

Country Name	Improvement of Extension System for Applying Better Farming System and Cultivation Techniques for Poor Farmers in the Mekong Delta
Socialist Republic of Viet Nam	

I. Project Outline

Background	<p>The Mekong Delta region, which was famous for many tropical fruits production including citrus, was expected to produce variety of fruits. However, many farmers failed in management of citrus cultivation facing low yield and quality of fruits because of many issues such as lack of appropriate knowledge on disease control and effective cultivation techniques, lack of capital, limited market and so on. The Southern Horticultural Research Institute (SOFRI) under the Ministry of Agriculture and Rural Development (MARD) had established the technology of producing citrus disease-free seedlings and cultivation techniques. Nevertheless, efficient and effective extension system had yet to be established, due to insufficient development of effective cultivation methods for farmers and inadequate ability of extension officers including provincial administrative agencies.</p>				
Objectives of the Project	<p>Through enabling model citrus farmