) "TRADING SAFE VEGETABLES BY SHOPS AND SUPERMARKETS LOCATED IN HANOI CITY" Vietnam Journal of Agricultural Sciences – No.6 (115)/2020

Buyer	Contents of assistance
	<p>and negotiate with TGs based on the new policy in early 2020. It provided a good opportunity for TGs to review their operation.</p> <ul style="list-style-type: none"> ● However, Vin Commerce took over procurement task for Vin Mart after August 2020, all trading conditions were changed. Although it was a socially responsible and favorable buyer who bought vegetables with high price, provided technical assistance and paid bonus for good performance, it reduced purchasing price to be competitive with other low-price supermarket. Not much collaboration happened afterwards.
Coop Mart	<ul style="list-style-type: none"> ● The company whose head office is located in Ho chi Minh city and have most of selling points in South had a plan to expand its network of selling points nationwide and wanted to increase the supply of vegetables from Northern Vietnam. They approached to the Project. ● Project team introduced several TGs which suite the requirements of the company. Project team coordinated with TGs and facilitated the collaboration among TGs to supply their vegetable jointly to the company¹⁴
AEON	<ul style="list-style-type: none"> ● The company had a plan to open its first selling points in Hai Phong city in December 2020. With the procurement policy to source more vegetables directly from small producers, the company approached the Project to seek advice on the suitable cooperative TGs. The Project introduced several TGs¹⁵ which satisfy the requirements of the company, coordinated with TGs and assisted TGs for preparing necessary documents. ● The Project team also facilitated participation of TGs in the event “Guidance on regulation and standard of the agriculture products of enterprise and cooperatives who want to approach the modern retail distribution system of Aeon in Hanoi” held in November 2020.

Source: JICA Project Team

Collaboration with big supermarket could motivate TGs to ensure safety and improve quality of products.

3) Seeking possibility of online sales

(a) Survey on online sales of vegetables

After the first wave of COVID-19 hit Vietnam in early 2020, the market of online sales including E-commerce expanded drastically. The Project team conducted a quick survey on the possibility of online sales for vegetables in June 2020. The outcomes of survey are summarized below: :

¹⁴ With Project support, Tan Minh Duc coop. (Hai Duong) supplied cabbage and kohlrabi to Coop Mart through Yen Phu (Hung Yen) in 2019 and Lua farmers group (Hai Duong) supplied cabbage and kohlrabi to Coop Mart through Yen Phu coop from December 2020.

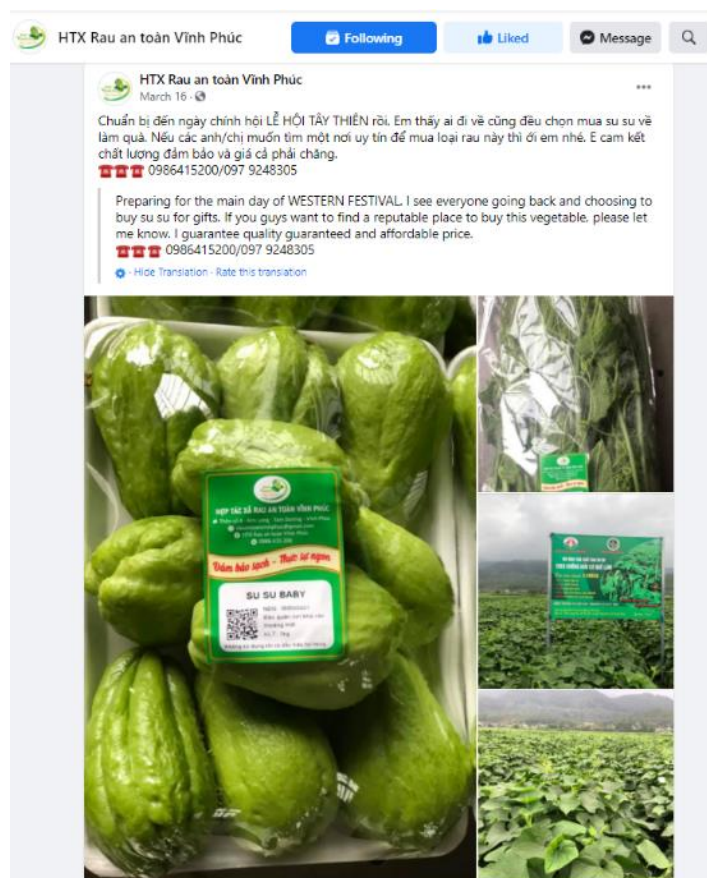
¹⁵ Quynh Hai (Thai Binh) and Yen Phu (Hung Yen). Yen Phu could supply vegetables to AEON. However Quynh Hai could not fulfill required documentation of AEON.

- Online sales in Vietnam started to grow in mid-2000 focusing mainly on clothes and electronic appliances. Online sales of fresh foods mainly specialty fruits started around 2016 in big cities such as Ho Chi Minh and Hanoi. Vietnam E-commerce Association (VECOM) started assistance for small and medium enterprises to start E-commerce in 2020 for 3 years.
- With the spread of SNS, vegetable sales through Facebook or Zalo became more common since 2016.
- However, fresh vegetables are not sold at major E-commerce site such as Lazada, Shopee, Tiki, and Sendo.
- Hanoi DARD established online sales site called specialized ‘Chonhaminh (our market)’ specialized in food materials in 2019. 214 sellers registered at the site at the beginning reduced to 65 as of June 2021 since there was not much transaction on the site.
- In order to sustain online sales through own site or E-commerce platform, the seller has to maintain the site and allocate human resource to respond customer orders and inquiries, establish stable supply system of variety products satisfying customer needs. It is not feasible for TGs with limited resources and capacity.
- Although major supermarket such as Vinmart, Big C and AEON increase online sales, online sales of fresh vegetables is still limited. Many shops deliver vegetables sold at selling points upon orders by telephone or e-mails.

Although online sales of fresh vegetable are not common, using SNS such as Zalo or Facebook for promotion and taking orders has potential to increase sales for TGs.

(b) Support for online sales of TGs

In order to promote the usage of SNS for promotion as well as sale, the Project team conducted sessions on advertisement strategy which includes the usage of SNS at TOF marketing in 2020. The JICA project team also provided consultation to those TGs who are interested in online sales. Vinh Phuc coop. of Vinh Phuc province is one of such TGs. Although the cooperative mainly supplied its products to Vineco, business with Vineco became increasingly unprofitable due to the change of its policy after its ownership changed in December 2019. The cooperative decided to diversify marketing channels including direct sales to consumers so that the cooperative could have more control on pricing. The cooperative had used SNS to promote its products and communicate with customers. It started to announce online sales of specific products targeting consumers, restaurants, and hotels in Vinh Tuong district in December 2020. The cooperative delivered orders more than 1 million VND free of charge. The sales increased during the lock down period of COVID-19 pandemic in January 2020. As of April 2021, there are around 20 customers who regularly buy vegetables from the cooperative online. Although the share of online sales is still limited, the cooperative thinks that online sales as well as posting safe vegetable information on SNS are effective to increase brand recognition of cooperative as a reliable safe vegetable producer.



Source: Vinh Phuc coop. (https://www.facebook.com/htxrauvinhphuc/?ref=page_internal)

Figure 2.21.3 Facebook of Vinh Phuc coop.

Online sales through SNS require more attentions of TGs and will take time to make it profitable since the sales volume is small and customers are scattered. By connecting directly with consumers, TGs can identify the needs and trends of consumers more efficiently. It has a potential to be a new kind of business model for safe vegetables.

2.21.3 Ensuring safety in collection and delivery

The Project team continued to support PPMUs and TGs in their collection and delivery activities in Phase 2.

As PPMU and TGs mainly carry out the trial activities, the Project team tried to extract good practices and lessons and provide practical advice on how to improve collection and delivery and increase the trust from buyers.

This section explains the major issues related to collection and delivery tackled by the Project during Phase 2.

(1) Impact of COVID-19 pandemic

1) First wave between February and April 2020

During the first wave of COVID-19 between February and April 2020, demand of vegetables for schools

and canteens drastically reduced due to their closure. On the other hand, market price of vegetables increased in Hanoi and surrounding area because the volume of vegetable supply reduced due to decrease of vegetable import from China¹⁶.

COVID-19 pandemic changed the consumer behavior in the following ways. According to retailers¹⁷, more consumers became aware about importance of health. In this context, the sales of vegetables especially carrot, tomatoes and celeries which are suitable for juice increased during pandemic. In addition, due to restriction on the operation of wet market as well as increasing awareness of consumers on food safety, more consumers prefer shopping for vegetables at supermarket.

COVID-19 pandemic had both positive and negative impact on sales of TGs. The table below summarizes the impact of COVID-19 pandemic in February and March 2020 on sales of TGs.

Table 2.21.10 Impact of COVID-19 on TG's marketing activities

Province	Target Group	Marketing channel	Impact of COVID-19
Hai Duong	Duc Chinh coop.	Collector, supermarket	Increasing vegetable price, increasing sales
	Tan Minh Duc coop.	Supermarket, canteen, collector	Decreasing sales to schools and canteens by 30%
	Thanh Ha company	Supermarket	No impact
	Gia Gia company	Own shop, Canteen, collector, wholesale market	No impact
	Green farm company	Supermarket, collector	No impact
	Lua farmers group	Collector, local market	Decreasing sales volume to restaurants, lowering sales price
Hà Nam	Ha Vi coop.	Canteen, safe vegetable shop, collector, wholesale market	Increasing vegetable prices
	Lien Hiep coop.	Canteen, safe vegetable shop, wholesale market	Increasing vegetable prices
	Cat Lai coop.	Collector	Changing sales price
	Thanh Tan farmer group	Safe vegetable shop, wholesale market	Changing sales price
Hung Yên	Japan Vietnam company	Supermarket, schools, safe vegetable shop	Increasing transportation cost, decreasing sales volume to canteens and schools by 30%
	Yen Phu coop.	Supermarket, canteen, school	Decreasing sales volume to schools and canteens by 70%
	Binh Minh coop.	Canteen, school, collector	Order cancellation, decreasing sales volume by 35-40%
Phú Thọ	Huong Nộn coop.	Safe vegetable shop, collector, school	No impact
	Trường Thịnh coop.	Own shop, schools	Decreasing sale volume by 40%
Thái Bình	Quynh Hải coop.	Collectors	No impact
	Thanh Tân coop.	Wholesaler, collectors	No impact
Vĩnh Phúc	Dại Lợi coop.	Canteens, local supermarket	No impact
	Vinh Phúc coop.	Supermarket, canteens	Decreasing sales volume by 10-20%
	Visa coop.	Supermarket, canteens	Decreasing sales volume by 40%

* Positive impact Negative impact

¹⁶ Import of vegetables from China was reduced in January-February 2020 by 27.66% compared with the same period in the previous year according to Ministry of Finance in Vietnam.

¹⁷ Big C, Vinmart, AEON, COOP Mart and safe vegetable shops

Source: JICA Project Team

TGs which supply to schools and canteens were more affected by COVID-19 due to reduction sales, while vegetable prices in Ha Nam shot up due to restriction on incoming vegetables from outside.

TGs adjusted their production as well as marketing activities to the changes in market situation. Consequently, no TG was severely affected by COVID-19. There are two measures taken by TGs to cope with the difficulties.

(a) Sales in alternative channel

- Unlike ordinally year, the vegetable prices in wet-market were high even after Tet in 2020. TGs who lost orders could sell their vegetables in wet market to cover the loss of sales.
- TGs who supply to supermarket could increase sales volume since demand of vegetables in supermarket increased.

(b) Adjust production plan

- TGs affected by closure of schools and canteens adjusted their production plan to accommodate the demand of vegetables from general consumers. TGs increased the production of fruit vegetables and root vegetables whose demand increased under COVID-19 while reducing the production of leafy vegetables and herbs which are mainly consumed in canteens and restaurants¹⁸. Some TGs with cooling storage tried to delay shipping by using the facility¹⁹.
- Other TGs simply reduced production²⁰. It is natural that the time of pandemic corresponded to the end of winter crop season and summer crops are not main season for most of TGs. They tried to avoid risks by reducing the summer crop production.

The first wave of COVID-19 pandemic had mixed impact on TGs' marketing activities. It was a valuable opportunity for TG to realize the importance of reviewing and adjusting their production as well as marketing activities according to the changing market situation.

2) Pandemic in Hai Duong and Hung Yen in January and February 2021

COVID-19 spread in communities in Hai Duong and Hung Yen from late January 2021. The Government enforced strict control on movement in the concerned area in early February. As consumers and traders avoided buying goods from infected areas at the beginning, TGs in the concerned areas faced difficulties in selling products. However, the subsequent measures taken by the Government to smooth logistic of goods and the collective movement among consumers to help producers affected by COVID-19 through purchasing the products produced in the concerned areas, the situation of TGs improved by

¹⁸ Yen Phu coop (HY), Chien Thang coop (HY), Vinh Phuc coop (VP), and Lua farmer's group (HD)

¹⁹ Vinh Phuc coop (VP), Green farm company (HD)

²⁰ Gia Gia company (HD), Lien Hiep coop. (HN)

late February. As it was at the end of winter crop season, many TGs controlled damage by discarding the remaining crops or delaying sowing the next crops. The table below summarizes the impact of COVID-19 on TGs in Hai Duong and Hung Yen.

Table 2.21.11 Summary of impact by COVID-19 on TGs in February 2021

Province	TGs	Impact of COVID and measures taken
Hai Duong	Duc Chinh coop.	Shipment of carrot to Hai Phong port for export was suspended due to government restriction of movement between Hai Duong and other provinces. Many buyers stopped procurement from the cooperative due to expansion of COVID-19 cases in the commune. Buyers who continued procurement had a difficulty to enter the community. The restriction was removed on 19 February 2021 and export was resumed. The JICA project team coordinated with Coop Mart and it agreed to procure 1-2 ton /day of carrot from the cooperative.
	Green Farm coop.	The company was affected by COVID-19 pandemic as schools and canteens it supplies closed down. The company donated 3 tons of unsold kohlrabi to the commune isolated due to COVID-19 infection. The company decided to delay sowing new crops.
	Thanh Ha company	The company suspended supply of vegetables to supermarkets in neighboring Quang Ninh province as Quang Ninh province prohibited entry of any vehicles from Hai Duong province. On the other hand, the company could continue supply to supermarkets in Hai Phong as the procurement officers of supermarkets came to the border with Hai Duong province to pick up supply. There was not much harvest left as it was at the end of winter crop season. The company delayed harvesting remaining potatoes.
	Tan Minh Duc coop	The price of cabbage and kohlrabi reduced drastically after Tet due to oversupply of the products. The Project team coordinated with Coop Mart to procure the products from the cooperative. In addition, one individual working in Hanoi who is originally from the same commune with the cooperative started to sell vegetables of the cooperative in central Hanoi in late February. It helped the cooperative to reduce the loss.
	Lua farmers group	Although the group was affected by the reduced vegetable price after Tet, most of products had been sold before Tet. The group decided to delay sowing the next crop to see the market situation.
Hung Yen	Yen Phu coop	COVID-19 cases were detected in Yen Phu commune on 8 February 2021. Board members of the cooperative were isolated as close contact. The cooperative suspended supply to all customers between 9 and 15 February. The cooperative resumed supply of vegetables from 16 February but only to local customers. The cooperative discarded remaining leafy vegetables and tomatoes as it was considered difficult to resume trading with outside customers. All schools and government organizations started to procure vegetables from Yen Phu commune from 24 February after the Provincial government encouraged them to do so. The JICA Project team coordinated with AEON and Coop Mart to procure vegetables from the cooperative.
	Binh Minh coop	Although the cooperative expected to harvest cabbage, cauliflower, broccoli, potatoes, and leafy vegetables, it could not do so due to the closure of schools to which the cooperative supplies vegetables. It was difficult to sell them in wholesale market where the price became very low. The cooperative started to sell vegetables to consumers through Zalo. The JICA Project team coordinated with Tu Xa cooperative in Phu Tho who has big demand of vegetables to buy cabbage, cauliflower, broccoli, and morning glory.
	Japan Vietnam company	As the company supplies mainly to small supermarkets which were not affected by COVID-19, its operation was not affected either.

Source: JICA Project Team

The pandemic in early 2021 more severely impacted marketing activities of TGs since the COVID-19

cases happened in the areas TGs were working. Support from the Government, buyers and consumers helped to mitigate the damage. The JICA Project team also supported TGs affected by COVID-19 by coordinating with big buyers to procure vegetables from TGs. It is also considered one of the factors to reduce damage that COVID-19 pandemic came at the end of winter crop seasons.

(2) Nonpayment issues

The JICA Project team identified several TGs who suffered from non-payment of buyers. The JICA Project team conducted a quick survey to understand the situation in September 2020. The survey on 20 TGs found that VND260,857,100 in total have not been paid for 5 TGs by 9 buyers.

Table 2.21.12 Summary of nonpayment by buyers

Year	2019	2020	Total
No of TG	2	3	5
No of buyer	3	6	9
Amount of unpaid sales	VND82,500,000	VND178,357,100	VND260,857,100
Reasons of nonpayment	- No money for payment - Bankruptcy	- No money for payment - Difficulty in selling vegetables (new shop, relocation of shop, high price etc.)	NA

Source: JICA Project Team

Among 9 nonpayment cases, 6 cases amounting VND175 million occurred after March 2020 when COVID-19 pandemic became serious. Although all concerned TGs urged buyers to make payment, they could not pay due to cash shortage. Some buyers suffered from cash shortage due to lack of business management capacity. They failed to see market trend or predict vegetable demand properly. No buyer had ill intension. It is very important to trade with buyers with solid business plan.

Some buyers who stopped payment in 2019 already went bankrupt and it was not possible to seek payment anymore. The lesson is that the longer the TG waited repayment, the more difficult to get payment. Quick action is required.

In order to prevent nonpayment, the JICA Project team formulated the following guidelines:

- Select reliable buyers. Review business plan and financial situation of buyers before starting trading by asking buyers or other producers. If the buyer is new in the market, it is better to start trading with small volume or ask the buyer to pay deposit.
- When trading, make economic contract with buyers who have legal status. If the buyer does not have legal status, request immediate payment or paying for the previous order at the time of receiving goods of the next order.
- Take actions immediately. Stop supply as soon as payment getting delayed in order not to accumulate nonpayment. It is better to include a clause to deposit some money or stop supply in

case of nonpayment.

- Inform PPMU if the buyer intentionally repeats non-payment. PPMU should list up such bad buyers and alert producers in the province by sharing the list.

The guidelines were shared with TGs and PPMU at Follow-up TOT on Basic GAP conducted in October 2020.

(3) Avoid mixing with non-safe vegetables

As TGs develop the capacity to produce and sell their products, they have to handle diversified requests from their customers in terms of variety of products, increasing volume and timing of supply which only the concerned TG cannot accommodate. Sourcing some products from outside producers would be one of the feasible options to satisfy such needs. Establishing network with reliable producers is beneficial for TGs to stabilize and expand their business. Some TGs did source some products from other producer groups even before the Project started. The JICA Project team also assisted TGs in matching with other producer groups.

The survey conducted in June 2020 by the JICA Project team found that eight TGs out of 20 TGs procured vegetables from outside. There were 17 suppliers in total, of which 15 are VietGAP certified and kept recording. Remaining two suppliers did not have any certificate for safe crop production. Among eight TGs with outside suppliers, two TGs did not separate the products from outside, but they mixed vegetables produced by TGs with those procured outside.

In order to ensure that safety of vegetables will not be risked by procurement from outside, TGs should have clear policy and procedures to ensure safety on procurement from outside so that they can be accountable for any inquiry or any troubles. For this purpose, the JICA Project team formulated the guidelines shown below.

1) Procurement policy

TGs should have the clear policy on procurement from outside of TG. There are two cases for procuring vegetables from outside. One case is that TG procures vegetables from outside only when TG does not have enough harvest. Another case is that TG regularly procure some specific vegetables or certain volume of vegetables from outside. TGs should be clear which direction they follow if they procure vegetables from outside.

2) Policy of buyers

TGs should check with buyers if they allow TG to procure vegetables from outside and what kind of policy they have. Buyers may require TGs to submit information of their suppliers or request to print the name of suppliers on label or package. Some buyers allow TGs to supply vegetables which include vegetables from outside if TGs are responsible for safety of all supplies.

3) Selection of suppliers

TGs should procure vegetables from producers who are certified with VietGAP or have certificate of safe production area and follow Basic GAP with regular record keeping. TGs should visit candidate suppliers to check their certificate, production area and record keeping before starting procurement. The following table explains the conditions suppliers from outside should satisfy.

Table 2.21.13 Selection of suppliers

Case	Condition of suppliers	Procurement
1	VietGAP certificate but no record keeping	NG
2	VietGAP certificate with regular record keeping	OK
3	Following Basic GAP with certificate on safe production area but no record keeping	NG
4	Following Basic GAP with certificate on safe production area and regular record keeping	OK

Source: JICA Project Team

In case, TG sells vegetables procured from outside as normal vegetables not safe vegetables, TG can procure them from any suppliers, but they should store the normal vegetables in the separate area.

4) Procurement records

TGs should record date of procurement, name of suppliers, name of crops and procured volume when they procure vegetables from outside. These records should be reviewed at the time of internal as well as external audit.

5) Package and labeling

If buyers want, TGs should include information of producers and production areas for vegetables procured from outside in their QR code, package, or label.

6) Place of storing

TGs should store vegetables procured from outside separate from those produced by TGs. For example, put partitions for the area to store vegetables from outside and record the location.

The guidelines were shared with TGs and PPMU at Follow-up TOT on Basic GAP conducted in October 2020 and included in the Supply Chain Development manual explained in 2.22.3. The follow-up survey on all TGs in December 2020 found that three TGs sourced vegetables from 7 suppliers and confirmed that all TGs followed the guidelines.

(4) Customer visit

The JICA Project team encouraged TGs to obtain feedback from their customers. Although the activity cycle includes a review meeting with buyers at the end of winter crop season, the JICA Project team promotes customer visits by TGs whenever they have time. Customer visit aims to obtain feedback useful for TGs to improve their operation as well as discuss with buyers for the possibility of expanding

trade with the concerned buyer. It is considered more convenient for a buyer to receive the visit of TGs than coming to TG's place and thus the visit is easy to coordinate. As shown in the table below, customer visits were organized 26 times in 2019/20 and 25 times in 2020/21, although there was disruption of activities in 2020/21 due to COVID-19 pandemic.

Table 2.21.14 Summary of customer visits

Province	Target groups	2019/20	2020/21
Hai Duong	Duc Chinh coop.	0	0
	Tan Minh Duc coop.	1	0
	Thanh Ha company	0	2
	Gia Gia company	1	0
	Green Farm coop.	0	0
	Lua farmer group	1	3
Ha Nam	Ha Vi coop.	2	1
	Lien Hiep coop.	1	1
	Cat Lai coop.	2	1
	Thanh Tan coop	0	1
Hung Yen	Japan-Vietnam company	2	4
	Yen Phu coop.	8	2
	Binh Minh coop.	0	0
Pilot Provinces total		18	15
Phu Tho	Huong Non coop.	0	0
	Trường Thịnh coop.	1	0
Thai Binh	Quỳnh Hải coop.	1	4
	Thanh Tân coop.	2	2
Vinh Phuc	Dại Lôi coop.	2	0
	Vĩnh Phúc coop.	1	4
	Visa coop.	1	0
Semi-Pilot Provinces total		8	10
Grand Total		26	25

Source: JICA Project Team

Major feedbacks provided through customer visits were summarized below.

Table 2.21.15 Summary of feedback through customer visits

Category	Contents of feedback	Possible measures to be taken
Volume	<ul style="list-style-type: none"> - Limited production - Shortage of volume - Unstable supply - Develop production plan based on market demand 	<ul style="list-style-type: none"> - Improve production capacity - Improve production planning - Coordinate production plan among producers
Variety of vegetables	<ul style="list-style-type: none"> - Need more variety of vegetables - Need specific vegetables - Need vegetable can be sold at high price 	<ul style="list-style-type: none"> - Plan to cultivate requested vegetables - Introduce other TGs - Plan to source to other producer group
Quality control	<ul style="list-style-type: none"> - Need uniformity - Too big packaging - Degradation of quality in summer - Vegetable size is too small, too big 	<ul style="list-style-type: none"> - Improve sorting skills - Reduce packaging volume - Change harvesting time, use cooling storage - Need preprocessing - Coordinate the harvest timing, change variety
Service	<ul style="list-style-type: none"> - Change delivery timing - Late delivery 	<ul style="list-style-type: none"> - Change delivery time - Keep delivery time

Category	Contents of feedback	Possible measures to be taken
Possibility of expanding trade	- Need better coordination mechanism	- Share the production plan before sowing

Source: JICA Project Team

The feedbacks from customers are very useful for TGs to improve their operation and formulate appropriate plan for next season. Although TGs were not eager to organize customer visits at the beginning, TGs gradually understood the usefulness and importance of obtaining customer's feedback and they became more proactive to organize the customer visit.

The JICA Project team analyzed the outcomes of customer visits and shared it with PPMUs to confirm that it is important for TGs to seek feedbacks from customer more intentionally and the feedbacks should be shared and discussed between management and producers of TGs so that the operation at grassroots level could be improved.

The feedbacks from customers improved in 2020/21 compared with those in 2019/20. Many customers provided positive feedbacks to TGs in 2020/21 saying that the products in terms of volume, quality and variety and services of TGs improved compared with those in previous year²¹. Of course there were negative feedbacks. If TGs continues these activities, they can certainly improve their operation and strengthen trust with their customers.

The customer visits provided an opportunity for matching with other TGs as well. As some customers wanted to buy different kinds of vegetables which concerned TG could not produce, the JICA Project team introduced other TGs to the customer²². If TG has its own network with other producer groups, they can expand their business by sourcing vegetables which they cannot produce from other producer groups.

2.22 Monitoring and Evaluation of Trial Activities

2.22.1 Supporting monitoring activities of PPMUs

As explained in 2.11, PPMUs are asked to monitor and provide support to TGs based on the framework explained in Table 2.11.1. As each TG developed its marketing action plan consisting of review of previous year and plan for next one year at TOF on marketing in every May, PPMUs are supposed to monitor if each TG follows its plan and provide advice if TG faces any difficulties.

PPMUs are asked to submit quarterly monitoring report every three months. The monitoring report includes the analysis of each TG in terms of its progress and achievement made during the concerned period based on its marketing action plan. The report also discussed how PPMU supported TGs. Asking to submit quarterly reports contributed to deepening understanding of marketing activities for both PPMU officers as well as TGs by facilitating them to analyse good practices and lessons continuously. As the project progresses, the commitment as well as capacity of PPMU officers to support marketing activities of TG was strengthened and many proactive actions by PPMU were reported in the quarterly

²¹ Ha Vy coop. (Ha Nam), Lien Hiep coop. (Ha Nam), Thanh Ha company (Hai Duong)

²² The JICA Project team introduced Tan Minh Duc coop. (Hai Duong) to the customer of Vinh Phuc coop. (Vinh Phuc) and Cat Lai coop. (Ha Nam) to the customer of Ha Vy coop. (Ha Nam).

report. Thus, quarterly reporting system is considered effective to make PPMU officers self-reliant.

2.22.2 Evaluation of TG capacity

As explained in 2.6.1, trial activities followed stage-wise approach consisting of Nursing, Expansion/Diversification and Stabilization stages. The JICA Project team considers that different support is necessary for TGs at different stage. Since there is a big gap among TGs in Nursing stage, the JICA Project team divided Nursing stage into two. TGs who are traditional cooperatives and no experience of joint sales require comprehensive support in addition to marketing support. It is considered more appropriate to treat them separately as lower Nursing stage. The following table explains necessary support for each stage.

Table 2.22.1 Necessary support for each stage

Stage	Characteristic	Necessary support	Location of buyer	
3	Stabilization	Advanced form of joint production and sales	Limited support, some advanced support	Buyers in the same province and other provinces
2	Expansion/ Diversification	Joint-production and joint sales with some weakness	Introduce buyers	
1	Nursing	No or limited experience of joint-sales	Introduce buyers, support for joint-sales	Only local buyer
			Need comprehensive support such as selection of product, organize joint-sales, finding buyers etc.	

Source: JICA Project Team

The JICA Project team evaluated TGs which stage they belong to periodically as shown in the table below.

Table 2.22.2 Categorization of TGs

Stage	March 2019	December 2019	January 2021	
3	Stabilization	Japan Vietnam (HY), Yen Phu (HY), Visa (VP), Thanh Ha (HD), Tan Minh Duc (HD), Green Farm (HD)	Japan Vietnam (HY), Yen Phu (HY), Visa (VP), Thanh Ha (HD), Tan Minh Duc (HD), Vinh Phuc (VP)	Japan Vietnam (HY), Yen Phu (HY), Visa (VP), Thanh Ha (HD), Tan Minh Duc (HD), Vinh Phuc (VP), Green Farm (HD)
2	Expansion/ Diversification	Duc Chinh (HD), Chien Thang (HY), Vinh Phuc (VP), Lien Hiep (HN), Ha Vy (HN)	Duc Chinh (HD), Chien Thang (HY), Lien Hiep (HN), Ha Vy (HN), Green Farm (HD)	Duc Chinh (HD), Binh Minh (Chien Thang) (HY), Lien Hiep (HN), Ha Vy (HN), Quynh Hai (TB)
1	Nursing	Gia Gia (HD), Lua (HD), Dai Loi (VP), Quynh Hai (TB)	Gia Gia (HD), Lua (HD), Dai Loi (VP), Quynh Hai (TB), Thanh Tan (TB)	Gia Gia (HD), Lua (HD), Dai Loi (VP), Thanh Tan (TB), Cat Lai (HN)

Stage	March 2019	December 2019	January 2021
	Cat Lai (HN), Thanh Tan (HN), Huong Non (PT), Truong Thinh (PT), Thanh Tan (TB)	Cat Lai (HN), Huong Non (PT), Truong Thinh (PT), Thanh Tan (HN)	Huong Non (PT), Truong Thinh (PT), Thanh Tan (HN)

TG in red indicates upward move while TG in blue indicates downward move

<Abbreviation > HD: Hai Duong, HY: Hung Yen, HN: Ha Nam, TB: Thai Binh, PT: Phu Tho, VP: Vinh Phuc
Source: JICA Project Team

As shown in the table above, the number of TGs belonging to stage 3 increased steadily while number of TGs belonging to the lowest category decreased. Although some TGs stayed in the same category throughout the period, the JICA Project team observed overall improvement of their capacity. However, structural issues²³ and change of ownership²⁴ sometimes hampered favourable changes in TGs.

The JICA Project team shared the categorization in March 2019 with PPMUs to explain about differentiated marketing assistance based on category. The JICA Project team reviewed categorization periodically by assessing the achievement of activities and improvement of capacity and reflected it into daily project activities. The categorization mechanism is useful to understand the level of capacity for each TG and think about appropriate assistance.

2.22.3 Development of Supply Chain Development manual

First version of Supply chain development manual was developed based on the pilot project implementation plan developed in phase1. The manual incorporated all the good practices and lessons learnt from trial activities. Since the draft manual is supposed be used for developing the Action Plan to replicate the trial activities even after the termination of the Project by PPMUs, the manual was developed in three phases according to the schedule of the Action Plan development explained below:

Table 2.22.3 Evolution of Supply chain development manual

Draft	Date	Concept	Usage
First draft	July 2019	It was written based on the pilot project implementation plan developed in Phase 1. The draft targeted PPMU staff in Pilot as well as Semi-pilot provinces for them to utilize it to develop the Action Plans.	The draft was shared with PPMUs in Pilot provinces to prepare the Action Plan to replicate the trial activities for 2020.
Second draft	August 2020	It was revised to target DARD officers in any provinces which promote safe crop production and marketing. In order for any officers who had no experiences in the Project to understand the contents easily, the contents were simplified and explanation about concept and terminology was added. The draft clarified three supply chain model based on the experiences as well as capacity for joint sales of producer groups. The draft also clarified that it is producer groups who	The draft was shared with PPMUs in Pilot and Semi-pilot provinces to prepare the Action Plan to replicate the trial activities for 2021.

²³ Two TGs have a difficulty in organizing joint sales due to cooperative structure.

²⁴ Green Farm coop. in Hai Duong downgraded in December 2020 as its ownership changed and activities were stagnated. Activities at Gia Gia company in Hai Duong stagnated after its owner gave up operation in 2020.

		carries out the activities and DARD officers just assist them.	
Final draft	January 2021	All comments from CPMU and PPMUs were reflected in the draft.	The manual will be used by any DARD interested in safe crop production and marketing

Source: JICA Project Team

Finalized table of contents for the manual is shown below and the manual is shown in Attachment 14.

Table 2.22.4 Table of contents for safe crop supply chain development manual

Chapter	Topic	Contents
Chapter 1	Introduction	
	Structure of safe vegetable promotion plan Three models of supply chain development Work flow of marketing activities	
Chapter 2	Concept of Marketing	
2.1	Basic Principles of marketing for safe vegetable promotion plan	- Market oriented - Joint sales
2.2	Concept of marketing	- What is marketing? - What are your strengths and weaknesses? - Who is your buyer? - Think about customer mix - How to improve your marketing ability? Use marketing 4Ps
Chapter 3	Preparation of activities	
3.1	Collecting marketing information	- Information to be collected
3.2	Marketing training	- TOT on marketing - TOF on marketing
Chapter 4	Dialogue with market	
4.1	Developing marketing tools	- Producer profile - Registration at safe agro-product website - Other marketing tools
4.2	Matching with buyers	- How to find buyers - Joining matching events - One-to-one matching with buyer
4.3	Making contract	
Chapter 5	Post-harvest and distribution	
5.1	Steps of collection and delivery	- Ensure safety and quality - Ensure quality requirements by buyers - Avoid mixing with non-safe vegetables
5.2	Monitoring of collection and delivery	- Physical monitoring - Feedback from buyers
5.3	Review and planning next season	- Review meeting with buyers - TOF on marketing
Chapter 6	Implementation structure and schedule	
6.1	Implementation structure	
6.2	Role and responsibility of producer group	
6.3	Role and responsibility of stakeholders	

Source: JICA Project Team

The manual is expected to be used by DARD officials involved in promoting safe vegetable promotion.

2.23 Support for Preparation of the Action Plan to replicate the Trial Activities

As explained in the previous section, Supply Chain Development manual was shared with PPMUs in Pilot provinces in 2019 for preparing the Action Plan to replicate the trial activities for 2020 and with PPMUs in Semi-pilot provinces in 2020 for preparing the Action Plan for 2021. The JICA Project team provided advice to prepare the Action Plans as well as its implementation.

2.24 Support for Implementation of Trial Activities and Preparation of the Action Plan in Knowledge Sharing Provinces

Based on the experiences and lessons of trial activities in pilot and semi-pilot provinces, CPMU together with JICA Long-term Expert team supported implementation of trial activities in two knowledge sharing provinces namely Hai Phong and Bac Ninh province.

The experiences and lessons of trial activities in two knowledge sharing provinces were reflected into the two manuals of production management system and supply chain development.

The manual will be shared with remaining 4 knowledge sharing provinces through Project Dissemination Seminar to be held to promote safe crop production and marketing in the respective provinces.

< *Activities for Output 3* >

2.25 Monitoring and Evaluation of Awareness Raising Activities

Following Awareness Raising Activities in Phase 1, activities in Phase 2 were designed with three strategic intentions: 1) More active involvement of the private sector to create a stronger impact by reaching larger audience, 2) provision of the entire consumer journey experience from awareness creation to consumption to induce consumers' advancement in behavioral stages, and 3) a heavier inclusion of counterpart organizations to enhance sustainability of future activities.

Following the learning experiences in Phase 1, Hanoi DARD decided to involve Extension Center to create communication videos and support operations to take over tasks after the project completion.

2.25.1 School education program

(1) Execution principles

The two execution principles of Phase 1 (involvement of children and mothers, and creation of communication visuals), were both well appreciated among all stakeholders including 1) parents who were main communication target of activities and interacted with children, 2) children who played an important role as a medium to educate parents, 3) teachers who coordinated the activities at selected schools, and 4) producers and buyers who received communication materials, and 5) all counterpart organizations such as Hanoi DARD, DOET, and HPA. Therefore, the same principles and program scheme were applied during Phase 2.

(2) Execution details and results

As a result of the successful outcome during Phase 1, execution details were largely kept the same. However, after discussing effectiveness and efficiency with Hanoi DARD and DOET, the program was modified with the following three points:

1) Target Grade 7 students

As more advanced communication contents were required to mobilize consumers to a higher behavioral stage, Grade 4 was too young to digest information to pass to their parents properly. On the other hand, Grade 10 seemed to be too matured to interact closely with their parents, while interaction with parents is the key to influence target consumers. Therefore, Grade 7 was targeted for 2019 and 2020, and they performed well as a medium to reach the parents' segment and also enjoyed the poster drawing team activity.

2) Provide educational video material

In response to the teachers' feedback from past activities, video material was developed by Hanoi Extension Center and provided for in-class viewing. It functioned as a virtual field trip for students to see actual farmers' and retailers' efforts to bring safe vegetables to consumers.

3) Create posters, not slide shows

When a physical exposure and communication are still attractive to Vietnamese consumers, bright

posters in an open space attracted viewers more easily in an exhibition for quick viewing. Slide shows require more time for viewing in a darker environment for clearer viewing of TV monitors. In addition, slide show creation bears operational complications, due to an additional training activity to teach teachers and students technical requirements.

(3) Results of 2019 and 2020 activities

The impact of each activity is exhibited in Table 2.25.1, and the results of each activity will follow.

Table 2.25.1 Impact of school education program

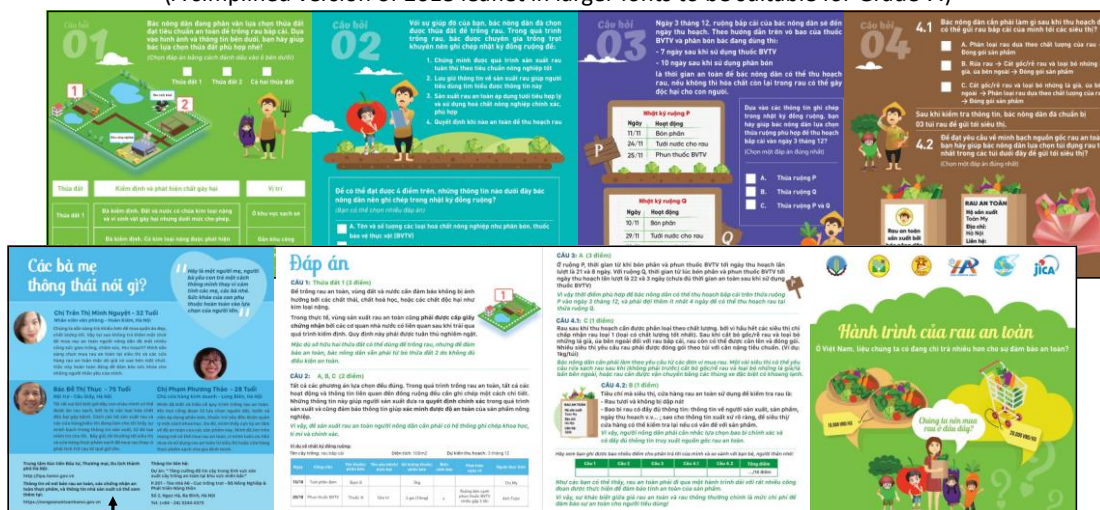
Activity	Year	District	# of Schools	# of Impact
1) Leaflet distribution	2019 (Grade 7)	12 urban districts	156	49,652 Grade 7 students
	2020 (Grade 7)	12 urban districts	156	Approx. 50,000 Grade 7 students
2) In-class program & homework	2019 (Grade 7)	3 selected schools	3	1,085 Grade 7 students 984 homework submissions
	2020 (Grade 7)	2 selected schools	2	1,004 Grade 7 students 858 homework submissions
3) Poster contest festival	2019 (Grade 7)	3 selected schools	3	Approx. 894 students 91 finalist students selected
	2020 (Grade 7)	2 selected schools	2	Approx. 693 students 60 finalist students selected
4) Exhibition at AEON MALL (Long Bien and Ha Dong)	2019 (Grade 7)	---		Approx. 4,395 visitors 2,900 leaflets distributed
	2020 (Grade 7)	---		The number of visitors: N/A 4,000 leaflets distributed

Source: JICA Project team

1) Leaflet distribution

Educational leaflets (Figure 2.25.1) were developed to communicate to mothers through school children as a medium. As the previous contents and design were well perceived, a simplified version of 2018 leaflet was used for 2019 and 2020 activities, to suite younger target students.

“A Journey of Safe Vegetables” - Entertaining quizzes with explanations in answer
(A simplified version of 2018 leaflet in larger fonts to be suitable for Grade 7.)



Testimonials of Moms who buy safe vegetable: Influence mothers through children

Source: JICA Project team

Figure 2.25.1 School education leaflet 2019 & 2020

2) In-class program & homework

Kick-off meeting

Prior to the school program, a kick-off meeting was held as in the previous years. In order to transfer event organization skills, from 2019, Project supported only printed materials to distribute with regard to this event. DOET’s initiative with close coordination with Hanoi DARD became concrete to continue with the same event in the future.

District representatives and teachers from pre-selected schools, which were to conduct the in-class education program and the poster festival, were invited. This meeting was considered vital in Phase 1 to ensure proper understanding of the program among the teachers; therefore, the kick-off meeting was conducted as a required event to start this annual program.

In-class education and homework

With clear understanding of the education program execution, teachers were well prepared in the leaflet contents and the educational video. In-class sessions were well conducted at selected schools, followed by homework.

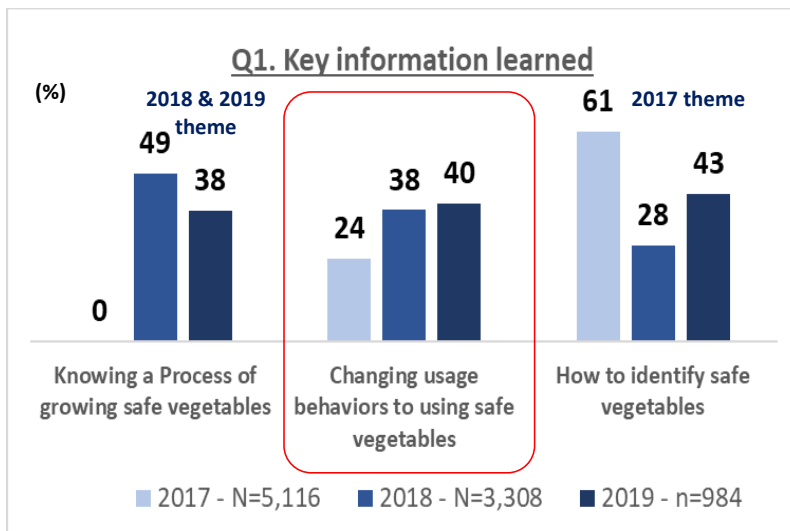
Following the in-class education, students completed homework with their mothers just as in the previous years. Since this homework is the key activity to reach the primary target, the parents, the same homework was applied.

As the consumer communication activity was already into the third year, one more question was added in the homework to facilitate parents to move forward in the behavioral stage. HPA website leaflet was distributed along with the homework, and the additional question prompted students and parents to access HPA website to provide comments. Finally, the results were collated and shared with HPA as

users' inputs for their website's further improvements. (HPA website related results are elaborated in the later Section 2.25.4.)

Homework result analysis

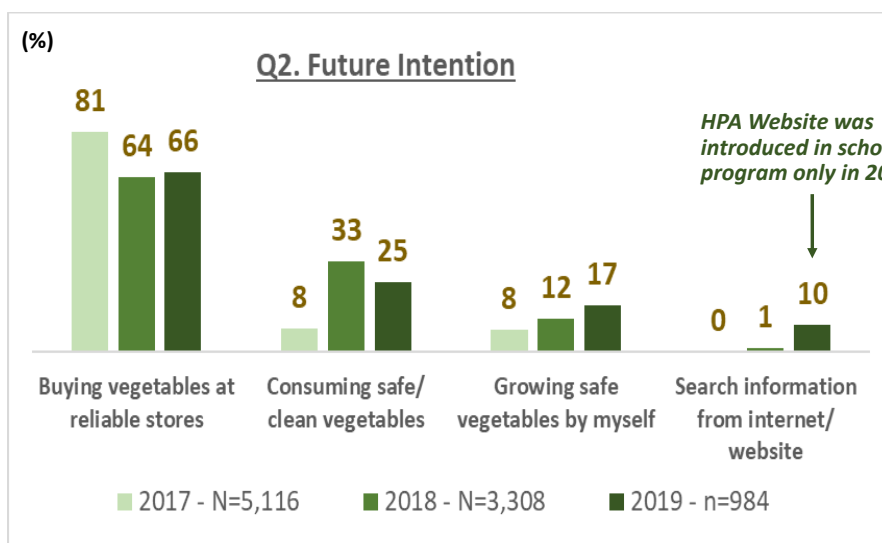
The collected answers were coded and analyzed by Project until 2019. The intention to change usage behavior scored well. (Figure 2.25.2)



Source: JICA Project team

Figure 2.25.2 Key information learned from school education

In relation to the question about improvements of respondents' consumption behavior, it was confirmed that the expected primary action after the learning about safe vegetables would be to move onto search for reliable stores: It suggested that introduction of HPA website together with the school program be effective in supporting their first action, as shown in Figure 2.25.3.



Source: JICA Project team

Figure 2.25.3 Q2 answers in 2019

3) Poster festival

As expected, Grade 7 students are still young enough to enjoy the drawing activity in a group and mature enough to express relatively complicated leaflet contents with detailed work. All stakeholders expressed satisfaction with the outcome; therefore, Grade 7 has been designated as a model case for the future activities.

The festival event was organized in the same sequence as in the previous years; however, in 2020, a new method had been suggested by Hanoi DARD and HPA to hold an award ceremony at HPA's annual trade fair as a joint effort. The execution details will be elaborated later in a later section (4) Exhibition at AEON MALL).

Visual creation and dissemination

Both in 2019 and 2020, the slogan remained the same as that of the poster festival in 2018: "Let's Bring Safe Vegetable Home", even though the target students had changed into Grade 7. As consistency is the key to lead consumers to retain the image and information in their mind, the slogan, the color scheme of communication materials, characters, and the leaflet image were all kept the same through the years. For successful creation and effective utilization of the posters as promotional material, the following points were reinforced in the execution.

- In order to direct a traffic to HPA website, HPA website URL was required to be featured in all posters.
- Poster drawing was conducted in groups, as teachers and parents valued group work for educational purposes and students enjoyed the activity.
- Just as in Phase 1, gold-prized posters were digitized, printed, and distributed to all schools, government institutions, producers, buyers, etc. as a dissemination and reminder purposes for an extended period of time.
- In 2020, 1,000 units of desktop calendar were developed with familiar visuals extracted from various communication materials including gold-prized posters. It was expected that all stakeholders would be; i) motivated to display for its utility, and ii) reminded every two months as they flip the calendar to the next month. In addition, this new material worked seasonally well, because it could be distributed as a Tet gift. (Figure 2.25.4) The recipients of this calendar included PPMU, governmental organizations, producers, buyers, and sponsors.



Source: JICA Project team

Figure 2.25.4 2021 Calendar with past communication visuals

Evaluation committee and award ceremony

After participating schools had submitted pre-selected posters, an evaluation committee was called by Hanoi DARD to select award winners. The operation of the committee event was independently managed by Hanoi DARD and Extension Center and was solidified by 2020 as a regular event.

After the evaluation committee, an award ceremony was held at one of the participating schools until 2019, just as in Phase 1; however, a new event idea emerged from Hanoi DARD and HPA. In order to efficiently manage budget and operational expertise, it was decided that the award ceremony would be held at an annual trade fair run by HPA at AEON Malls (Long Bien and Ha Dong) from 2020 onward. The details will be further elaborated in the later section (4) Exhibition at AEON MALL).

Sponsors who provided award prize items were also invited to the ceremony. All sponsors continued to support throughout the four years: i) AEON VIETNAM with its CSR principle continued to provide shopping vouchers, ii) KEWPIE VIETNAM continued with its support with kewpie doll and salad dressing gift items for their branding efforts to be associated with safe vegetables, iii) Project target producers proactively supported students with safe vegetables, iv) and rice and milk were provided from Hanoi DARD. In order to motivate their continuous participation, all sponsors were properly introduced to the audience as award presenters. (Figure 2.25.5)

By involving private companies such as producers, retailers, and vegetable-related food manufacturers, their consumers will become aware of the importance of safe vegetables. In addition, their branding efforts will benefit from this activity, with continuous and a wider exposure. Therefore, it is strongly suggested that they be invited for sponsorship continuously for mutual benefits.



Source: JICA Project team

Figure 2.25.5 2019 Sponsor Information Sheet distributed to the ceremony participants

Dissemination results

In 2019, active dissemination was induced online. Following the 2018 online dissemination scheme, voting for favorite posters was initiated on the same Facebook page, featuring 30 finalist scanned posters. (Figure 2.25.6)

The most popular poster, which won “Most Liked Award”, earned a total of 16,370 votes including 15,764 “Like” from the Facebook channel (Figure 2.25.7). It was thus proven that online dissemination through active sharing of news and activities was successful; however, scanning of large posters, consistent news posting, and monitoring of the Facebook page would require technical skills and human resources. From this viewpoint, the online dissemination activity was intentionally omitted from 2020, in order to focus on sustainable operations without relying on unrealistic resource capacity.



Source: JICA Project team

Figure 2.25.6 2019 Facebook Page



Source: JICA Project team

Figure 2.25.7 2019 “Most Liked Award” winner

As mentioned earlier, the gold-prized poster was digitized and printed for distribution. The distribution results are summarized in Table 2.25. 2.

Table 2.25. 2 Distribution of Visual Materials

Item	Units	Recipients
2019 Gold-prized poster	1,160	All lower secondary schools in 12 urban districts in Hanoi JICA, CPMU, C/P, PPMU, sponsors, target producers, buyers, and other stakeholders.
2020 Gold-prized poster	156	All lower secondary schools in 12 urban districts in Hanoi
2021 Calendar	1,000	JICA, CPMU, C/P, PPMU, sponsors, target producers, buyers, and other stakeholders.

Source: Project team

Last but not least, 2 secondary schools, namely Trung Vuong Secondary School and Giap Bat Secondary School, voluntarily conducted the school program and the poster drawing activity independently by referring to education materials and instructions prepared by the Project, although they had not been selected as official participants for 2019. In 2020, these schools were selected by Hanoi DARD and DOET as official participating schools with the Project.

4) Exhibition at AEON MALL

Advanced concept with involvement of private sector

During Phase 1, the scope of the exhibition at AEON Mall Long Bien was simply to exhibit students’ visual works for the purpose of raising awareness among the general public. As the interest level of the general public in safe vegetable consumption had been heightened in 2 years, the exhibition concept was brought to the next level in 2019 and 2020.

By involving HPA and private companies, an entire series of consumer experiences around safe vegetables was replicated in one event hall: 1) educate and raise awareness with poster exhibition, 2) induce the first action to search information by providing HPA Website demonstration, 3) facilitate purchase experience of safe vegetables at a vegetable sales booth provided by AEON VIETNAM, and 4) promote consumption of safe vegetables by tasting raw vegetable salad with KEWPIE’s salad

dressing at a tasting counter. (Figure 2.25. 8)

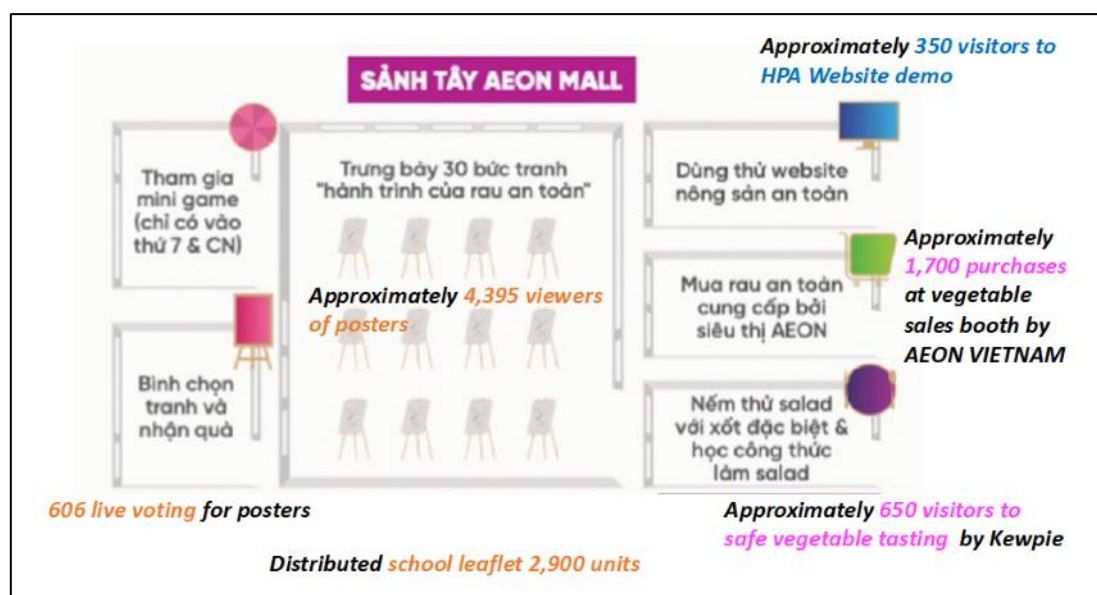


Source: JICA Project team

Figure 2.25. 8 Advanced concept to replicate a series of consumers' experience at exhibition

In 2019, the above described four steps of experiences were laid out on the exhibition floor at West Court inside AEON Mall Long Bien, as exhibited in **Figure 2.25. 9**. During the 9 days, from the 9th until the 17th of November 2019, the following impact was confirmed.

- The total number of poster viewers: Approximately 4,395, among which 606 participated in voting for “Most Liked Award”.
- The number of education leaflet distributed: 2,900
- Approximately 350 visitors participated in HPA Website demonstration
- Approximately 1,700 purchases were made at AEON VIETNAM safe vegetable sales booth.
- Approximately 650 visitors tasted safe vegetable with KEWPIE's salad dressing.



Source: JICA Project team

Figure 2.25. 9 Floor layout to navigate visitors through various consumer experiences

In 2020, the same concept was applied, and HPA's operational initiative managed multiple participants as a part of OCOP trade fair. Hanoi DARD, HPA, and Project agreed that this concept should be continued in the future; however, the scale of poster exhibition appeared to be small with 30 paintings. HPA suggested that the number of schools selected for the poster festival should ideally be five to seven, although it would depend on the budget allocated by PPC to Hanoi DARD.

In-store promotion

During the poster exhibition period in 2019, an in-store display promotion was organized at the vegetable section inside AEON VIETNAM supermarket, which is within close proximity from the exhibition floor. The event was intentionally planned during the same period as the exhibition, with an attempt to maximize synergy by circulating customer traffic. The following marketing collaterals were developed accordingly:

- In order to bring traffic to the in-store promotion, a pre-event notification was inserted in AEON VIETNAM's bi-weekly advertisement. (Figure 2.25. 10)
- An event leaflet was developed and distributed before and during the event to circulate the traffic between the exhibition hall and in-store display. (Figure 2.25. 11)



Source: JICA Project team

Figure 2.25. 10 Advertisement of AEON VIETNAM



Source: JICA Project team

Figure 2.25. 11 Event Leaflet

This promotion was designed to showcase a supermarket’s efforts to secure safe vegetable supply for its customers, and the event operations were conducted as follows:

- Developed display panels with contents provided by AEON VIETNAM on their efforts to secure food safety for customers. The design and images were kept consistent with educational materials and the exhibition materials. (Figure 2.25.12)
- Promoters attended to approximately 830 consumers to introduce the displays and conducted a simplified questionnaire survey to verify supermarket shoppers’ behavior. (Figure 2.25.13)



Source: JICA Project team

Figure 2.25.12 In-Store display panels



Source: JICA Project team

Figure 2.25.13 In-store operations with promoters

After the event, an interview was conducted with AEON VIETNAM staff and the simplified questionnaire survey results were analyzed. The key findings are the following four points:

- While it was good to make the sales floor interesting; it was difficult to educate shoppers with displays, as their attention would be on merchandise and they are not mentally prepared to spend time to read displays; therefore, if a display promotion would be planned in the future, a simple larger display would be recommended only as an attention getter, and contents should be distributed in leaflet format.
- 77% of supermarket visitors were already at Stage E (sometime compromise but mostly buy safe vegetable) or F (always buy safe vegetable) and demonstrated proper understanding about supermarkets' reliability; therefore, it is important to educate consumers outside supermarkets to lure them to these modern retail channels.
- Younger people turned out to be likely to choose unsafe sources to purchase vegetables due to convenience and cost saving. In particular, consumer aged 20-25 claimed that they do not

know any supermarket or safe vegetable shops near their home/workplace. Therefore, it is important to promote HPA website which has a feature to search the nearest safe vegetables stores to younger people.

- TV media turned out to be an important communication channel to deliver the message to the mass audience beyond the reach of the school program, and it was proven that PR release had been sent out widely for every major event. Continuation of close coordination with TV channels which would be interested in covering social topics, food safety issues, government and/or school activities, and interesting topics for families, is suggested for the future. (e.g. VTV4 covers international topics and VTC10 promotes activities of foreign organizations.)

New exhibition scheme

As mentioned in the previous section, a new method had been suggested by Hanoi DARD and HPA. It is to combine HPA's annual OCOP trade fair at AEON Malls with the poster exhibition and the award ceremony. The operations and initiating organizations were designated as follows.

- (a) Hanoi DARD together with DOET completes the school program and the poster festival until the evaluation committee.
- (b) HPA spares a floor space within its annual OCOP trade fair event at AEON Malls and coordinates the poster exhibition as a part of the promotion of agriproducts.
- (c) HPA prepares the event decorations (e.g. an entrance gate, a backdrop, a stage, etc.) and coordination with other private company participants on the exhibition floor.
- (d) On a weekend evening towards the end of OCOP trade fair, an award ceremony for the poster festival will be held with a joint support: HPA prepares the stage and equipment at the exhibition floor, and Hanoi DARD and DOET manage the program and invitation of students, teachers, parents, and VIPs to attend the ceremony.

In 2020, the poster exhibition and an award ceremony were organized with this scheme as a trial, during 5-9 November at AEON Mall Long Bien, and 19-23 November at AEON Mall Ha Dong with a minimal support from Project. Although there were no official counts of the number of visitors, the event attracted an active traffic of consumers and the award ceremony was held at 15:00 to 16:30 on 21 November at AEON Mall Ha Dong, in a professional manner with a grand electric backdrop. Approximately 100 guests were invited, including 88 students and parents from two participating schools and 15 representatives from CPMU, DARD, DOET and private companies. In addition, around 30 AEON Mall customers were also watching the ceremony in the surrounding area.

This new method was proven effective to bring four positive elements: 1) more reliable sustainability by sharing financial and human resources between Hanoi DARD and HPA, 2) more efficient logistical management due to HPA's event planning expertise, 3) actualization of a rare opportunity to connect producers, buyers, and consumers within one event, and 4) enhancement of newsworthiness by attracting more traffic of general public.

For this exhibition event, Project provided 2,000 units of 2017 elderly version leaflets on "How to Select

Safe Vegetable” and 2,000 units of 2018 producer/trades version leaflets on “A Journey of Safe Vegetable”.

Additional event opportunity

Ownership and initiative of Hanoi DARD and HPA had been nurtured over the 4-year activities, and HPA suggested a new event idea to host a talk show. The purpose of this event is to promote proper understanding about safe agriproducts among producers, buyers, and consumers, by engaging the audience with experts. To organize this event, roles and responsibilities of each organization were suggested as follows.

- HPA manages the budget, and arranges the venue, displays, and equipment.
- HPA invites 20-30 enterprises to display and sponsor the event.
- Hanoi DARD invites 5-7 agriculture experts and producers to provide technical support as a panel to manage Q&A.
- DOET invites students and parents, around 250-300 people.

In 2020, this Talk Show was planned in December but had been canceled due to the government restrictions with COVID-19 situation; however, a suggested program by HPA was as follows. The total duration had been expected to be 3 hours.

- (a) Opening remarks: HPA and a representative from DOET
- (b) HPA Website introduction – Ask students to visit the website + Q&A
- (c) Representatives from producers to answer questions from the audience

This plan will be discussed again among the stakeholders for 2021 implementation in due course.

2.25.2 Face-to-face dissemination program for the elderly segment

After providing 4,100 leaflets to Women’s Union in July 2019, the activities to support the elderly segment turned out to be not as active as in Phase 1 for the following reasons:

- During Phase 1, Women’s Union initially expressed interest in distributing Project’s educational leaflets nationwide, and MOU was signed for Women’s Union to hold a right to reprint leaflets on their own for their dissemination activities. However, the organization faced budgetary limitations in 2019 to distribute Project leaflets nationwide.
- In 2020, due to COVID-19 pandemic, face-to-face meetings were discouraged.
- Project leaflets which had been printed for 2019 and 2020 were essentially same design and contents; therefore, it was redundant to provide them with more leaflets.

Project still supported Women’s Union and Hanoi Consumers Club with educational leaflets, whenever necessary throughout the project period. The number of leaflets provided to Women’s Union (including provincial Women’s Union) and Hanoi Consumer Club during the Project period is exhibited in Table 2.25. 3. The total of 51,650 units were distributed to reach out to the elderly segment.

Table 2.25. 3 Leaflet Distribution for Elderly Segment (As of April 2021)

	Vietnam WU	WU in other provinces		Hanoi Consumer Club
		Pilot	Semi-pilot	
- School leaflet 2017	2,600			
- Elderly leaflet 2017	12,600	10,200	2,000	
- Producer and Trader leaflet 2017	2,000			
- School leaflet 2018	5,000			
- Elderly leaflet 2018	6,600	6,150	4,100	100
- School leaflet 2019				300
Total				51,650

Source: JICA Project team

2.25.3 Face-to-face dissemination program for producers and trades

The producer/trade version of educational leaflets were continuously provided to pilot, semi-pilot, and knowledge sharing provinces to be used in their ToT, ToF, marketing events, and other related activities.

- Distribution of leaflets of 2019 version was skipped since it was essentially same as 2018 version. Leaflet distribution covered all pilot, semi-pilot, and knowledge sharing provinces.
- The gold-award winner's poster in 2017 and another in 2019, were digitally processed and distributed, 1,000 and 1,160 copies respectively.
- Soft files of the gold-award winner's slide show were distributed to the people involved.
- To raise awareness among producers and retailers, target group producers and retailers were invited to be involved in the poster festival and the exhibition: at least 10 target group producers and 3 retailers were involved as poster contest evaluation committee and/or as sponsors for award prizes.

The number of leaflets distributed during the entire Project period, as of April 2021, is exhibited in Table 2.25. 4. The total of 56,940 units have been distributed to reach out to producers and trades. Approximately 500 leaflets per province (13 provinces/cities) will be still continuously distributed until the end of Project, to be utilized in Project dissemination seminars in pilot, semi-pilot and knowledge sharing provinces.

Table 2.25. 4 Leaflet Distribution for Producers and Trades

	Pilot provinces	Semi-pilot provinces	Knowledge-sharing	Marketing related activities
- School leaflet 2017			50	1,200
- Elderly leaflet 2017			30	
- Producer and Trader leaflet 2017	13,900	10,800	50	600
- School 2017 (EN)				1,000
- School leaflet 2018			30	1,000
- Producer and Trader leaflet 2018	19,950	5,100	30	100
- Elderly leaflet 2018	2,170		30	
- School 2018 (EN)				900
Total				56,940

Source: JICA Project team

During Phase 2, the following voluntary disseminations were conducted beyond Project's initiatives:

- A retailer, Coop Food, voluntarily displayed 2019 finalists' posters for their new store opening event and introduced them on their Facebook page.
- Le Quy Don School in Hai Duong province coordinated a field trip to learn about safe vegetable production on December 12, 2020. Project provided the leaflets and the educational video as supporting materials. The educational materials were well appreciated for clear, simple, yet comprehensive explanations. Since the theme is a journey of safe vegetables, the contents were deemed relevant from the production perspectives as well.

2.25.4 Hanoi Promotion Agency website as an information hub

(1) Execution principles

During Phase 1, development of a website with a concept to serve as a safe vegetable information portal was proposed by Project. HPA agreed to its development and decided to incorporate the suggested concept into the safe agriproducts website. Subsequently, the website was developed by HPA and successfully launched. In Phase 2, Project closely collaborated with HPA to collect feedback from consumers to improve the website and to disseminate the website for consumers' active usage.

(2) Execution details and results

Cooperation with HPA

Cooperation with HPA during Phase 2 was mainly in the following areas.

- Project supervised the design of HPA' website introduction leaflet, and HPA printed them to disseminate the website to the following audiences.
 - (a) Approximately 49,652 grade 7 students across 156 schools in Hanoi urban districts in September 2019. Website introduction leaflets were distributed in conjunction with the school education leaflets.
 - (b) Approximately 50,000 grade 7 students across 156 schools in Hanoi urban districts in

October 2020. Website introduction leaflets were distributed in conjunction with the school education leaflets.

- Project created an opportunity for HPA to demonstrate the website to consumers at the AEON Mall (Long Bien) poster exhibition in 2019, and HPA initiated and arranged the same activity in 2020.
 - (a) HPA supported the activity in 2019 by providing equipment, human resources to introduce the website, 1,000 units of leaflets, and 720 mini gifts.
 - (b) HPA again prepared equipment, human resources, 5,000 units of leaflets in 2020.
- In the school education program in 2019 and 2020, students were instructed to access the website as their homework. In addition, the Project collected feedback from consumers and shared the website's improvement suggestions with HPA.

The result of HPA website (nongsanantoanhanoi.gov.vn/) performance is summarized as follows.

- At the beginning of Phase 2, in May 2019, 8 months from the release of the website, the number of accesses reached 239,500
- According to HPA, the website achieved the following results as of May 2021.
 - (a) The number of website access: 1,159,000
 - (b) The number of producers registered: 623
 - (c) The number of shops registered: 470

Collaboration between Project and HPA to disseminate their website and to promote usage has been effective.

Results of Consumers' Feedback

In Commitment Paper homework for the school education program, feedback on HPA website was prompted in an open answer question. Key findings are as follows.

- Information that consumers feel useful are safe vegetable selling points (39%), producer information (25%), and how to select safe vegetable (12%). Seventeen percent of the respondents even mentioned all information was helpful (17%).
- Only 17 percent of the respondents suggested improvement areas, which could be categorized in the following 2 points:
 - (a) Respondents expressed frustrations with the slow processing speed.
 - (b) Respondents wished to see that the names and the prices of the agriproducts listed on the website so it would have been clearer.

It can be assessed that i) the site contents respond to users' needs, as their focused topics were designed based on the finding from the initial consumer survey, and ii) the volume of the contents reached a sufficient level for users to feel helpful.

As of January 2021, HPA expressed appreciation that consumer communication activities directed by

Project were very efficient for the fact that the number of access to this website already had surpassed that of HPA Homepage which had been running for many years.

With regard to the concern about the processing speed, HPA already identified the core issue and addressed it. In addition, they were proactively enhancing the website in their own creative manner. For example, safe vegetable selling points and distribution companies had been extracted from information of Sub-Department of National Agro-Forestry-Fisheries Quality Assurance Department, Hanoi . Furthermore, they added a function which would enable registered users to upload photos and videos of their businesses: This function would facilitate online business matching activities.

Overall, the website contents had been verified appropriate to respond to consumers' needs towards safe vegetable consumption, the website was effectively and efficiently disseminated to users, and the function had been and would be continuously enhanced by HPA.

2.25.5 In-store promotion by safe vegetable retailers

As described in the Phase 1 reporting section (2.13.15), In-store promotion was planned for 2019. It was strategically integrated into one of the activities concurrently organized during the poster exhibition; therefore, it was already described in 4) Exhibition at AEON MALL, under (3) Results of 2019 and 2020 activities in Section 2.25.1.

2.25.6 Consumer Communication Activity Guidebook

Procedures and materials developed through awareness raising activities implemented in Phase 1 and Phase 2 were compiled as the Consumer Communication Activity Guidebook as shown in Attachment 16.

< *Activities for Completion of Phase 2* >**2.26 Preparation and Distribution of Training Materials**

The following table shows the training materials created and distributed through the project activities. Each training material was developed in English and translated into Vietnamese, and distributed to the PPMU and concerned people. TOT and TOF training materials created through the trial activities of production and marketing were integrated as the attachments in the manuals of production management system and supply chain development. It is expected that these materials will be utilized by DARD of pilot, semi-pilot and knowledge sharing provinces, which will carry out activities after the project is completed.

Table 2.26.1 Preparation and Distribution of Training materials

No.	Name of Reports	Submission	Number of Reports			
			English	Vietnamese	Japanese	CD-R
1	Baseline Report	March, 2019	5	10	-	-
2	End line Survey	June, 2021	5	10	-	-
3	Training Materials on Safe Vegetable Production and marketing TOT on Basic GAP TOF on Basic GAP TOT follow-up on Basic GAP TOT for marketing TOF for marketing	(Integrated into Production manual and Supply chain manual)	-	-	-	-
4	Communication Materials				-	-
	(1) School leaflet 2017	Sep 2017	1,250	63,460		
	(2) Elderly leaflet 2017	Sep 2017	-	24,860		
	(3) Producer and Trader leaflet 2017	Nov 2017	-	32,000		
	(4) Digitized poster 2017	Dec 2017	-	1,000		
	(5) School leaflet 2018	Sep 2018	1,930	35,860		
	(6) Producer and Trader leaflet 2018	Nov 2018	-	28,100		
	(7) Elderly leaflet 2018	Nov 2018	-	19,150		
	(8) Edited video slideshow 2018	Dec 2018	-	12		
	(9) School leaflet 2019	Sep 2019	1,030	53,672		
	(10) Digitized poster 2019	Dec 2019	-	1,039		
	(11) HPA website leaflet 2019	Sep 2019	-	50,000		
	(12) In-Store Promotion leaflet 2019	Nov 2019	-	2,000		
	(13) In-Store Promotion display 2019	Nov 2019	-	5 panels		
5	Manual for Production Management System for GAP Promotion	June 2021	150	300	-	-
6	Manual for Supply Chain Development	June 2021	150	300	-	-

Source: JICA Project Team

2.27 End Line Survey**2.27.1 Outline of the survey**

(1) Objective

- To collect field data of target groups in pilot and semi-pilot provinces based on the contents of baseline survey.
- To analyze the achievement of project objectives and outcomes

(2) Target Area

The survey was conducted 20 target groups in pilot and semi-pilot provinces (Hung Yen, Ha Nam, Hai Duong, Thai Binh, Vinh Phuc and Phu Tho Provinces).

(3) Methodology

Endline survey was conducted by two types of interviews: (1) group interview and (2) individual interview. Both interviews were conducted with questionnaire formats, and sufficient number of surveyors were recruited directly by JICA project team.

1) Group interview

- Nominate the interviewees (2-5 farmers/group) including group leader, production manager and core farmers who participate into the project activities and represent the member farmers.
- Interview with the nominated interviewees according to the questionnaire form.
- The interviewed groups were noticed to bring relevant documents, such as record books and cultivation calendar (if any).
- The surveyors were advised to fill in the form according to the instruction provided by JICA Project team and also to take photographs of interviewees and relevant documents as evidence.

2) Individual interview

- Nominate the farmers who received the individual interview in the baseline survey. If the number of samples does not meet the set numbers of each group, select additional farmers randomly from the farmers' name list.
- Interview with farmers individually to avoid influences from other farmers' opinions.
- The farmers were notified to bring relevant documents, such as record books and cultivation calendar (if any).
- The surveyors were advised to fill in the form according to the instruction provided by JICA Project team and also to take photographs of interviewees and relevant documents as evidences.

The number of groups and individuals were selected for endline survey by JICA Team

- Group interview : 20 samples; Hai Duong (6), Ha Nam (4), Hung Yen (3), Phu Tho (2), Thai Binh (2) and Vinh Phuc (3)
- Individual interview : 280 samples were selected randomly.

(4) Sample Size of Endline Survey**Table 2.27.1 Sample Size of Endline Survey**

Name of group	Group	Individual
Hai Duong Province		
Duc Chinh Agricultural Service Cooperative	1	20
Tan Minh Duc Cooperative	1	20
Thanh Ha Safe Vegetables Company Ltd.	1	8
CP Green Farm Safe Vegetable, Fruit Production Facility Unit	1	2
Lua Safe Vegetable Production Farmer Group	1	20
Gia Gia Food Joint Stock Company	1	-
Ha Nam Province		
Ha Vy Agricultural Service Cooperative	1	20
Lien Hiep Safe Agricultural Production Cooperative	1	-
Cat Lai Agricultural Production Cooperative	1	20
Thanh Tan Commune Safe Vegetable Production Cooperative Group	1	11
Hung Yen Province		

Name of group	Group	Individual
Japan and Vietnam Vegetable, Fruit Joint Stock Company	1	-
Yen Phu Agricultural Services Cooperative	1	20
Binh Minh Safe Vegetable Cooperative	1	13
Phu Tho Province		
Huong Non Agricultural Service Cooperative	1	20
Truong Thinh Agricultural Service Cooperative	1	21
Thai Binh Province		
Quynh Hai Agricultural Production and Service Cooperative	1	21
Thanh Tan Agricultural Production and Service Cooperative	1	20
Vinh Phuc Province		
Dai Loi Safe Vegetable Cooperative	1	14
Vinh Phuc Safe Vegetable Cooperative	1	20
Visa Safe Vegetable Cooperative	1	10
Total	20	280

Source: JICA Project Team

(5) Data Aggregation and Input in Excel Sheet

The surveyors were advised to review the questionnaire sheet again to check that the form was filled in properly. They were also advised to input questionnaire information into the excel sheet provided by JICA Project team.

(6) Survey Schedule

- 15-26 February : Designing of interview sheet
- 1-5 March : Translation of interview sheet, preparation of TOR
- 8-12 March : Selection of surveyors
- 15-19 March : Field arrangement and guidance for the surveyors
- 22-31 March : Execution of field interview
- 1-16 April : Data input in excel sheet and processing
- 19 Apr – 7 May: Reporting

2.27.2 Result of the survey

End line survey report was finalized as shown in Attachment 17.

2.28 Recommendation for Policy Making of Good Practice and Lessons Learned

Through discussions with CPMU and JICA Project team, the terminal evaluation team summarized the results from the project activities and compiled them as recommendations and lessons learned to achieve overall goal. The recommendations are shown in Chapter 3.

In addition, it was recommended on the terminal evaluation that CPMU should offer opportunities (seminar, workshop, etc.) to share the knowledge and experiences learned from the Project and build a network among staff members of PPMU/DARD of the Pilot, Semi-Pilot, and Knowledge-sharing provinces since four provinces among Knowledge-sharing provinces that had not yet carried out the trial activities with the selected target producers were required to train staff to promote the production and sale of safe crops along the supply chain.

Therefore, CPMU and JICA project team discussed and agreed to hold a "project dissemination seminar"

to share the knowledge and experiences learned from the project and build a network among stakeholders. The expected participants are CPMU, PPMU of pilot and semi-pilot provinces, PPMU/DARD from 6 Knowledge sharing city/ provinces. The outline of the seminar is as described below.

Objective: Share the knowledge and experiences learned from the project and build network among stakeholders

Location: A Hotel in Hanoi city (1st day), Field visit (2nd day)

Participants: CPMU, PPMU of pilot and semi-pilot provinces, PPMU/DARD from 6 Knowledge sharing city/ provinces.

Agenda (tentative)

1st day: Seminar at Hotel in Hanoi City

Time	Contents	In Charge
12:30-13:00	Registration	
13:00-13:10	Opening remark	CPMU
13:10-13:20	Opening remark	JICA VN office
13:20-13:40	Project outline	CPMU
13:40-14:10	Good practices through trial activities in production	PPMU
14:10-14:40	Good practices through trial activities in marketing	PPMU
14:40-15:00	<i>Coffee break</i>	
15:00-15:30	Communication activities	PPMU Hanoi
15:30-16:00	Introduction of manuals of production management system and supply chain development	Consultant Team
16:00-16:30	Action Plan to replicate the trial activities even after the termination of the Project	PPMU
16:30-17:10	Dissemination of project approach to Knowledge sharing provinces	CPMU
17:10-17:30	Closing remark	CPMU
18:00	<i>Dinner reception</i>	

2nd day: Field visit in Hung Yen (**Knowledge sharing province only**)

Time	Contents	In Charge
7:00	Leave from Hotel in Hanoi	
8:30-10:00	Field visit to Japan Vietnam company	
10:30-12:00	Field visit to Yen Phu cooperative	
12:00	Return back to each province	

Source: JICA Project Team

2.29 Preparation of Project Work Completion Report

Consultant team compiled all the project activities in Phase 1 and Phase 2 and drafted the project work completion report in 3 languages (English, Japanese and Vietnamese) according to the table of contents specified in the contract. Draft project work completion report was reviewed by JICA Vietnam office and CPMU and finalized.

CHAPTER 3 ISSUES AND LESSONS LEARNT ON PROJECT IMPLEMENTATION

3.1 Trial Activities for Crop Production System

3.1.1 Confirmation of production area safety

Based on Circular 49/2013/TT-BNNPTNT stipulated guideline for establishment of Safe Agriculture Production Zone, JICA project team together with PPMU conducted the assessment of safety of production area in 2019 and 2020 periodically as shown in Attachment 9.

The safety of production area was confirmed in all 20 target groups based on the results of soil and water sampling and testing. During the project period, the certificate of safe production condition was issued to 17 target groups and VietGAP certificate was issued to 12 target groups.

As of end March 2021, Lua Farmer Group in Hai Duong Province has expired the certificate of safe production condition and requested to DARD to renew the certificate. Under the new Circular 38/2018/TT-BNNPTNT issued by MARD, however, registration of agricultural cooperative or agricultural company is required to apply and obtain the certificate. But Lua farmer group has not been registered as cooperative or company since the group is willing to continue activity as a farmers group. Originally, the certificate of safe production condition was issued based on Circular 45/2014/TT-BNNPTNT, but it was replaced to the new circular as described in Article 25 of Circular 38/2018/TT-BNNPTNT. The major difference is that it has changed to a voluntary application from agricultural cooperatives instead of being requested by DARD. This application is not enforceable to the group. Hai Duong PPMU is promoting Lua farmers group to register as agricultural cooperative.

Though the certificate of safe production condition is not compulsory but recommended to acquire, it is one of required documents as a proof of safety condition from buyers especially for modern market such as supermarket. Therefore, it is recommended for PPMUs to promote a target group to register as an agricultural cooperative or agricultural company in case the group is not registered and aim to sell products to modern markets as safe vegetables.

3.1.2 Training for Basic GAP

The series of training for Basic GAP were implemented. Initially, JICA project team provided TOT for Basic GAP for PPMU staff in pilot provinces, and PPMU staff, in turn, provided TOF for Basic GAP for target group members. After implementation of trial activity in winter season 2017-18, JICA project team called PPMU staff and target group leaders for follow-up training to review and discuss the progress and lessons learned from trial activities. This “PDCA cycle” approach was very effective for PPMU staff to build their capacity of providing Basic GAP training and monitoring field activities. The materials developed for TOT Basic GAP were also utilized by PPMU staff to develop TOF training materials, PPMU staff implemented TOF for Basic GAP for target groups. Some of PPMU staff were even involved in sharing their experiences in the workshops for knowledge sharing provinces organized by CPMU in January, 2021.

Technical assessment for safety conditions is also important and effective tool to assess the present

conditions jointly with PPMU and target group leaders by walking through production fields, harvesting, transportation, pre-processing, storing up to delivery place according to criteria of Basic GAP. Therefore, the procedure of technical assessment was introduced in the manual of production management system. It is recommended for PPMU staff to practice technical assessment regularly as one of the external auditing activities.

3.1.3 Formulation of safe vegetable production groups

The area for safe crop production in the target sites could not be confirmed at the time of Terminal Evaluation, so the Project (Japanese Experts and CPMU/PPMU) was recommended to collect latest data and confirm the area for safe crop production in the target sites in the end line survey.

Based on the recommendation, the JICA project team collected the field diaries and reported the area in the target sites as shown in the table below. CPMU acknowledged the reported result that the area for safe crop production in the target sites was 188.16 ha, achieving the set indicator of project purpose in the CPMU meeting on April, 2021.

Table 3.1.1 The area of safe crop production in the target sites

Province	Target groups	Registered area (Winter crop 2020- 21)*1	Area checked by collected field diary (m ²)*2	Differences	2 nd checked by collected field diary (m ²)*3	Differences
Hai Duong	Duc Chinh coop.	357,598	352,527	(5,071)	358,678	1,080
	Tan Minh Duc coop.	300,800	215,366	(85,434)	300,717	(83)
	Thanh Ha company	157,921	63,281	(94,640)	153,133	(4,788)
	Gia Gia company	76,200	72,660	(3,540)	76,260	60
	Green farm company	55,200	53,220	(1,980)	53,220	(1,980)
	Lua farmer group	58,000	52,644	(5,356)	58,162	162
Ha Nam	Ha Vi coop	34,991	34,991	-	34,991	-
	Lien Hiep coop.	40,200	40,180	(20)	40,180	(20)
	Cat Lai coop.	62,600	62,628	28	62,628	28
	Thanh Tan coop.	30,600	30,600	-	30,600	-
Hung Yen	Japan Vietnam company	76,000	76,068	68	77,868	1,868
	Yen Phu coop.	20,200	20,242	42	20,242	42
	Binh Minh coop.	98,500	98,533	33	98,533	33
Phu Tho	Huong Non coop	50,000	50,000	-	50,000	-
	Truong Thinh coop	100,300	100,300	-	100,300	-
Thai Binh	Quynh Hai coop	108,100	108,132	32	108,132	32
	Thanh Tan coop	85,000	85,000	-	85,000	-
Vinh Phuc	Dai Loi coop	100,000	100,054	54	100,054	54
	Vinh Phuc coop	38,160	34,920	(3,240)	37,800	(360)
	Visa coop	35,121	33,733	(1,388)	35,121	0
	Total (m ²)	1,885,491	1,685,080	(200,411)	1,881,620	(3,871)
	Total (ha)	188.55	168.51	-20.04	188.16	(0.39)

Note: *1 The production area was planned as 190.01ha in September 2021, but modified to 188.55ha as 1.48ha for 10 farmers of Tan Minh Duc cooperative have been deducted since they did not cultivate in this season. *2 Area checked by terminal evaluation team based on the collected field diaries. *3 Area checked by JICA project team based on the collected field diaries after the terminal evaluation.

Source: JICA project team

According to the result of confirmation of the safe production area conducted by PPMU together with JICA project team, the total safe production area of 20 target groups was 247 ha, which is bigger than the production area under the trial activity (188.16 ha). Through the trial activity, JICA Project team

decided to limit the size of safe crop production group and area at initial stage in consideration with the capacity of the target group of record keeping and joint sales. As the target groups had been getting experience of record keeping and joint sales according to the demand from buyers, the groups expanded the production area year by year. It is expected for target groups to expand the production area by increasing the order volume from existing buyers as well as finding new buyers. PPMUs of pilot provinces and semi-pilot provinces are expected to provide necessary support for both marketing and production management according to the developed manuals.

3.1.4 Dissemination of cultivation method for safe crop production

Through the demonstration and technical guidance to the target groups, JICA Project team has introduced four types of cultivation methods contributing to safe crop production, such as soil improvement, new variety seeds, new seedling method and new agricultural materials like non-woven textile and mulch sheet. As result of the demonstration and trial cultivation, the following impacts have been already observed.

- 2,210m³ of compost was produced by 557 farmers by utilizing local raw materials and 871 m³ of quality compost was bought by 180 farmers, and those compost was applied for around 200 ha. The amount of compost per unit area is still not sufficient level, therefore the target groups are expected to improve the soil condition by applying the compost continuously even after the project period.
- 105 farmers applied soil sterilization method introduced in the project for around 11.8 ha.
- New variety seeds were demonstrated in the farm of target groups and the farmers realized the characteristics of them in terms of heat and disease tolerance and yield. As the result, 40 farmers purchased the seed by their own cost and planted in more than 9 ha.
- Target groups except for Duc Chinh cooperative received trainings of new seedling method learned in the study tour in Dalat. As the result, 360 farmers in 19 target groups applies the method in 112 ha. Especially Tan Minh Duc cooperative applies around 39 ha.

However, the following technologies were not disseminated as expected even though the result of trial cultivation showed positive effects of improvement on productivity as well as safety of vegetable production.

- Grafting technology is applicable in summer season when the diseases are likely to happen, especially for tomato cultivation, and on farm training for tomato grafting was provided for 41 farmers of 6 target groups. However, there was no farmer produced grafted tomato seedlings in summer 2020 because demand of tomato was limited due to excess supply and even several suppliers started supplying of grafted seedlings in the target sites. In order to improve the safety of production, it is also recommended to purchase the grafted seedlings from such suppliers instead of producing by the target groups.
- Non-woven textile (NWT) was proved as an ideal material to prevent insect attacks with reducing pesticide application. As the result of demonstration, 14 target groups realized its benefit and purchased by their own expense in 2019. For example, Gia Gia company applied NWT for 12,000m² and Yen Phu cooperative for 8,000m². However, the dissemination was limited in 2020,

only 3 target groups applied only for 4,860m² and 2 out of 3 groups were subsidized by DARD program, only 1 group purchased by their own expense. According to the interview with target groups about the intention to use NWT, all groups answered it was still difficult to purchase due to high price even though they knew the effectiveness.

In order to promote the cultivation methods, JICA Project team developed the shop list for recommended materials as shown in Attachment 19. It is also considered to improve the accessibility to the financial institutions to borrow capital investment or cultivation loan for the materials such as NWT and large tunnel for seedling.

3.1.5 On-field instruction of Basic GAP

As the production area is expanded, monitoring for record keeping and agrochemical application also becomes harder as number of field records increases. The main issue is to establish the efficient monitoring system of record keeping and agrochemical application.

(1) List of recommended agrochemicals for vegetables

It was an problem to check the chemical name and applicability for vegetables when PPMU and JICA Project team monitored record keeping of target groups. Therefore, JICA project team together with PPMU prepared the list of recommended pesticides for vegetables based on the registered chemical list issued by Department of Plant Protection, MARD. It was useful for PPMU staff to monitor the record keeping especially for checking the pre-harvest interval period. This recommended chemical list was also utilized for trial of digital recording conducted by Nagase company. It is expected for PPMUs to update the list regularly following the update of registered list issued by MARD.

(2) Strengthening of internal management

Internal management in the target groups should be enhanced to instruct and monitor recording by member farmers. Especially the capacity of production managers should be strengthened. However, there were several target groups which had no production manager or technical staff in charge of production management recruited. Most cooperatives have production managers and the knowledge was accumulated. But the company model groups such as Thanh Ha company, Gia Gia company and Japan Vietnam company faced difficulty to recruit the technical staff for longer period. They ever recruited staff and JICA project team provided technical knowledge for Basic GAP and cultivation methods but those staff left the companies within a short period, then such knowledge was not accumulated in the group.

There are several approaches to be considered to find a technical staff. DARD has a program to support recruitment of a graduate of college/university¹. For example, Cat Lai cooperative recruited a graduate

¹ Decision No. 1231/QD-BNN-KTHT dated April 9, 2018 of the Ministry of Agriculture and Rural Development approving the plan to pilot the model of sending young cadres to graduate from universities and colleges working for a limited time in agricultural cooperatives.

Decision No. 2261/QD-TTg dated December 15, 2014 of the Prime Minister approving the program to support cooperative development for the period 2015-2020;

and assigned him as production manager of the group. He received instructions from JICA project team for record keeping and cultivation techniques, then he provided guidance to member farmers. PPMUs are recommended to encourage the companies to recruit such staff.

(3) Prevention for drift risk of pesticides from neighboring farmlands

There is no clear instruction on both VietGAP and Basic GAP about the drift risk though some prevention measures are described below.

VietGAP standard

“VietGAP production areas need either to be distinguished, isolated or have measures to be isolated and reduced the risks of pollution from nearby producing areas which do not apply VietGAP (if have) (yellow- highline content which is shown in the green- highline part can be deleted)” Section 3.2.1 Evaluating and choosing the producing areas

“When using plant protection drugs, measures must be taken to prevent the spreading to the surrounding fields; There must be a warning sign for the newly- sprayed area; mixed drugs which are not used must be collected and treated as the regulations on harmful wastes.” Section 3.2.2.4 Plant protection and utilization of chemicals

Basic GAP:

“Warning signs are placed at production sites just after spraying pesticides.” Control point 22 Have farmers worked on warning signs in the production site those just spraying pesticides, Basic GAP.

Therefore, JICA Project team developed a checklist for monitoring control points at harvesting, collecting, packaging and delivery in the manual of production management system.

Production manual

“Do not harvest when neighbor farmer is applying or just finished applying agrochemical or fertilizer.” Attachment 4.4 Checklist for monitoring control points at harvesting, collecting, packaging and delivery. In practice, a farmer is required to inquire to the neighboring farmers about name of agrochemicals and application timing then decide the harvesting timing in consideration with pre-harvest interval (PHI) of the pesticide applied.

It was explained on CPMU meeting held on 29 April 2021. CPMU explained the situation that it was very difficult to control the drift risk because farmers normally cultivated line (ridge) by line (ridge), but acknowledged the above countermeasure as an appropriate approach.

3.1.6 Requirements for upgrading/new construction of pre-processing facility

JICA Project team created an assessment sheet for upgrading conditions of production and pre-processing area to ensure food safety and hygiene conditions and upgraded the facility and equipment

Decision No. 461/QD-TTg dated April 27, 2018 of the Prime Minister approving the Project on development of 15,000 cooperatives and unions of agricultural cooperatives to operate effectively until 2020;
Circular No. 340/2016/TT-BTC dated December 29, 2016 of the Ministry of Finance guiding the level of support and financial mechanism to support training human resources of cooperatives, establishing new cooperatives, reorganizing activities of cooperatives under the Cooperative Development Support Program for the period 2015-2020;

of target groups through the trial activity. These procedures and assessment sheet are compiled in the manual of production management system.

On the other hand, planning and designing of upgrading/ new construction of a pre-processing facility requires knowledge of construction and civil engineering as well as vegetable production. However, in Viet GAP and certificate of safe agricultural production condition, there are only qualitative sentences but no detailed regulation and planning and designing of a pre-processing facility depend largely on the subjective judgement of the person in charge. Moreover, PPMU and DARD have limited human resources who can assess a requirement of a pre-processing facility, make plans, and design buildings. Technical assessment sheet and the implementation mechanism of assessment, planning and designing of a pre-processing facility described in the manual should be reviewed by CPMU as an appropriate one. Therefore, based on the discussion on CPMU meeting held on 29 April 2021, CPMU reviewed the assessment sheet and implementation process on the manual. The review comments were reflected into the manual.

3.1.7 External inspection and auditing

(1) Establishment of implementation system for pesticide residue quick test

Quick test is very simple and clear visually by comparing the colors of samples with control, PPMU staff and target groups' leaders were willing to use the quick test kit continuously. Cost/benefit analysis reveals the quick test is affordable by farmers as they improve profitability from the sales of safe vegetables.

- Cost of test kit: approximately 150,000 VND/ 1sample (847,000/box / 6 samples).
- Increased Income: In the case of leafy vegetable, several supermarkets pay 3,000-9,000 VND/kg higher price to producers than local market. Increased gross income from 1sao (360m²) is assumed 1,800,000 VND (600kg/1sao x 3,000 VND/kg).
- It is said the additional cost for quick test is affordable by farmers as they gain more income (1,800,000 VND added on the normal vegetable price) even if they use 1 sample test (150,000 VND) per sao.

It is recommended to formulate a structure as shown below to implement the quick test even after the project period and it was described in the manual of production management system.

- District extension center: Own a test tools with chemical reagent and provide a quick test service to farmer group.
- Farmer group: Receive a quick test service with service fee, which includes direct cost for chemical reagent and travel cost for extension officer.

CPMU mentioned on CPMU meeting held on 29 April 2021 that it was difficult to institutionalize the suggested structure as a compulsory system but acknowledged its implementation to recommend PPMU and target groups to conduct quick test.

(2) Selection of a testing laboratory for pesticide residue

Laboratory test for pesticide residue and for soil and water was conducted in the trial activity to ensure

the safety of products and production area. The technical procedures of sampling and the list of testing laboratories were compiled in the manual (“List of food safety testing laboratories accredited by MARD” in Attachment 3.1 Soil and Irrigation Water Sampling and Testing Plan for Trial Activity in the manual). CPMU reviewed the procedure and the list of testing laboratories and review comments were reflected into the manual.

3.1.8 ICT application for safe crop production

Trial of digital recording was conducted to verify the improvement of the safety of agriculture product and enhancement of the reliability of safe crop production by applying ICT technology on recordkeeping of production activities, together with Nagase Vietnam Co., Ltd. and TMA Innovation company.

The software was verified to improve the traceability of production process and to enhance the reliability of safe crop production. For farmers, the software was easy to use, saving time and more convenient than conventional hand-written recordkeeping, and useful for pesticides list. For manager of the group, the software was useful of warning/monitoring of farmer’s cultivation practice and even useful to show production information to buyers. Buyers also answered positive feedbacks that the software would increase the reliability of their products’ safety.

For the next step, it is expected to improve more user-friendly and efficient data input so that farmers can input data timely, which leads to improve traceability of safe vegetable production. It is also expected to commercialize the system in consideration with income sources so that the sustainability of the system can be enhanced.

3.2 Trial Activities for Supply Chain Development

Trial activities for collection and delivery in the Project are evolving. As there was no successful model of marketing safe vegetables through joint sales at the beginning of project start, PPMUs and TGs along with the JICA Project team experimented in activities on trial and error basis until the JICA Project team established framework of project marketing activities including annual activity cycle. Through this process, many TGs became able to sell safe vegetables through joint sales. TGs are now supplying most of major supermarkets in Vietnam. It is considered to be a big achievement of the Project.

This section describes issues, good practices and lessons learnt from implementation of trial activities during the project period.

3.2.1 Identifying buyers

(1) Good practices

● Target high-end buyers first and ordinary buyer later

The JICA Project team took the strategy to target high-end buyers in Hanoi such as supermarket from the beginning as they can improve the quality and safety of products supplied by TGs by requesting higher standard and monitoring if those requirements are met. As most of buyers at the time of project start just requested safety certificates and only high-end buyers conducted physical monitoring as well

as random sampling for checking chemical residues, trading with buyers who do not care about safety would not improve reliability of safe vegetable. In addition, not only safety but also quality is important to obtain higher price. In order for TGs to increase their profit, it is mandatory for them to improve quality of products such as appearance, color, and uniformity. Trading with high-end buyers can teach TGs on how to improve quality. This strategy went well as TGs improved their capacity of producing and supplying vegetables which satisfy the requirement of both quality and safety. Once TGs could satisfy the requirements of high-end buyers, it is easy for them to supply to other buyers too. On the other hand, this strategy can be applicable only for TGs which have enough capacity. Arranging products in flexible manner to satisfy buyer's requirement and negotiating with buyers to reach the trading requires management capacity as well as some sort of business sense from TG leaders. It is not an easy task for TGs with little experience of business, for whom another strategy is necessary.

- **Networking among TGs**

Throughout the project period, network among TGs and PPMUs was strengthened through various activities organized by the JICA Project team. Such activities include TOT and TOF marketing, and study tours. This network certainly helped TGs and PPMUs to develop their capacity through information sharing and discussion. The network with other TGs also helped TGs to expand their business. They could source some vegetables or some part of ordered volume from other TGs in order to satisfy the request of buyers. This kind of collaboration is beneficial for producers who can stabilize as well as diversify their supply as well as buyers who want to ensure safety and stable supply. Since the number of producer groups who can supply safe vegetable in bulk is limited, having network with other safe vegetable producers gives them flexibility and autonomy in their business operation. Lastly the network with advanced TGs is considered beneficial for small and inexperienced TGs at Nursing stage to learn the basic operation of joint sales. If the advanced group can source products from the concerned TG, the advanced TG will also be benefitted as it is not easy to identify a reliable supplier.

- **Collaborating with big buyers**

The project period corresponds to the expansion of safe vegetable market. It is especially true for supermarkets which attracted consumers more conscious about food safety. Since those supermarket require reliable suppliers, they approached the Project for identifying suitable producer groups. The Project collaborated with those supermarkets to identify appropriate TGs as their suppliers and provided necessary assistance. Since those supermarkets are conscious about safety, their requirements made TGs develop the capacity to ensure safety. Supplying vegetables to supermarket is considered prestigious and motivate TGs to sustain the status of supplier. Without pressure from buyers, it may not be easy to motivate producers to follow complicated procedures. Network with supermarkets was also very useful at the time of COVID-19. The JICA Project team coordinated with them to procure vegetables from TGs affected by COVID-19, and they were willing to support TGs.

- **Increasing recognition attracts buyers**

Utilizing mass media was found very effective to promote safe vegetable production and marketing of TGs. Once TG becomes famous through mass media such as newspaper or TV, many buyers contacted TG and there was no need for the JICA Project team to introduce new buyers. Publication through media is also effective for raising awareness of consumer on safe vegetable production and distribution, As provincial Department of Agriculture and Rural Development (DARD) normally has connection with local TV channel, PPMU should utilize this channel to promote as well as sustain project activities.

- **Effective usage of SNS for promotion**

Although selling fresh vegetables on E-commerce platform is not common in Vietnam, utilizing SNS such as Zalo and Facebook for promotion and sales became popular in Phase 2. It was especially effective during lockdown under COVID-19 pandemic as TGs lost orders from schools and canteens, they could sell vegetables through SNS. The case of Vinh Phuc coop. shows that SNS is an effective way of communicating with consumers. Online sales through SNS has potential not only as an alternative marketing channel but also as promoting brand.

(2) Lessons learnt and issues for future

- **TGs requires management capacity**

Through trial activities, it became clear that TGs require multiple buyers to consume all vegetable produced. In order to make profit while managing trade with multiple buyers and joint sales, and ensuring safety, TGs require high level of management capacity.

In fact, safe vegetable business is not easy. During the project period, the ownership of several companies type TGs changed². A part of reasons for the structural change is difficulty in their business. It is especially so for newly established and inexperienced TGs to face a difficulty in operation. For cooperative type TGs, the activities of TGs with traditional structure tend to be stagnated since board members of these TGs did not have business experience and structure of cooperative did not suit for doing business.

In this context, TGs require more comprehensive training on management capacity. Although the Project provided training on production and marketing, they were not sufficient for TGs to develop the capacity to sustain their business as well as maximize the level of profit as a business entity. For this reason, management capacity should be placed high priority when selecting producer groups for supporting safe vegetable production and marketing.

- **Appropriate model for matching events**

The JICA Project team in collaboration with HPA organized safe vegetable business forums 6 times in order to provide opportunities of matching to producers and buyers of safe vegetables. Although matching events are effective and efficient to identify trading partners for both producers and customers, its concept as well as values have not fully been realized by stakeholders. Although the JICA Project

² Japan Vietnam company (Hung Yen), Binh Minh coop. (Hung Yen), Green Farm coop. (Hai Duong), Gia Gia company (Hai Duong)

team tried to allocate enough time for matching between producers and buyers, it was hampered by restrictions of space, program, and fixed ideas of people on the successful event that the successful event is the one which attracted many participants. Through implementing six business forums, stakeholders gradually understood what the good matching events and an appropriate model of matching was worked out as explained in 2.21.2. As the number of safe vegetables buyers increase, the need for matching events will increase. Matching events can be organized anywhere by inviting producers and buyers and allocating enough space for them to discuss. Hopefully HPA and DARDs will organize such events for safe vegetable producers in future.

3.2.2 Ensuring safety in collection and delivery

(1) Good practices

● Activities to obtain feedback from customers to improve operation

One of the principle for marketing activities in the Project is ‘produce to sell’. The customer’s needs as well as requirements should be reflected in the products and services provided by TG. Customer visit introduced in Phase 2 is the activity for this purpose. Although the JICA Project team tried to facilitate the meeting with customers at the premises of TGs, it turned out to be very difficult to organize due to the difficulties of coordinating timing of both customers and TGs, customer visit is just a casual visit for TGs to customer’s premises for short time. It does not require time and preparation and is easy to organize.

Though it is easy to organize, the feedback provided by customers are really useful for TGs to improve their operation. In order to address the negative comments from customer, TGs have to think about entire operations related to this particular issue. In this way, TGs naturally understood the relation between production and marketing.

The customer visits also served to strengthen trust with customers and sustaining trading with them.

● Monitoring system based on marketing action plan

In order to deepen understanding of marketing activities as well as enhancing their monitoring capacity, PPMUs were asked to monitor the marketing activities of TGs based on their marketing action plan. PPMUs were obliged to submit quarterly monitoring reports which include the analysis of each TG in terms of its progress and achievement made during the concerned period based on its action plan. The report also discussed how PPMU supported TGs. This mechanism is considered to contribute to deepening understanding of marketing activities for both PPMU officers as well as TGs by facilitating them to analyse good practices and lessons continuously.

(2) Lessons learnt

● Risk of relying on the single customer

One of the important lessons learned from trial collection and delivery activities is the importance of diversifying marketing channels and ability of TGs to flexibly adjust the changing situation. For instance, COVID-19 pandemic impacted TGs who rely on canteens and schools which were closed down during

pandemic. TGs who have diversified marketing channels or TGs who can adjust the situation suffered less. In addition, there was a change of ownership and purchasing policy of big buyers such as Vinmart. After the change of ownership from Vin Group to Masan Group, purchasing policy of vegetables supplying to Vin Mart drastically changed. The purchasing price was reduced, and TGs supplied to Vin Mart suffered a lot. The situation was especially serious for those TGs who were not prepared to find other buyers. Since any private companies have a chance of bankruptcy or policy change, TGs of safe vegetables should not rely on one customer. They should make efforts to diversify marketing channels by studying market situations and meeting with potential buyers regularly. Using SNS to promote themselves directly to consumers and buyers is also an effective way of finding new customers.

3.2.3 Sustainability of project activities

(1) Activities related to PPMU

Most of DARDs in Pilot as well as Semi-pilot provinces assign marketing task to Sub-Department of National Agro-Forestry-Fisheries Quality Assurance Department (Sub-NAFIQAD) in the provinces. As NAFIQAD covers quality assurance of agriculture products from production to consumption, they have connections with buyers of safe vegetables. Most of PPMU marketing staff belong to Sub-NAFIQAD. Although these staff are eager to learn and capable enough to carry out the project activities, it is considered unrealistic for official of Sub-NAFIQAD to conduct hands-on support to producer groups for matching or collection delivery after the project completion as they do not have network at field level. These activities are considered more appropriate for the staff of Extension center. In fact, PPMU in some provinces realize this issue. PPMU in Hung Yen and Hai Duong assigned officials of extension center as PPMU marketing staff. PPMU Ha Nam sent their extension officers to attend TOT marketing conducted in October 2018.

On the other hand, officials of Sub-NAFIQAD can organize small scale matching event like Provincial safe vegetable business forum and assist TGs in participating in trade fairs or matching events organized by other organizations.

Sustainability of project marketing activities depends on the availability of DARD staff who support marketing activities. Appropriate mix of staff should be worked out by PPMU after considering the issues mentioned above. Since the assignment of staff to support marketing activities is one of recommendations by Terminal evaluation mission in January 2021, the appropriate measures should be taken by PPMU after the project completion.

(2) Activities related to HPA

The mandate of HPA is to promote investment, trading, tourism, and agriculture in Hanoi. As 60% of vegetables consumed in Hanoi are coming from outside Hanoi. It is important for HPA to promote safe vegetable consumption in Hanoi by introducing producers of safe vegetables to buyers in Hanoi. In this sense, organizing safe vegetable business forum in collaboration with the JICA Project team does match with its mandate.

On the other hand, as explained in 2.9.3, organizing matching events only for vegetable producers is not

very meaningful for HPA as it deals with a wide range of food products and it has a difficulty in attracting buyers. The JICA Project team proposed a workable framework of matching events for safe crops on the experiences of the fifth and sixth safe crop business forums as explained in 2.21.2. As the officers of HPA learned a lot of lessons and good practices and thus improved their capacity in organizing the events as well as coordinating with stakeholders through organizing six forums, these recommendations can easily be applied to existing HPA events.

3.3 Awareness Raising Activities

Awareness raising activities in relation to Output3 involved 5 programs: (1) School education program, (2) Face-to-face dissemination program for the elderly segment, (3) Face-to-face dissemination program for producers and traders, (4) Hanoi Promotion Agency website as an information hub, and (5) In-store promotion by safe vegetable retailers. The success factors and lessons learnt of each of these activities are explained in the following sections.

3.3.1 School education programs

(1) Feedback and lessons learned

After completion of school education program in 2017 and 2018, comments from teachers, students, Hanoi DARD and DOET were collected, and the program was well appreciated in general. With these learning points, the points to reflect to future activities were extracted as follows.

Table 3.3.1 Feedback and lessons learned

Activity	Comments	Lessons learned
Kick-off meeting	A kick-off meeting with teachers was deemed extremely important to capture teachers' attention and to secure proper understanding for successful execution.	Always hold a kick-off meeting at the beginning to provide educational materials and instructions to all teachers.
Leaflet distribution	<ul style="list-style-type: none"> • Contents are educational and practical to help students (and parents) improve their everyday life. • The educational leaflet is easy to understand with an appropriate difficulty level. • The educational material is attractive and interactive to draw students' attention and interest. • As the same leaflet is used for mothers and elderly people, font size and expression modifications can be applied for future production. 	<ul style="list-style-type: none"> • Keep contents as is: practical and interactive. • Maintain fun and attractive design to attract students' interest. • Continue testing the difficulty level with the target grade before finalizing the contents. • Target younger generation with simplified wording and expressions, so that extra space allows fonts to be enlarged.
Homework	<ul style="list-style-type: none"> • Students' interaction with parents are promoted, and children's role to be teacher worked efficiently to transfer information to parents. • Parents supported positively and were influenced to change behavior. • When the number of schools selected for a school program was smaller, homework submission rate was much better. • It is confirmed that it is an important timing to connect the mothers to the selling points 	<ul style="list-style-type: none"> • Maintain the homework activity to engage students as a teacher to transfer information to parents. • Consider conducting the program with a smaller number of schools. • HPA Website introduction leaflet can be distributed to students along with the school education program.

	information, with their heightened interest in safe vegetable purchase.	
Poster & Slideshow contest festival	<ul style="list-style-type: none"> • Students were actively engaged in an activity, where creativity was encouraged. • Technical challenge was anticipated; therefore, an IT training session was required. • Online dissemination was effective to reach wider mass. 	<ul style="list-style-type: none"> • Continue with poster drawing activity to avoid operational complications of slideshow creation. • Consider incorporate poster drawing activity into art class in school so that all students can participate • Maintain online dissemination activities by posting finalists' posters.
Field trip (2018)	<ul style="list-style-type: none"> • A field trip was incorporated as a part of slideshow creation activity in 2018, and onsite learning experience was well appreciated especially because students from Hanoi had never been exposed to vegetable production. • Production sites were far, and a supermarket was too crowded on a Saturday, when students were available for extracurricular activities. 	<ul style="list-style-type: none"> • Keep field trip only as an optional for future plans due to operational difficulties.
Evaluation committee and award ceremony	<ul style="list-style-type: none"> • As evaluation committee decides awards, it is more important to spread awards more widely with a larger number of silver and bronze awards. • As evaluation committee is not specialized in art evaluation, "how to evaluate" needs to be explained more thoroughly in advance. • Project target groups were eager to provide safe vegetables as a prize item. • DOET's selection of a host school and Hanoi DARD's preparation were professionally done. • It was good to involve teachers and students of a host school to make the event entertaining and appropriate for students. • It is important to invite media for news coverage. 	<ul style="list-style-type: none"> • Simplify evaluation method or plan an additional 30-minute session for sample evaluation. • Adjust the award distribution. • Keep same types of sponsors involved. • Event coordination will remain same. • Continue with PR release and media invitation.
Exhibition	<ul style="list-style-type: none"> • Poster exhibition is physically visible and easier for visitors to look through, hence more effective. • The event location is important: the event space in 2017 was much better. • More customer involvement ideas can be incorporated. 	<ul style="list-style-type: none"> • The program should focus on posters than slideshows. • The event location will be discussed with AEON MALL to secure a better space. • Multiple events and promotions will be planned simultaneously.

Source: JICA Project Team

(2) Actions taken and results

1) 2019 activities

Taking the above points into consideration, the 2019 school program activities are planned with; i) a simplified version of 2018 leaflet with larger fonts, ii) grade 7 students, iii) a smaller number of schools, iv) poster contest festival, v) online share activities on Facebook with most "LIKED" award, and vi) integrated consumer journey activities at the poster exhibition hall.

The above-mentioned "vi) integrated consumer journey activities" is a concept to simulate various activities of the entire consumer experience, from becoming aware of and interested in safe vegetables until purchasing and tasting them. It was well appreciated by all stakeholders including visitors, and the traffic and attention improved in 2019.

Although it requires complex coordination of participants, HPA volunteered to continue with the same concept after the first trial of the 2019 exhibition. As HPA successfully managed the complex exhibition in 2020, this concept was incorporated into the guidebook and HPA will continue to lead the event management from 2021 onward.

The only change that was made for 2020 was to stop online sharing activities on Facebook. Once Facebook is utilized as a communication vehicle, frequent posts are required to keep the page and the audience active. Therefore, due to the limited resources and time required for Facebook page management, it was deemed lower in priority.

2) 2020 activities

The consumer communication activities were already into the 4th year, and the implementation focus shifted to building ownership among Hanoi DARD, DOET and HPA. Due to COVID-19 restrictions, the Japanese communication expert was unable to attend to their activities locally; therefore, the situation forced their ownership and initiative, and all three organizations successfully executed all key activities with strong collaboration. They created a program and events, not only reflecting the above-described past learning points but also developing even more feasible and effective new schemes.

The two suggestions emerged from C/P were:

- Combining the poster festival award ceremony with the poster exhibition at AEON Mall OCOP trade fair managed by HPA.
- A new event Talk Show was suggested by HPA to invite producers, traders, agriculture experts, school children and their parents to learn about safe vegetables from the experts.

Talk Show event was planned to be held in December 2020; however, it was not possible to execute due to the COVID-19 situation. Despite this challenge, Hanoi DARD and HPA still retained both ideas in the 2021 plan. The first idea to integrate the award ceremony into the exhibition at OCOP trade fair was efficient and effective with HPA's event management expertise. The second idea enhances consumers' understanding and the newsworthy event can be spread viral; therefore, both ideas have been included in Consumer Communication Activities Guidebook for future reference as well.

3) Development of Consumer Communication Activities Guidebook

After the four years of pilot school educational programs, Consumer Communication Activities Guidebook was compiled. In doing so, the following points had been taken into consideration:

- Avoid operational complications and manage budget restrictions to make the program feasible and sustainable for the future with Hanoi DARD's own initiative.
- Define timelines and roles and responsibilities in discussion with C/P, to ensure that all stakeholders are comfortable in taking designated responsibilities.
- Include details such as supplier contacts to reduce execution barriers.
- Provide digital files of all materials and templates for future use.

The guidebook was reviewed by Hanoi DARD and HPA, and their comments were all reflected to the final version with which all stakeholders agreed. The finalized guidebook has been printed and

distributed to stakeholders including JICA, CPMU, Hanoi DARD, and HPA. Hanoi DARD, DOET and HPA are already starting planning 2021 activities, following this guidebook.

3.3.2 Face-to-face dissemination program for the elderly segment

(1) Feedback and lessons learned

1) Target match

Women's Union members and their wide reach across the nation would be a great potential for a significant impact for dissemination. Since 2017, Women's Union had been showing strong interest in Project's education leaflet, and Women's Union in pilot/semi-pilot provinces also welcomed the leaflets. Women's Union also suggested that 1) they distribute the leaflets in their meetings through their network across Vietnam, and 2) they reach younger mothers by attaching a leaflet in their magazine *me&be*.

2) Execution capability

When they distributed the leaflets in their meeting, the meeting topic was relevant and the way they distributed was effective.

3) Budget restrictions

Despite their proactive wishes, Women's Union could not execute the distribution as widely as planned due to budget restrictions.

(2) Future actions taken and results

Their activity outlook is unpredictable due to their budget situations; therefore, 1) Project provided only to cover activities in Hanoi and target provinces, and 2) supported with a condition for Women's Union to be able to print extra amount whenever their budget becomes available by signing an agreement with JICA project team.

Especially with COVID-19 risks, it would be effective to remind them of usage of leaflets, which are self-explanatory without face-to-face activities. In this regard, i) the leaflet design, which is inviting and motivating, and ii) simplicity of contents presentation, which is intended to be self-explanatory to audience with different background, are both extremely important.

Project also supported Hanoi Consumer Club with leaflet distribution; however, their scale and reach are limited compared to those of Women's Union. Women's Union thus would be the primary target for its scale and impact for mass segment.

3.3.3 Face-to-face dissemination program for producers and traders

(1) Feedback and lessons learned

PPMU of Project's target provinces welcomed the leaflet and posters, and proactively distributed within their network.

(2) Future actions taken and results

No particular changes were imposed in Phase 2.

- Available materials were continuously distributed to producers and traders through PPMU, HPA, Project Production Team and Project Marketing Team at ToT, ToF, and other related events.
- As target group producers were invited to become sponsors to provide poster festival prize gifts, the number of producers volunteered increased every year. Involvement of beneficiaries with their contribution seemed to enhance their commitment.
- There were two occasions in Hai Duong, where voluntary school activities emerged and Project supported with educational leaflets and video. The contents of these educational communication materials were deemed relevant to teach production process to children and were well appreciated; therefore, utilization of the same materials for the next generation producers could be also considered.

3.3.4 Hanoi Promotion Agency website as an information hub

(1) Feedback and lessons learned

As described in 2.13.4 in Chapter 2, CPMU, Hanoi DARD, and Hanoi Consumer Club all expressed appreciation and recognized the positive meaning of this platform. The basic functions and information were already available; however, they also expected further improvement to enhance the following areas at the end of Phase 1.

- Shop listing must be further enhanced.
- Producers and shops can promote both website and their own trustworthy image by presenting themselves as “a member of this website”.
- More mass dissemination is expected to raise awareness of this information source to a wider audience.

HPA rigorously worked on the website to improve functions and acquire more registrations to enrich the contents. As a result, consumers’ feedback through school homework in 2019 and another in 2020 presented positive reactions, and the remaining issue (processing speed) had been also attended to.

In order to actualize mass dissemination, HPA participated in consumer communication activities together in 2019 and 2020.

- URL was introduced in school education leaflet.
- HPA website leaflet was distributed to all Grade 7 students in the urban districts in Hanoi.
- A homework required mothers to access HPA website in 2019 and 2020.
- URL was required in the poster design for 2019 and 2020 drawing contest festival.
- HPA provided a prize item for the award ceremonies (school and exhibition) in 2019.
- HPA website was introduced in a posting on the Facebook page of communication activities in 2019.
- HPA provided a computer and demonstrated the website at the poster exhibition in 2019 and 2020.
- HPA distributed the website introduction leaflet at the poster exhibition at AEON Mall.
- HPA sponsored small gifts (e.g. magnet to stay on a refrigerator) for customer inclusion among

exhibition visitors.

(2) Future actions

HPA is willing to continue active participation in dissemination activities along with Hanoi DARD. They already secured enough budget to repeat the same type and scale of consumer events in 2021.

- Continue integration of the poster festival award ceremony into OCOP trade fair at AEON Malls.
- Continue with website introduction at the poster festival.
- Organize a talk show event to connect producers, traders, experts and consumers.

HPA is also eager to further improve user-friendliness and to boost registration of producers and shops. Project provided technical guidance on effective communication approaches and suggested steps HPA could take.

3.3.5 In-store promotion by safe vegetable retailers

In-store promotion was not implemented during Phase 1, as communication activities focused on raising awareness and an interest level among consumers in the early behavioral stages. Therefore, the first attempt was scheduled in 2019, and this promotion was organized simultaneously with the poster exhibition for two reasons: i) the exhibition hall will present opportunities to experience a small purchase and tasting; therefore, consumers will become more alert towards selling points, and ii) the synergy of the visitor traffic can be exploited by circulating the traffic between the exhibition hall and the supermarket.

(1) Feedback and lessons learned

In 2019, AEON VIETNAM supermarket exhibited display panels in the vegetable section in the supermarket to explain their efforts in securing food safety. The promotion period was during the poster exhibition, and event announcement leaflets, which introduced both the in-store promotion and the poster exhibition, were distributed before and during the event to maximize the visitor traffic.

The circulation of the traffic functioned well; however, an in-store display promotion required a heavy involvement of promoters to draw attention of shoppers to the display contents. Therefore, it was deemed challenging from a feasibility point of view for C/P to conduct within their limited resources.

(2) Suggested future actions

If replicate an in-store promotion in the future, it was suggested that leaflet distribution would be more effective, as people can read afterwards in a relaxed situation with a right mindset.

CHAPTER 4 ACHIEVEMENT OF PROJECT PURPOSE

4.1 Outline of Terminal Evaluation

The Terminal Evaluation was undertaken from 8 January to 3 February 2021. The objectives of the terminal evaluation were as follows:

- To identify, review and verify the Project achievements and outcomes produced, input/activities as planned, along with PDM (Project Design Matrix: version 2.0) and PO (Plan of Operation: version 6).
- To evaluate comprehensively the Project in accordance with five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability) by both the Vietnamese and the Japanese sides.
- To identify the issues to be addressed for the successful implementation of the Project for the remaining term, to discuss the future direction of the Project with relevant actors and stakeholders, and to make adjustment by revising PDM as necessary.
- To prepare Minutes of Meeting (M/M), including the Joint Terminal Evaluation Report, based on the results of the Evaluation as agreed by both the Vietnamese and the Japanese sides.

4.2 Achievements of Output

Summary of achievements of Output evaluated by the Terminal Evaluation Team are described as below, some indicators written in shaded letters were updated after the terminal evaluation.

Table 4.2.1 Summary of Achievement of Output

Output 1: The capacity of monitoring and management on safe crop production for relevant organization (DCP/MARD, DARD in respective province/city, district, and commune) is improved.			
<ul style="list-style-type: none"> • All 11 indicators related to Output1 were achieved. • These indicators are considered not relevant to directly verify the improvement of the capacity of monitoring and management on safe crop production for relevant organizations. However, according to Japanese Experts, CPMU and PPMU's capacity of monitoring and management on safe crop production has been improved as they have participated in various activities in collaboration with the Japanese Experts. 			
Indicator 1-1: The number of target groups applying and utilizing Basic GAP/ Viet GAP is increased to at least 16.	<u>Achieved</u>		
	• A total of 20 target producers are applying GAP so far.		
	Pilot/Semi Pilot Province	Province	Selected agricultural producers Groups
	Pilot Province	Hai Duong	6
		Ha Nam	4
		Hung Yen	3
	Semi-Pilot Province	Phu Tho	2
		Thai Binh	2
Vinh Phuc		3	
Total		20	
Indicator 1-2: 320 number of producers in target sites attend Basic GAP trainings.	<u>Achieved</u>		
	<ul style="list-style-type: none"> • 432 out of 1,150 producers in target sites (approximately 38%) attended Basic GAP training. • For the remaining producers, the Project is planning to train them by farmer to farmer training by core farmers who already attended the training, and on-site guidance (bookkeeping and pesticide management monitoring/guidance) by PPMU and the Consultant Team. 		
Indicator 1-3: 80% of producers in	<u>Achieved</u>		
	<ul style="list-style-type: none"> • PPMU and the Japanese Experts confirmed that 95.4% of the target producers (1,097/1,150 producers) kept field diary properly in winter cropping 2020-21. 		

target sites record on field diary properly according to Basic GAP.	
Indicator 1-4: 100% of target groups in target sites conduct internal audit to evaluate group members' activity.	<u>Achieved</u> <ul style="list-style-type: none"> According to PPMU and the Japanese Experts, 100% (20/20) of the target producers conducted internal audit.
Indicator 1-5: 48 number of field officers are trained as trainer of Basic GAP.	<u>Achieved</u> <ul style="list-style-type: none"> 186 number of field officers were trained as trainer of Basic GAP. Trainings were conducted not only to PPMU members of the Pilot provinces and Semi-Pilot provinces, but also to officers of DARD, extension workers at provincial and district levels, and district People's Committee members, in response to requests from those who were not directly involved in the Project.
Indicator 1-6: 35 samples of soil and water analysis are conducted.	<u>Achieved</u> <ul style="list-style-type: none"> The number of soil and water qualities samples amounted to of 94 (soil:50, water quality:44). The Consultant Team has developed sampling guidelines and all sampling is done by PPMU staff. The inspection itself is carried out by specialized inspection agencies.
Indicator 1-7: 60 samples of pesticide residue are checked by authorized laboratory.	<u>Achieved</u> <ul style="list-style-type: none"> Pesticide residues of 149 samples (107 samples from the Pilot provinces; 42 samples from the Semi-Pilot Provinces) were tested by specialized inspection agencies.
Indicator 1-8: 500 samples of pesticide residue are checked as quick test by PPMU.	<u>Achieved</u> <ul style="list-style-type: none"> Pesticide residues of 704 samples (542 samples from the Pilot Provinces; 162 samples from the Semi-Pilot Provinces) were tested by Quick Test by PPMUs. The Consultant Team has developed sampling guidelines and all sampling and the test were done by PPMU staff. The Quick Test, which has never been conducted in Northern Region before, is low in cost and the inspection result can be obtained in a short time (about 1 hour), many sample inspections can be performed and it is being recognized as a simple and effective method. It is to be noted that not all types of pesticides can be detected, and low accuracy due to visual inspection.
Indicator 1-9: 70 times of internal audits are attended by field officers.	<u>Achieved</u> <ul style="list-style-type: none"> Internal audits were attended 87 times by PPMU members. Internal audit witnesses were held 20 times in April 2021, and the indicator was satisfied. Since few groups were conducting internal audits at the start of the Project, the Japanese Experts requested PPMU to attend the internal audit. The 26 items required for Basic GAP should be audited, but since the viewpoint of audit was not clearly described in the existing Basic GAP guidelines, the Consultant Team summarized the internal audit implementation procedure so that PPMU staff can easily check the status of internal audit.
Indicator 1-10: Monitoring report is prepared by PPMU every 3 months.	<u>Achieved</u> <ul style="list-style-type: none"> Monitoring Reports were submitted 15 times by PPMUs.
Indicator 1-11: Action Plan is	<u>Achieved</u>

prepared by PPMU	<ul style="list-style-type: none"> Indicator 1-11 was set to confirm whether the Pilot provinces have made their plans to carry out trial activities on their own. With this, it is verified whether PPMU has acquired the ability to disseminate the activities that were carried out in the Project. The Pilot provinces formulated the action plan in August 2020 based on drafted “Production Management System Development Manual” and “Supply Chain Development Manual”. Based on the Action Plans, PPMUs in Ha Nam and Hai Duong have already selected the agricultural producers independently, and started their own support to them. Hung Yen Province plans to select its own agricultural producers from 2021 and start supporting it. In formulating and implementing the Action Plan, the Pilot Provinces were required to select the activities that are feasible and necessary for the selected agricultural producers within the existing government program and its budget, and to secure the necessary input (budget and human resources) to put the plan into practice while referring to the said two Manuals. In November 2020, discussions were held with the Semi-Pilot Provinces to formulate Action Plans for 2021, and Pho Tho, Vinh Phuc and Thai Binh provinces prepared their Action Plan.
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Output 2: The good patterns as model on safe production (safety vegetable) following GAP (Basic GAP/Viet GAP/Global GAP) with supply chain is proposed.

- As for indicators of Output 2, all five indicators were achieved.
- These indicators do not directly verify whether the model was proposed on safe production (safety vegetable) following GAP (Basic GAP/Viet GAP/Global GAP) with supply chain, which was explained in the next section (3.1.4 Achievement of Project Purpose).
- According to Japanese Experts, through various activities conducted under the Project, PPMU members improved their understanding of the marketing of safe crops.

Indicator 2-1: 300 number of matching events are conducted	<p><u>Achieved</u></p> <ul style="list-style-type: none"> A total of 375 events were conducted so far. In the first half of the Project (until September 2018), the Consultant Team led the search for buyers and arrange matching with the target producers. After September 2018, around when Semi Pilot provinces participated in the Project activities, number of cases increased where PPMU introduced buyers and selected agricultural producers found buyers on their own effort. In addition, as a place to efficiently search for buyers, the Project held business forum six times so far, which also contributed to selected agricultural producers as a place to meet multiple buyers at once and negotiate them, and improve their bargaining power. <table border="1"> <thead> <tr> <th>Province</th> <th>Ha Nam</th> <th>Hai Duong</th> <th>Hung Yen</th> <th>Thai Binh</th> <th>Vinh Phuc</th> <th>Phu Tho</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Successfully concluded. Trading will start soon.</td> <td>30</td> <td>25</td> <td>52</td> <td>31</td> <td>10</td> <td>4</td> <td>152</td> </tr> <tr> <td>Successful. Negotiation will continue.</td> <td>23</td> <td>52</td> <td>38</td> <td>6</td> <td>7</td> <td>3</td> <td>129</td> </tr> <tr> <td>No conclusion.</td> <td>3</td> <td>14</td> <td>8</td> <td>12</td> <td>4</td> <td>8</td> <td>49</td> </tr> <tr> <td>Matching was not successful. No more meeting will happen.</td> <td>2</td> <td>28</td> <td>11</td> <td>0</td> <td>4</td> <td>0</td> <td>45</td> </tr> <tr> <td>Total</td> <td>58</td> <td>119</td> <td>109</td> <td>49</td> <td>25</td> <td>15</td> <td>375</td> </tr> </tbody> </table>	Province	Ha Nam	Hai Duong	Hung Yen	Thai Binh	Vinh Phuc	Phu Tho	Total	Successfully concluded. Trading will start soon.	30	25	52	31	10	4	152	Successful. Negotiation will continue.	23	52	38	6	7	3	129	No conclusion.	3	14	8	12	4	8	49	Matching was not successful. No more meeting will happen.	2	28	11	0	4	0	45	Total	58	119	109	49	25	15	375
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Total	58	119	109	49	25	15	375																																										
Indicator 2-2: 110 number of linkages between producers and buyers are made in target sites.	<p><u>Achieved</u></p> <ul style="list-style-type: none"> A total of 132 linkages were made with 20 target producers. Indicator 2-2 was set up to verify the capability of selected agricultural producers in terms of negotiation and contract fulfillment with buyers as more the number of linkage, the more the producers’ capabilities were strengthened. 																																																

Indicator 2-3: The coordination meetings for each target group with buyers are held at least once a year to receive feedback or discuss future trading.	<u>Achieved</u>																								
	<ul style="list-style-type: none"> Stakeholders meetings were conducted 82 times. 																								
	<table border="1"> <thead> <tr> <th>Meeting</th> <th>2017-18</th> <th>2018-19</th> <th>2019-20</th> <th>2020-21</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Discussion on quality requirements</td> <td>4</td> <td>11</td> <td>0</td> <td>0</td> <td>15</td> </tr> <tr> <td>Review meeting (Customer visit)</td> <td>5</td> <td>8</td> <td>29</td> <td>25</td> <td>67</td> </tr> <tr> <td>Total</td> <td>9</td> <td>19</td> <td>29</td> <td>25</td> <td>82</td> </tr> </tbody> </table>	Meeting	2017-18	2018-19	2019-20	2020-21	Total	Discussion on quality requirements	4	11	0	0	15	Review meeting (Customer visit)	5	8	29	25	67	Total	9	19	29	25	82
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<ul style="list-style-type: none"> This indicator was set up for verification of improvement of producer's communication skills with buyers. In the early stage of the Project, two types of meetings were held; meetings where producers confirm the shipping standards of harvested products with buyers before shipping, and review meetings to receive feedback from buyers at the end of the season and discuss next season's deals. However, it was difficult for both the producers and buyers to hold the two meetings due to lack of experiences and time. Then, currently, shipping standards are discussed at the time of matching or contract, and focus is put on receiving feedback from customers and reflecting it in the producer's activities. Producers come to understand that it is effective to receive feedback from buyers. However, there remains room for improvement in terms of initiative of producers, and assist by the Japanese Experts are still needed. 																									
Indicator 2-4: Monitoring report is prepared by PPMU every 3 months.	<u>Achieved.</u> <ul style="list-style-type: none"> Monitoring Reports were submitted 15 times by PPMUs. Until the start of the Project, DARD had few farmer marketing support features. Therefore, in the Project, in order for PPMU staff to understand what farmer's marketing activities are like and what challenges they face, and to think about what kind of support the government can provide, PPMU staff was requested to participate as much as possible in the trial activities conducted by the target producers and report the contents and issues of the activities. From 2018 cropping season, as target producers were instructed to prepare a marketing plan once a year in May, PPMU started monitoring focusing on confirming whether the producers are working according to the marketing plan and what the issues are. Through the monitoring activities, understanding of PPMU on the marketing and the monitoring capacity have been improved significantly. 																								
Indicator 2-5: Action Plan is prepared by PPMU	<u>Achieved.</u> <ul style="list-style-type: none"> Formulation of the action plan was started. This indicator measures whether PPMU has acquired the ability to disseminate the activities carried out in the Project. In Ha Nam and Hai Duong provinces, PPMU has already selected target producers and started its own support. Hung Yen Province plans to select its own target producers farmers from 2021 and start supporting it. It is considered from these facts that PPMU has understood how to support the producers and are capable of implementing Basic GAP dissemination. In November 2020, discussions were held with the Semi-Pilot provinces to formulate Action Plans for 2021, and Pho Tho, Vinh Phuc and Thai Binh provinces prepared their Action Plan. 																								

Output 3: Awareness of relevant organization/people, mainly producer and buyers (consumer and traders; such as wholesalers and retailers) on safe crop production and food safety is raised.

- All three indicators related to Output 3 were satisfied.
- It is difficult to precisely evaluate to which extent "awareness of relevant organization/people, mainly producer and buyers (consumer and traders; such as wholesalers and retailers) on safe crop production and food safety" has been raised by the Project awareness program and/or promotional materials as Output 3 is supposed to be set up to target the entire Vietnamese population.
- However, it is considered that awareness of Vietnamese people on safe vegetable has been raised through the Project activities based on the following reasons:
 - ✓ Awareness program was conducted to 177,152 students in Hanoi. In collected 9,408 homework results from the students, many answers suggested "learned how safe vegetables are produced" and "want to buy safe vegetables at a reliable store" and behavioral changes were confirmed. This

method, which uses school children as an intermediary, is also evaluated by Hanoi City DARD as an effective method for raising awareness and behavior change related to safe vegetables for parents who purchase vegetables.

- ✓ About 1,159,000 accesses to the website of Safe Agricultural Product operated by HPA (<https://nongsanantoanhanoi.gov.vn>) were recorded as of May 2021 since they launched it with technical assistance of the Project in August 2018.
- ✓ The Project awareness activities were covered by mass media a total of 55 times.
- ✓ The statistical data shows the speedy increase in the number of the safe vegetable selling points in Hanoi increased by 502 times compared to the year 1996 and increased by 12.6 times compared to 2007. (Nguyễn Thị Tân Lộc et al. (2020). TRADING SAFE VEGETABLES BY SHOPS AND SUPERMARKETS LOCATED IN HANOI CITY, Vietnam Journal of Agricultural Science, No.6 (115))

Indicator 3-1: The awareness program for consumers, producers and buyers are conducted 15 times by CPMU and PPMU.	<p><u>Achieved</u></p> <ul style="list-style-type: none"> • A total of 54 events for awareness raising were conducted so far. • The program was conducted at schools selected by the Department of Education and Training, Hanoi City. At two junior high schools in Hanoi which were not nominated for the poster contest voluntary organized school program in 2019. <table border="1"> <thead> <tr> <th>Event</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Numbers of schools conducted In-Class Program</td> <td>30</td> <td>6</td> <td>3</td> <td>2</td> <td>41</td> </tr> <tr> <td>Visual contest</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>4</td> </tr> <tr> <td>Exhibition</td> <td>1</td> <td>1</td> <td>1</td> <td>2</td> <td>5</td> </tr> <tr> <td>In-Store Promotion</td> <td></td> <td></td> <td>1</td> <td>--</td> <td>1</td> </tr> <tr> <td>Numbers of School program voluntarily organized</td> <td>1</td> <td></td> <td>2</td> <td>--</td> <td>3</td> </tr> <tr> <td>Total</td> <td>33</td> <td>8</td> <td>8</td> <td>5</td> <td>54</td> </tr> </tbody> </table>	Event	2017	2018	2019	2020	Total	Numbers of schools conducted In-Class Program	30	6	3	2	41	Visual contest	1	1	1	1	4	Exhibition	1	1	1	2	5	In-Store Promotion			1	--	1	Numbers of School program voluntarily organized	1		2	--	3	Total	33	8	8	5	54																		
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Indicator 3-2: 5 promotional materials for awareness activities are developed.	<p><u>Achieved</u></p> <ul style="list-style-type: none"> • A total of 16 materials were developed as follows: <table border="1"> <thead> <tr> <th>Material</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>School leaflet</td> <td>1</td> <td>1</td> <td>1</td> <td>--</td> <td>3</td> </tr> <tr> <td>Elderly leaflet</td> <td>1</td> <td>1</td> <td>--</td> <td>--</td> <td>2</td> </tr> <tr> <td>Producer & trade leaflet</td> <td>1</td> <td>1</td> <td>--</td> <td>--</td> <td>2</td> </tr> <tr> <td>Digitized poster to distribute</td> <td>1</td> <td>--</td> <td>1</td> <td>1</td> <td>3</td> </tr> <tr> <td>Edited video to distribute</td> <td>--</td> <td>1</td> <td>--</td> <td>--</td> <td>1</td> </tr> <tr> <td>HPA Website leaflet</td> <td>--</td> <td>1</td> <td>1</td> <td>--</td> <td>2</td> </tr> <tr> <td>Event promotion leaflet</td> <td>--</td> <td>--</td> <td>1</td> <td>1</td> <td>2</td> </tr> <tr> <td>In-store promotion display</td> <td>--</td> <td>--</td> <td>1</td> <td>--</td> <td>1</td> </tr> <tr> <td>Total</td> <td>4</td> <td>5</td> <td>5</td> <td>2</td> <td>16</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Whole procedures of all communication activities conducted under the Project is to be compiled as a reference book by March 2021 for Hanoi DARD and other provinces and to continue the activities in the future. • The Project has signed MOU with Women Union to promote 1) utilizing of the educational leaflets at Women Union's meetings nationwide and 2) distribution of the leaflets nationwide by inserting into a mother's magazine called Me & Be. 	Material	2017	2018	2019	2020	Total	School leaflet	1	1	1	--	3	Elderly leaflet	1	1	--	--	2	Producer & trade leaflet	1	1	--	--	2	Digitized poster to distribute	1	--	1	1	3	Edited video to distribute	--	1	--	--	1	HPA Website leaflet	--	1	1	--	2	Event promotion leaflet	--	--	1	1	2	In-store promotion display	--	--	1	--	1	Total	4	5	5	2	16
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Indicator 3-3: The number of participants of general school students in Hanoi exceed 64,000.	<p><u>Achieved</u></p> <ul style="list-style-type: none"> • More than 177,152 students were involved in awareness activities. (In addition, more than 16,361 parents were involved through students.) <table border="1"> <thead> <tr> <th>Awareness Activities</th> <th>2017</th> <th>2018</th> <th>2019</th> <th>2020</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>In-class program</td> <td>10,350</td> <td>3,891</td> <td>1,085</td> <td>1,035</td> <td>16,361</td> </tr> <tr> <td>Leaflet only</td> <td>42,164</td> <td>21,095</td> <td>48,567</td> <td>48,965</td> <td>160,791</td> </tr> <tr> <td>Total</td> <td>52,514</td> <td>24,986</td> <td>49,652</td> <td>50,000</td> <td>177,152</td> </tr> </tbody> </table>	Awareness Activities	2017	2018	2019	2020	Total	In-class program	10,350	3,891	1,085	1,035	16,361	Leaflet only	42,164	21,095	48,567	48,965	160,791	Total	52,514	24,986	49,652	50,000	177,152																																				
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Source: JICA Project Team

4.3 Achievements of Project Purpose

Project Purpose: Safe crop productions (safety vegetable) in target sites in the Northern Region of Viet Nam are promoted.

* Promotion of safe crop production, then, channel of the value chain is promoted.

The indicators of the Project Purpose have been reasonably achieved based on the following reasons:

Indicator 1: At least three kinds of supply chain models for safe crops are developed in the target sites.

Indicator 1 has been achieved to some extent.

The Project surveyed and analyzed various supply chains for safe crops in its market surveys and provided support for marketing based on the analysis. Although the supply chains based on different marketing channels were identified, there were no meaningful differences in terms of process, facility and capacities required for target producers to handle these supply chains. Therefore, it was decided to develop three supply chain models based on the management capacity of producer groups (Nursing, Expansion, and Stabilization Stages) and the necessary support for each of the three models are presented in the Supply Chain Development Manual.

Indicator 2: Percentage of farmers who join joint sales of safe crop is increased to 50% in the target sites.

Indicator 2 has been satisfied.

The percentage of producers who join joint sales increased to 60% in winter 2018-2019, and reached 77% in winter 2019-2020 and 86% in winter 2020-21. In the early stage of the Project, it was a major issue to build a joint sales system within the target producer groups. To address the issue, the Japanese Experts made a production plan corresponding to the needs of the sales destination obtained through marketing activities, and supported the agricultural cooperatives in production, collection, shipping, and sales.

In the first year, it was not easy to build a system within target producers. To improve the situation, on the assumption that communication skills and leadership are the key issues required for the joint sales, countermeasures were taken: appointment of a female cooperative member as a sales manager who positively participated in the Project activities, and involvement of the chairman of the District People's Committee, the regional representative, in the Project activities and request for cooperation in promoting the participation of farmers in joint sales and developing sales destinations. These countermeasures worked well and as a result, the number of participants in the joint sales increased every year, so far, and indicator 2 was satisfied.

Indicator 3: The area for reliable safe crop production in the target sites is increased to 180ha.

Indicator 3 has been satisfied.

According to the cultivation plan of the target producers, the area for reliable safe crop production in the target sites is supposed to increase to 190.1 ha for the winter cropping season 2020-2021. In addition, the field workers who were sent to the target producer leaders for interview could confirm field log book for 168.5 ha only collected in field as of January 2021. Hence, the Evaluation Team initially could not

conclude whether indicator 3 was fully satisfied or not.

After the terminal evaluation, JICA project team reconfirmed the field log books for 188.1 ha in field as of April 2021. Hence, the indicator 3 was satisfied.

4.4 Results of the Evaluation based on the Five Evaluation Criteria

4.4.1 Relevance

The Relevance of the Project is High, due to the following reasons:

(1) Consistency with the Vietnamese Government Policy

The Government of Vietnam states that it will ensure macroeconomic stability and build up a modern and effective industrial, agricultural, and service economic structure. The Government also emphasizes the reallocation of the structure of crop plants, harvests and varieties that meet the market demand and reduce damages from natural disasters and epidemic diseases and indicated that the importance of speeding up the application of advanced science and modern technology in production, processing, maintenance. MARD issued an instruction to formulate the "Five-Year Plan of Agricultural and Rural Development (2021-2025)" on May 8, 2020 (No.3110/CT-BNN-KH). In the instruction, "harmony with international standards, production that contributes to the development of a high-quality and safe agricultural value chain for individuals and companies, and creation of a beneficial environment for investing in business" was referred to.

The Project is relevant with the needs of Vietnamese society as it aims to transfer safe crop production technology based on Basic GAP to producers, assist farmers' groups and cooperatives to practice joint sales to buyers to stabilize sales of safe crops, and raise awareness of entire value chain (producers, buyers, and consumers) of crops.

(2) Japanese Aid Policy/Strategy

In the country assistance policy to Viet Nam, the Government of Japan states as a major goal that Japan will provide Vietnam with comprehensive support for sustainable growth through strengthening Viet Nam's international competitiveness, overcoming vulnerable aspects of Vietnam, and building a fair society and nation, based on Vietnam's socio-economic development strategy and plan.

In the assistance policy, three priority areas of assistance (medium goal) are enumerated as follows:

- 1) Growth and strengthening of competitiveness
- 2) Responding to vulnerabilities
- 3) Strengthening governance

In "1) Growth and strengthening of competitiveness", the Government of Japan states that "to achieve sustainable growth through strengthening international competitiveness, Japan will assist improving the market economy system, including the promotion of improving market system reform, fiscal/financial reform, state-owned enterprise reform, as well as strengthening industrial competitiveness (improvement of investment environment, industrialization strategy, promotion of SME/supporting industries promotion, high value-added (value chain) agriculture, forestry and fisheries, ICT utilization) and industrial human resource development."

The Project is considered relevant with the Japanese aid policy as it is dealing with promotion of safety crop production, which is prerequisite for establishment of high-value added agriculture, and in the long run, it is expected that safe crop production will expand in Vietnam.

4.4.2 Effectiveness

Effectiveness of the Project is Moderate at the moment of the Terminal Evaluation due to the following reasons:

From the results of the interviews to Japanese Experts and interviews conducted by the field workers to target producers, it is considered that farmers' interest in the production of safe crops in and around the sites is increasing as far as the target sites are concerned. Accordingly, it is concluded that “the promotion of safe crops” has been made to a certain extent as described in “4.3 Achievements of Project Purpose”. As regards Indicator 1, the Project developed three supply chain models based on the management capacity of producer groups. Developing capacity of producer groups to handle multiple buyers based on these model is considered effective to promote channel of value chains for safe crops. As the classification of each target producer group and the necessary support were presented based on the analysis of management capabilities in terms of joint sales, any DARDs can initiate supporting producer groups for safe crop production and marketing.

The amount of trading between the target producers and buyers that were signed and started as a result of matching events but suspended for multiple reasons in Pilot provinces reached 36.3% (45/124) in Pilot and 26.6% (12/45) in Semi Pilot provinces, although it is highly appreciated that there is significant increase of trading amount by the Project.

Most of target groups had no experience of joint sales before they joined the Project. There is a huge gap between individual sales and joint sales. It is not easy for producer groups with little experience of joint sales to start and continue trading. The data show that target groups repeated many tries and errors in order to establish stable linkages with buyers for safe crops.

Status of Trading in Pilot provinces (as of September 2020)		Status of Trading in Semi Pilot provinces (as of September 2020)	
In negotiation	0	In negotiation	1
Signed but no trading	2	Signed but no trading	0
Started but stop trading	45	Started but stop trading	12
Trading continues	77	Trading continues	32
Total	124	Total	45
(Trading before the Project started)	11	(Trading before the Project started)	23
Increase after the Project started	111	Increase after the Project started (excluding “in negotiation”)	21

Source: JICA Project Team

In Action Plans submitted by PPMUs in Pilot provinces, it is reported that there are some constraints against establishing value chain of safe crops: limitation of organizing and managing producers, increase of competition among safe vegetable suppliers that leads to price pressure to producers, high transportation cost, shortage of facilities and infrastructure, difficulty to find producers who are positive to invest and supply safe vegetables, etc.

The current Manual does not cover all issues. In this sense, its effectiveness is not satisfactory. It is expected that the concerned department of Vietnamese government will regularly improve and update the Manual during the remaining cooperation period and after the Project completion.

4.4.3 Efficiency

Efficiency of the Project is considered Relatively High at the time of Terminal Evaluation.

(1) Input

Both the Japanese and Vietnamese side have made possible efforts in making input to the Project.

- Input by the Japanese side for trial activities is considered to be appropriate as compared to other projects in agriculture sector taking into consideration the diverse activities the Project implemented.
- According to the interviews and questionnaires, pre-processing facilities upgraded by the Japanese side have been well maintained and effectively used.
- Project document approval by the Vietnamese government was delayed until August 2018 and allocation of budget by the Vietnamese side from the counterpart fund was delayed, too. During the period, DARD in Pilot and Semi Pilot provinces allocated necessary budget from the provincial regular budget.

(2) Output

- Some indicators related to Output are not suitable to evaluate Output achievements, however, it was confirmed that extensive activities under the Project were implemented appropriately, by which it was concluded that Output was reasonably achieved.

4.4.4 Impact

(1) Prospect of Achievement of Overall Goal (Expected Positive Impact)

Overall Goal: Agricultural products in the Northern Region of Viet Nam are improved in term of safety and reliability. (*Improvement of products in term of safety and reliability, thereby, it enables to promote cultivation of safe crops paid much more attention and achieve the promotion of related industries.)

The indicators are considered satisfied to some extent at the time of Terminal Evaluation. However, it is still necessary to analyze in depth whether the positive change (increase of areas, numbers of producers and selling points of safe crop production) were made only by the implementation of the Project, which is not possible at the time of Terminal Evaluation due to limitation of time and available data. In addition, it is necessary to set up quantitative indicators to precisely evaluate whether Overall Goal will have been achieved three years after the Project completion for post evaluation.

Overall Goal Indicator1: Areas and productions of reliable safe crop production in the Northern Region of Viet Nam is increased.

Indicator 1 is considered to be satisfied as the areas of reliable safe crop production (where cultivation of crop is practiced in accordance with Basic GAP/Viet GAP/Global GAP) have increased, although the increment is quite limited as compared to entire cultivated area in the Northern Region. No data is available for increase of production. However, since the areas have increased, the production is

considered to have increased accordingly.

Overall Goal Indicator2: Numbers of farmer groups, agriculture cooperatives and enterprises who acquired Basic GAP/ VietGAP/ GlobalGAP in the Northern Region of Viet Nam is increased.

The number of producers (farmer groups, agriculture cooperatives and enterprise) who apply Basic GAP has increased from 3 in 2016 to 22 in 2020 in five target provinces. At the time of Terminal Evaluation, data from all target provinces are not available but five provinces (two Pilot, two Semi Pilot and one Knowledge Sharing provinces). However, it is assumed that the situation is considered more or less similar in the remaining six provinces as selling of safe vegetable is a trend in Vietnam and farmers are required to adjust to it.

Overall Goal Indicator3: Numbers of buyers/shops of safe crops in the Northern Region of Viet Nam is increased.

Indicator 3 has been satisfied at the time of Terminal Evaluation, although whether this has been achieved due to implementation of the Project is difficult to justify. The number of buyers/shops of safe crops in the Northern Region of Vietnam that are doing business with the target producers has been increased.

(2) Impacts other than Overall Goal

(2)-1 Technical Impact

Most of the target producers, with some exceptions, were not familiar with the cultivation technologies that are necessary for producing safe crops before the Project.

By the Project, four technologies of Japanese companies that contributed to the improvement of safety were introduced. Under the framework of private sector cooperation, the introduction of practical and applicable technologies possessed by Japanese companies was promoted by conducting demonstration tests of vegetable production using these cultivation technologies.

(2)-2 Socio-Economic Impact-1

In the Project, awareness-raising activities were carried out at education site in collaboration with the Department of Education and Training (DOET) in Hanoi City. In a school education program, children learn the journey of safe vegetables, starting from ensuring safe soil and water by the producers and production process is recorded and safe vegetables are managed carefully until reaching the hands of consumers. Then, by telling the parents what they learned and working on their homework together. This method was also highly evaluated by the Hanoi City DARD as an effective method for raising awareness regarding safe vegetables and changing behavior of parents who purchase vegetables.

(2)-3 Socio-Economic Impact-2

A network among target producers was established through site visits between target producers, training tours to developed areas of safe vegetable production in Vietnam, and training in Japan. In addition to exchanging information related to daily safe vegetable production, they have built a system to efficiently deliver a wide variety of vegetables according to customer needs by procuring vegetables that are

superior to each other. Network construction between target producers has produced these various synergistic effects, especially in marketing activities.

4.4.5 Sustainability

Sustainability of the Project is at the time of Terminal Evaluation is considered **Relatively High**.

(1) Policy Aspect

The "Five-Year Plan of Agricultural and Rural Development (2021-2025)" has not been made public at the time of the Terminal Evaluation, but MARD issued an instruction to formulate the five-year plan on May 8, 2020 (No. 3110/CT-BNN-KH). The direction of policies related to safe vegetables and GAP needs to wait for the official announcement of the Five-Year plan, but the overall direction is that the promotion of safe agricultural products and value chain development will be maintained even after the Project is completed.

(2) Institutional Aspect

In promoting the production of safe crops along the supply chain, it is necessary to support production and marketing activities in parallel. Conventionally, DARD activities have focused on production support. However, under the Project, PPMU of the target sites have accumulated knowledge and experience to provide marketing support to the target producers in addition to the existing production support. Meanwhile, it should be pointed out that a system to provide constant marketing support has not been established within each DARD yet. Concerning the four Knowledge-sharing provinces that did not carry out trial activities with selection of target producers, it is necessary to further train human resources within DARD to promote the production and sale of safe crops along the supply chain.

(3) Financial Aspect

Financial sustainability of the Project is expected to be secured based on the following reasons:

As described in (1), it is expected that the promotion of safe agricultural products and value chain development will be maintained even in the "Agricultural and Rural Development Five-Year Plan (2021-2025)". For the Pilot and the Semi-Pilot provinces, the budget required for dissemination activities will be provided within the framework of the existing government program in accordance with the Action Plan that has been formulated or is being formulated by PPMU. During the Project period, the material cost for the upgrading of pre-processing facilities was supported by the Project, but in order to support a new producer organization in the future, it is necessary for DARD to secure a budget for the upgrading of pre-processing facilities.

(4) Technical and Management Aspects

PPMUs and target producers are considered to have acquired knowledge and skills in production of safe vegetable in accordance with Basic GAP. However, there remains room for improvement in establishing effective value chain with buyers, fully utilizing the Supply Chain Development Manual.

As for awareness raising of relevant stakeholders, whole procedures of all communication activities

conducted under the Project is to be compiled as a reference book by March 2021 for Hanoi DARD and other provinces and to continue the activities in the future.

4.5 Conclusion

The Evaluation Team conducted Terminal Evaluation of the Project based on five evaluation criteria, through literature survey, questionnaires and interviews to stakeholders conducted by field workers employed by the Project (Vietnamese CPs, Japanese Experts/Consultant Team, target producers, consumers, etc.). Based on the analysis of the current status of the Project, the achievements of the Project were evaluated reasonable as a whole as explained in the previous chapter, the Team recommends that the Project be ended as scheduled in the end of July 2021. Summary of the Evaluation is as follows:

Relevance of the Project was evaluated high. The Project is highly relevant to Vietnamese development policy, Japan's aid policy and strategy, and the needs of Vietnamese society, at the time of the Terminal Evaluation.

Effectiveness of the Project was evaluated moderate. At the time of the Terminal Evaluation, it is considered that the Project activities are proceeding smoothly. However, the indicators shown in PDM are inappropriate for correctly evaluating the achievement status of Output and Project Purpose. Consequently, even if the indicators are met, there remains some concern about to which extent Output and Project Purpose have been achieved. In particular, strengthening of value chain with emphasis on enhancement of marketing capacity of the target producers have room for improvement.

Efficiency of the Project was evaluated relatively high. Input by both the Japanese and Vietnamese sides was appropriate, and the achievement of Output was satisfactory according to the achievements based on the Indicators, which poses the similar concern as explained in the section of Effectiveness.

Impact: Prospect of Overall Goals considered high according to the achievements of the indicators. However, it is necessary to check if the indicators of Overall Goal are directly connected to implementation of the Project. **As for other impacts than Overall Goal, there are signs of positive impacts.** Negative impacts are not observed at the time of Terminal Evaluation.

Sustainability of the Project is considered relatively high. The Vietnamese government has promoted until now and will promote cultivation of safe crops as their policy. Under the Project, CPMU, PPMUs and target producers are considered to have acquired knowledge and skills in promotion of safe vegetable in accordance with Basic GAP. For the Pilot and the Semi-Pilot provinces, the budget required for dissemination activities will be provided within the framework of the existing government program in accordance with the Action Plan that has been formulated or is being formulated by PPMU.

CHAPTER 5 RECOMMENDATION FOR THE ACHIEVEMENT OF OVERALL GOALS AFTER THE PROJECT COMPLETION

According to the recommendation on terminal evaluation, CPMU and JICA Project team discussed the following topics and reached agreement to take necessary actions as discussed below:

5.1 Review of proposed revision of PDM and confirm data collection as benchmark and achievement for the Ex-post evaluation

It was recommended on the terminal evaluation to clarify from where and how to obtain information/data on achievements of Overall Goal for the ex-post evaluation, then to revise the indicators of the Overall Goal as follows:

Table 5.1.1 Proposed revision of the indicators of the overall goal

Current Indicators	Proposed Revision by the Terminal Evaluation Team	Reasons for the Revision
<i>Overall Goal Indicator1: Areas and productions of reliable safe crop production in the Northern Region of Viet Nam is increased.</i>	<i>Overall Goal Indicator1: Areas and productions of reliable safe crop production in the Northern Region of Viet Nam in the target provinces is increased.</i>	<ul style="list-style-type: none"> At the time of Terminal Evaluation, the area of safe crop production by the target producer groups is less than 190ha. Regarding the increase in the area of the entire northern region over the next three years, it is difficult to verify the degree of contribution of the Project. Future activities of safe crop production are also planned to be carried out in the target provinces, so first of all, it is necessary to steadily verify changes in the target provinces.
<i>Overall Goal Indicator2: Numbers of farmer groups, agriculture cooperatives and enterprises who acquired Basic GAP/ VietGAP/ GlobalGAP in the Northern Region of Viet Nam is increased.</i>	<i>Overall Goal Indicator2: Numbers of farmer groups, agriculture cooperatives and enterprises who acquired applied Basic GAP or acquired VietGAP/ GlobalGAP certificates in the Northern Region of Viet Nam in the target provinces is increased.</i>	<ul style="list-style-type: none"> The number of producers who acquired VietGAP or applied Basic GAP is increasing, but the degree of contribution of the Project in the increase is uncertain. Future activities of safe crop production are also planned to be carried out in the target provinces, so first of all, it is necessary to steadily verify changes in the target provinces.
<i>Overall Goal Indicator3: Numbers of buyers/shops of safe crops in the Northern Region of Viet Nam is increased.</i>	<i>Overall Goal Indicator3: Numbers of buyers/shops of safe crops in the Northern Region of Viet Nam is increased. Numbers of target producers in Expansion Stage: xxx, Stabilization Stage: xxx<* in the target provinces.</i>	<ul style="list-style-type: none"> Causal relationship between the Project implementation and the increase of buyers/shops of safe crops is uncertain. Number of target producers per stage as an index to verify the strengthening of the supply chain. Utilization of Supply Chain Development Manual is important.

<* (xxx) To be discussed by CPMU/PPMU and the Japanese Experts and set up specific target values in the target provinces with regard to the existing target producers. As for the newly selected target producers, target values will be decided by DARD utilizing the knowledge and experiences obtained through the Project.

Source: Terminal Evaluation Report

JICA Project team proposed the revision of PDM as shown in the table below.

Table 5.1.2 Matrix of Target Value and Target Provinces

Option	Pilot/ Semi pilot	Knowled ge sharing	Verify causal relationship with Project	Data		Target area and producers	Basis of Target
				Necessary data	Collection		
1. Action plan-based Target Value	6	2	Easier	(Bench Mark) Target Value	Relatively easy	Narrow	Action Plan
2. Action plan-based Target Value	6	6	Easier	Bench Mark Target Value	Difficult	Narrow	Action Plan
3. Provincial level goal	6	2	Relatively difficult	Bench Mark Target Value	Difficult	Relatively broad	Target of each province
4. Provincial level goal	6	6	Relatively difficult	Bench Mark Target Value	Difficult	Broad	Target of each province
5. No Target Value	6	6	Relatively difficult	Bench Mark	Relatively easy	Broad	

Necessary Data: Area and productions (volume) of reliable safe crop production and numbers of farmer groups, agricultural cooperatives and enterprises applying Basic GAP or acquiring VietGAP/Global GAP certificate

Source: JICA Project team

CPMU agreed selecting Option 1 and issued an official letter to request PPMU on 5 May 2021 to supplement necessary data based on the Action Plan, and also agreed to set the results of the Project as Benchmark for the overall indicators.

CPMU also stated that it would be important to evaluate the results based on the degree of input and implementation by the Project, and suggested even without setting Target Value in the 4 other knowledge sharing provinces, it would be necessary to see the results in 1 of 4 other knowledge sharing provinces as sample by the Ex-Post Evaluation in order to evaluate the outcomes based on the degree of input and implementation of the Project and to get lessons for the future project formulation.

5.2 Assignment of staff (Marketing and Basic GAP dissemination) and ensuring budget for the dissemination activities even after the Project termination

In the provinces and cities that selected target producer groups and conducted trial activities, knowledge and experience of providing marketing support through the Project have been accumulated, in addition to existing production support, and human resources of DARD have been developed to promote continuous production and sales of safe crops. Therefore, it was recommended on the terminal evaluation that DARD would assign staff to constantly support both the production and marketing of target producers in collaboration with the Agricultural Extension Center in each province.

In addition, it was recommended for MARD/DARD to ensure budget allocation to support the production of safe crops after the Project completion (including costs for equipment facility maintenance, marketing tools, soil/water quality inspection, pesticide residual tests, etc.)

CPMU acknowledged the recommendation and issued official letter in 13 April 2021. PPMUs of pilot provinces and semi-pilot provinces are under preparation of action plan including the assignment of staff

for marketing and Basic GAP dissemination.

5.3 Coordination and Monitoring by DCP/MARD

DCP/MARD was recommended to coordinate and monitor the target provinces in planning, implementing of dissemination activities for smooth operation.

CPMU agreed to request PPMU to submit the progress report of Action Plan to CPMU based on R/D.

5.4 Seminar for sharing knowledge and experiences among target provinces

Among Knowledge-sharing provinces, four provinces that have not yet carried out the trial activities with the selected target producers are required to train staff to promote the production and sale of safe crops along the supply chain. Therefore, CPMU was recommended to offer the opportunities (seminar, workshop, etc.) to share the knowledge and experiences learned from the Project and build a network among staff members of PPMU/DARD of the Pilot, Semi-Pilot, and Knowledge-sharing provinces.

JICA Project team drafted the agenda of a project dissemination seminar in order to share the knowledge and experiences learned from the project and build network among stakeholders.

Table 5.4.1 Tentative agenda of project dissemination seminar

1st day: Seminar at Hotel

Time	Contents	In Charge
12:30-13:00	Registration	
13:00-13:10	Opening remark	CPMU
13:10-13:20	Opening remark	JICA VN office
13:20-13:40	Project outline	CPMU
13:40-14:10	Good practices through trial activities in production	PPMU
14:10-14:40	Good practices through trial activities in marketing	PPMU
14:40-15:00	<i>Coffee break</i>	
15:00-15:30	Communication activities	PPMU Hanoi
15:30-16:00	Introduction of manuals of production management system and supply chain development	JICA Project Team
16:00-16:30	Action plan after project completion	PPMU
16:30-17:10	Dissemination of project approach to Knowledge sharing provinces	CPMU
17:10-17:30	Closing remark	CPMU
18:00	<i>Dinner reception</i>	

2nd day: Field visit in Hung Yen (**Knowledge sharing province only**)

Time	Contents	In Charge
7:00	Leave from Hotel in Hanoi	
8:30-10:00	Field visit to Japan Vietnam company	
10:30-12:00	Field visit to Yen Phu cooperative	
12:00	Return back to each province	

Source: JICA Project team

CPMU agreed to organize the seminar, though the situation of Covid-19 should be carefully assessed before confirming the schedule, especially field visit to Hung Yen province. Date is not fixed yet.

5.5 Discussion on the updating supply chain model

Based on the recommendations by the terminal evaluation mission as shown below, the JICA Project team conducted study on supply chains for different buyers:

During the remaining Project period, it is necessary to discuss on the possible update of the supply chain model, including analysis of buyers and consumers, from the perspective of distribution form. Especially under the influence of COVID19, distribution forms such as Grab and online transactions are developing, discussions will be held to study adequate supply chain model cases based on the capabilities of each target producer group in order to respond to the changing of value chain.

The JICA Project team conducted the market survey which examined the status of safe vegetable market including distribution form at the beginning of Phase 1. The survey presented overview of safe vegetable market with major players and basic conditions of supply chains with different buyers. The Project learned from the market survey as well as the subsequent trial activities, that there are around seven kinds of possible distribution forms for safe vegetables as shown the table below.

Table 5.5.1 Possible distribution forms for safe vegetables

No	Distribution form	Characteristics	Scale	Buyers
1	Direct sales (BtoC)	<ul style="list-style-type: none"> - Sell to consumers in neighboring area or big cities - No real selling points - Use SNS to take orders - Deliver by own means 	Small	Consumers
2	Online sales (BtoC)	<ul style="list-style-type: none"> - Use EC platform - No real selling point - Deliver by own means 	Small	Consumers
3	Own shop (BtoC)	<ul style="list-style-type: none"> - Sell residents of neighboring areas - Deliver by motorbike or truck 	Small	Consumers
4	Self-distribution (BtoB)	<ul style="list-style-type: none"> - Supply directly to retailers - Delivery by own means 	Middle	Retailers such as supermarket or safe vegetable shops
5	Collector distribution (BtoB)	<ul style="list-style-type: none"> - Supply through collectors 	Large	Wholesales to safe vegetable shops, supermarkets, or restaurants
6	Processing (BtoB)	<ul style="list-style-type: none"> - Make and sell processed vegetables 	Small	Consumers, retailers
7	Contract farming (BtoB)	<ul style="list-style-type: none"> - Cultivate vegetables based on the contract with the companies 	Middle to Large	Food processing companies, retailers

Source: JICA Project Team

Most trading for TGs are categorized in No. 4 and No.5 although there are some cases of other forms. Besides the number of cases for No. 1 is increasing after COVID-19 pandemic. Since each TGs handle multiple forms, it is considered effective to focus on how advanced TGs manage requirements of

different buyers effectively in order to improve management capacity of TGs. The JICA Project team decided to analyze the supply chains for different buyers in a form of case study of specific TGs. Through case studies, the readers will understand the overview of supply chains for different buyers and how the producer groups can handle them simultaneously.

(1) Framework of study

1) Objectives

Provide producer groups and DARD officials with in-depth understanding on characteristics of supply chains for different buyers and procedures of producer groups to manage different supply chains which is required for producer groups at ‘Stabilization stage’ in the supply chain model.

2) Study period

March 2021- May 2021

3) Methodology

Case study for selected TGs which have succeeded in developing effective supply chains with multiple buyers. TGs studied are as follows:

Table 5.5.2 TGs studied

TG	Reasons for selection
Yen Phu cooperative (Hung Yen)	<ul style="list-style-type: none"> - One of the most successful TGs in terms of diversifying marketing channels. It manages trade with supermarkets, canteens, and various small buyers. - It has also diversified the sources of supply. It procures vegetables from other TG.
Vinh Phuc cooperative (Vinh Phuc)	<ul style="list-style-type: none"> - It introduced on-line sales system which has been quite successful so far. It can be a good example of direct sales to consumers. - It has solid relation with producers.

Source: JICA Project Team

Information was collected through reviewing existing documents, interview with relevant personnel and field visit by the JICA Project team.

4) Outline of case study

Table 5.5.3 Outline of case study

Section	Details	
Overview of TGs	<ul style="list-style-type: none"> - History - Management structure - Number of members - Major buyers - Major suppliers 	
Overview of buyers	<ul style="list-style-type: none"> - Location - Outlines of business - Demand of vegetable (volume, variety, frequency etc.) 	
Supply chain analysis* ¹	Product* ²	Production
		Harvesting
		Preprocessing
		Transportation
	Payment	Payment to stakeholders
		Price of product paid to each stage
Information	Market needs, Price, feedback	

Management system	<ul style="list-style-type: none"> - Production planning - Harvest management - Shipping management - Financial management
Changes of marketing activities after COVID-19 pandemic	<ul style="list-style-type: none"> - Changes of marketing activities - Background (reasons of change) - New tools introduced after COVID-19 such as SNS, e-commerce platform etc. - Sustainability of new initiatives

*1: Each item is analyzed by TG and by buyer.

*2: Each step is analyzed in terms of human resources, inputs, technology and protocol, quality, and safety management

Source: JICA Project Team

(2) Outcome of study

1) Summary of findings

- The study compares the procedures of 2 TGs to handle the processes from production to delivery for four types of buyers, namely supermarket, safe vegetable shop, collector to canteens and online customers (No.2, 4, 5 of Table 5.5.1).
- The study shows that TGs handle concerned processes with same resources and same procedures in principle except for preprocessing and delivery. TGs adjust processes of preprocessing and delivery based on the requirements of buyers. TGs can increase efficiency of operation by maximizing the usage of same resources and same procedures.
- Record keeping as well as internal checking system to ensure safety and quality is institutionalized in each process.
- For preprocessing, the same procedures are applied for supermarket, safe vegetable shop and online customers, although there are some difference of criteria depending on the products.
- Online customers are more concerned and sensitive about safety and quality standard. TG pays due care for preprocessing the products for online customers.
- As for pricing, online sales seem most profitable since it can reduce intermediary cost although it has difficulty of expansion.
- Both TGs try to obtain useful information and feedback from buyers whenever possible to reflect it to its strategy and operation.
- COVID-19 pandemic made TGs aware about the usefulness of SNS and changes of consumer behavior. One TG (Vinh Phuc coop) decided to start online sales and determines to grow it. Although it is not realistic to expect for safe vegetable producers with limited capacity of marketing as well as IT skills to sell their products directly at E-commerce platform, they can use SNS as an effective marketing tool for disseminating information as well as communicating with consumers. It is especially useful for producer groups who are relatively small scale and target consumers with high awareness on safety and quality. For these producers, posting safe vegetable information on SNS are effective to increase brand recognition as a reliable safe vegetable producer.

2) Case study of Yen Phu coop.

Yen Phu cooperative was established in 1997. It has operated as a new style cooperative to produce and market safe vegetables since 2012 under the new cooperative law. Yen Phu cooperative has 232 members, of which 38 members produce safe vegetables and 10 linkage farmers who produce products which the cooperative does not produce. The summary of case study on the cooperative is explained below.

(a) Buyer

The cooperative trade with variety of buyers. In this summary, two types of buyers, namely supermarkets and safe vegetables shops are studied and compared. The overview of each type of buyers is shown below.

Table 5.5.4 Overview of buyers

Supermarket (AEON, Coop Mart, and Vin Mart)	Safe vegetable shops
<ul style="list-style-type: none"> - Located in big cities such as Hanoi, Ho Chi Minh City, Hai Phong - Sell a variety of agricultural products from dry products, fresh products, and preliminary packaged and canned products. - Buy stable volume at relatively stable price - Have specified quality and safety criteria for each product to follow - Delivery 2-3 times / week to supermarket warehouses 	<ul style="list-style-type: none"> - Located in Hanoi and Hung Yen - Sell safe vegetables and other food products - Purchase mainly leafy vegetables (40-150 kg/point/day) and any other available vegetables. - Weekly prices based on market price - Need packaging and pre-processing - Strict on safety - Small scale and flexible operation - Need to deliver their selling points

Source: JICA Project Team

(b) Products

The processes from production to delivery for both buyers are shown below. The cooperative basically uses same resources and applies same procedures for both buyers except for delivery. Record keeping as well as internal checking system to ensure safety and quality is institutionalized in each process.

Table 5.5.5 Supply chains of product

Process	Detailed procedures and policies
Production	<p><i>The cooperative applies same procedures for both types of buyers</i></p> <ul style="list-style-type: none"> - Human resources: 38 member producers - Certified safe land and water. Registered as safe production area - Input: The cooperative controls inputs and it purchases most of inputs and supplies to member producers. - Production protocol: According to Viet GAP - Quality and safety management <ul style="list-style-type: none"> ➤ Record production logs ➤ Perform regular product testing ➤ Quarantine on time ➤ Periodical monitoring and random monitoring ➤ Regular feedback on product quality and safety
Harvesting	<p><i>The cooperative applies same procedures for both types of buyers</i></p> <ul style="list-style-type: none"> - Human resources: 4-17 workers - Input: People use clean knives to cut vegetables, use clean plastic crates to

Process	Detailed procedures and policies
	<p>store, use motorbikes or 3-wheeled vehicles to transport.</p> <ul style="list-style-type: none"> - Technology and protocol: Harvest in the early morning or cool afternoon, without rain or dampness. When harvesting, vegetables must not be exposed to soil or substances unsafe for vegetables. After harvesting, the product is put into a plastic skull and transported by the cooperative car or the member himself transported to the cooperative processing house. - Quality and safety management: Vegetables are checked for quarantine time through production logs for pesticides, fertilizers before harvesting.
Preprocessing	<ul style="list-style-type: none"> - Human resources: 10 workers - Technology and protocol <p><Preprocessing></p> <ul style="list-style-type: none"> - Choose first or second grade products - Follow the standards of each vegetable that supermarkets request - Remove yellow leaves, crushed parts, leaves worms, diseases - Fresh. attractive appearance. - Products have no scar, no damage, no insect, and no disease <p><Packaging></p> <ul style="list-style-type: none"> - Leafy vegetables: from 300 to 500 g/pack - Spices 100 - 300g/pack - Vegetables: 300 - 500 g/pack - Full labels and weight - Quality and safety management - Record the quantity sold. - Check production logs before harvesting - Random product test. - Obtain feedback from buyers
Transportation	<p>The cooperative hires 2 fulltime drivers and 2 trucks for delivery to all buyers. Delivery conditions are different for each buyer</p> <p><Super markets></p> <ul style="list-style-type: none"> - Frequency: every day or every 2 days. - Delivery points: 10 - Volume: 400 -1,500 kg/time -Delivery time: 5AM-7AM; 6PM - 10PM; 12 AM - 1 PM <p><Safe food store></p> <ul style="list-style-type: none"> - Frequency: everyday - Delivery points: 5 - Volume: 20 - 50kg/shop - Delivery time: 5AM-7AM <p>Before transferring products to customers, the products are recorded in the accounting books, and warehouse vouchers are given to drivers;</p>

Source: JICA Project Team

(c) Payment

i) Payment to/from stakeholders

The cooperative applies same procedures of payment to producers and transportation. Payment by supermarket is in a more formal manner.

Table 5.5.6 Payment to/from stakeholders

Stakeholder	Payment	Procedures	
Producer	Product	<i>No difference of payment for products for different buyers</i> Payment in cash on site after the cooperative weigh the products or make payment after 1 week (after the harvesting of the concerned vegetable type is finished) to the producers. The price paid by the cooperative is normally 10-20% higher than market price. The cooperative made a written contract with 38 member producers.	
Transporter	Driver Car	Currently, cooperative hire 2 full time drivers. Pay car rental costs monthly based on the total distance. Average shipping price/kg per buyer: 400 VND/kg	
Buyer	Product	The supermarkets makes monthly payment to Cooperative twice per month. The 1st payment is made on the 20th - 25th of the month (for the deliveries from 1st to 15th of the month). The 2nd payment is made on the 5th – 10th of next month (for the deliveries from the 16th to last day of the previous month). Paid by bank transfer.	All safe food stores make monthly payment. Cash or bank transfer.

Source: JICA Project Team

ii) Price of product (all kinds of vegetables) paid to stakeholders (VND/kg)

The cooperative pays same price for the products for both buyers. The cooperative gains profits by selling products to supermarkets and safe vegetable shops.

Table 5.5.7 Price of product paid to stakeholders (VND/kg)

Stakeholders	Supermarket	Safe vegetable shop
Producers	7,000 - 10,000	7,000 - 10,000
Cooperative	Vin Commerce: 10,000 - 15,000 AEON: 12,000 - 18,000 Coop Mart: 12,000 - 18,000	12,000 - 18,000
Retail price (supermarket and safe vegetable stores)	Vin Commerce: 13,000 - 19,500 AEON: 15,600 - 23,400 Coop Mart: 15,600 - 23,400	14,400-21,600
Retail price (traditional market)	10,000 - 15,000	

Source: JICA Project Team

(d) Information including feedback

The cooperative tries to obtain useful information from buyers whenever possible to reflect it to its strategy and operation.

Table 5.5.8 Information collected and used

Type of information	How TG collects information	How TG uses information
Market demand	Before entering into contracts, in the process of supply, Communicate directly with representatives of buyer.	Check the cooperative's condition (production ability to decide the vegetable type to be produced and supplied; decide the supply scale: Frequency), then if possible, negotiate with buyer.
Price	When meeting and talking with representatives of buyer such as in the supply process, or at customer visits	The cooperative uses the information to calculate the profitability of trading
Feedback	When having the opportunity to talk to the representative of the supermarket (Both directly and indirectly) such as during the visit to the buyer, during delivery or when placing an order.	To adjust and improve operation of the cooperative
Other information-	The cooperative tries to obtain the following information whenever possible. - Criteria for selecting suppliers - Payment term - Other suppliers	Use the information to make a decision on continuing, expanding or terminating the trade

Source: JICA Project Team

(e) Change of marketing activities after COVID-19 pandemic

Although the volume of sales to supermarkets has increased, volume in other sales channels have decreased greatly. There have been surplus unsold vegetables at the cooperative after COVID-19 outbreak in the same commune. The cooperative had to sell out its vegetables to new customers. The cooperative took the following measures:

- Approach to socio-political organizations such as charities, farmers' associations, women's associations, Agribank, enterprises join hands to rescue agricultural products for people.
- The cooperative purchased vegetables from producers at 5,000 VND / kg and sold them at same price in order to promote selling surplus vegetables.
- Promote vegetables through online tools such as Facebook, or Zalo

Although these are emergency measures in principle, the cooperative is interested to continue promoting vegetables through SNS.

3) Case study of Vinh Phuc coop.

Vinh Phuc cooperative was established in 2014. Vinh Phuc cooperative has 65 members, including 48 linkage farmers producing in 12 ha. The cooperative is currently producing vegetables in the following 3 communes: Kim Long commune, Van Hoi commune, Ho Son commune. The summary of case study

on the cooperative is explained below.

(a) Buyers

The cooperative trades with variety of buyers. In this summary, two buyers shown below are studied and compared.

Table 5.5.9 Overview of buyers

Collector for school canteens	Online customers
<ul style="list-style-type: none"> - Located in Dong Anh, in Ha Noi. - all kind of popular seasonal vegetables (Kohlrabi, potato, cabbage, chayote fruit, mustards, water morning glory...). - Delivery 5 times per week. The volume is 700-1,200 kg/day. - Procure vegetables from Vinh Phuc, Hai Duong and Son La. - Supply vegetables to school canteens. 	<ul style="list-style-type: none"> - 80% of customers is consumers in Vinh Tuong district and 20% customers in Ha Noi. Some are households and office workers. They normally form a group of 8-10 persons. - They buy 2 times per week. - Need vegetables with high level of safety (cucumber, pear-shaped melon, tomato, aromatic veggies, all types of mustards).

Source: JICA Project Team

(b) Products

The processes from production to delivery for both buyers are shown below. The cooperative basically uses same resources and applies same procedures for both buyers except for preprocessing and delivery. Record keeping as well as internal checking system to ensure safety and quality is institutionalized in each process. Director has placed high priority on ensuring safety and quality.

Table 5.5.10 Supply chains of products

Process	Detailed procedures and policies
Production	<p><i>The cooperative applies same procedures for both buyers</i></p> <ul style="list-style-type: none"> - It uses land and water certified as safe for production. - Use high quality seed - Buy fertilizer and pesticide and distribute to member producers. - Production protocol: Apply Safe vegetable or VietGAP protocol. - Quality and safety management: Strictly enforce record keeping of production dairy. Establishes an internal audit team to ensure the safety of products. Director in charge of this activity. Provincial DARD conducts periodic and un-scheduled inspection. DARD also takes vegetable sample and publicizes the analysis results every year.
Harvesting	<p><i>The cooperative applies same procedures for both buyers</i></p> <ul style="list-style-type: none"> - Based on the plan of orders and based on the coordination of cooperative management board, households pro-actively harvest vegetables. - Storage: the cooling warehouse is used in case of big harvesting or some products need to be stored to ensure the orders. - Apply Safe vegetable or VietGAP protocol. - Harvesting timing: Harvest in cool weather. Harvest chayote buds from 3 AM, fruit vegetables from 7 AM, leafy vegetables in the late afternoon and deliver in the evening. - Remove ab-normal shape, diseased or insect-damaged ones. - Arrange products into the plastic baskets, deliver to the product collection

Process	Detailed procedures and policies
	<p>point by wheelbarrow or motorbike.</p> <ul style="list-style-type: none"> - The cooperative has its personnel in each area to collect products from households based on plan and divide the products by customer's orders. - Product collection is fully recorded. The cooperative requests households to pro-actively monitor the sale volume to compare the data and reduce the risks. At the end of each month, the cooperative will sum up the quantity and make payment.
Preprocessing	<p>Human resources: Two workers specialized in sorting, packing vegetables in the pre-processing house. one temporary labor used from December to next May.</p> <p><For the collector for school canteens> <Preprocessing></p> <ul style="list-style-type: none"> - Choose second or third grade products - Remove the yellow and over mature leaves. - No scar, no damage, no insect, and no disease. - Do not make the water wet, do not harvest when the leaves are still wet (especially mustard). <p><Packaging></p> <ul style="list-style-type: none"> - Morning glory: 2 kg/ bunch - Mustard: 5 kg/ bunch - Fruit vegetables: 10 kg/ bag <p>(No need stamp, label. Enough weight)</p> <p><For online customers> <Preprocessing></p> <ul style="list-style-type: none"> - Choose only first grade products - Follow same criteria to apply for supermarket - Remove yellow leaves, crushed parts, leaves worms, diseases - Fresh. attractive appearance. - Products have no scar, no damage, no insect, and no disease <p><Packaging></p> <ul style="list-style-type: none"> - Leafy vegetables: 300 - 500 gram/bag - Fruit vegetables: 1-2 kg/bag - Have stamp and weight <ul style="list-style-type: none"> - Director checks all activities in this step. - Recording: product origin. - Director pays much attention to this point; therefore, she always conducts tight inspection and product standard is made clear so that all the members can understand and apply.
Transportation	<p>Delivery methods are different for each buyer</p> <p><For collector to schools></p> <ul style="list-style-type: none"> - Human resource and means of transportation: hire 1 truck to deliver vegetables to buyers. - Frequency: 5 times a week - Delivery point: At home of collector in Dong Anh, Ha Noi. - Volume: 700-1,200 kg/time. Maximum 2 ton/time - Delivery time: 6-9 PM <p><For online customers></p> <ul style="list-style-type: none"> - Customer in Vinh Phuc: Director delivers by her own car - Customers in Ha Noi : Flexible. Use the cooperative truck, a big car, or bus - 10 kg to 400 kg/day. - Delivery time: 8-17h

Source: JICA Project Team

(c) Payment**i) Payment to/from stakeholders**

The cooperative applies same procedures of payment to producers. Payment by online customer is flexible while payment by the collector is in a more formal manner.

Table 5.5.11 Payment to/from stakeholders

Payment	Procedures
Payment to Producer by the cooperative	<i>No difference of payment for products for different buyers.</i> Make monthly payment. In cash. Based on the price negotiated at the beginning of the season. The price will be adjusted based on the market price at the time of market fluctuation (such as COVID-19 pandemic).
Payment to the cooperative by Buyer	< From the collector for school canteens > Monthly payment. Bank transfer. Based on the negotiated price and weekly quotation. < From the online customers > Pay by cash or transfer through the bank.

Source: JICA Project Team

ii) Price of product (chayote fruits) paid to stakeholders (VND/kg)

The cooperative set price for online customers between the price of traditional market and supermarket. It is beneficial for online customers to be able to buy safe product cheaper than supermarket while the cooperative makes higher profit by selling directly to the consumers.

Table 5.5.12 Price of products (chayote fruits) paid to stakeholders (VND/kg)

Stakeholder	Collector for school canteens	Online customers
Producer	4,000	5,000
Cooperative	5,000-5,500	12,000-15,000-
Cf. Retail price (supermarket)	14,000-18,000	
Cf. Retail price (traditional market)	10,000-12,000	

Source: JICA Project Team

(d) Information including feedback

The cooperative tries to obtain useful information from buyers whenever possible to reflect it to its strategy and operation.

Table 5.5.13 Information collected and used

Kind of information	How TG collects information	How TG uses information
Market demand	Same for all buyers - Before signing the contract, directly discuss with buyers. - During the supply process, directly	Check the cooperative's condition (production ability to decide the vegetable type to be produced and supplied; decide the supply scale:

Kind of information	How TG collects information	How TG uses information
	discuss with the supermarket representative and other suppliers who also supply products to that buyer (if possible).	Frequency), then if possible, negotiate with buyer.
Price	<ul style="list-style-type: none"> - When meet and exchange with buyer - During the supply process. 	The cooperative uses the information to calculate the profitability of trading
Feedback	<ul style="list-style-type: none"> - The cooperative seeks feedbacks when there are any chances to exchange with both buyers (both direct and indirect) such as during the customer visit or during the delivery process or during the ordering process. - The cooperative sometimes ask feedback about the products from online customers when they make orders. 	Adjust and improve the cooperative's operation
Any other information	<ul style="list-style-type: none"> - The cooperative discusses about payment conditions and future plan with the collector, possibility of expanding network/supply with online customers before and after the negotiation process and during the supply process. 	Use the information to make a decision on continuing, expanding or terminating the trade

Source: JICA Project Team

(e) Change of marketing activities after COVID-19 pandemic

After the Covid-19 happened, the cooperative found that consumer practices are changed. The cooperative decided to increase the online sale channel. They have increased the promotion, such as posting more for online sales and introduce about the production unit. Since the cooperative has just started online sales and it is too early to evaluate, it believes the potential of online sales and is determined to continue this initiative. The cooperative also feels the necessity of diversifying marketing channels so that it can ensure the sustainable income for household members as well as linkage members.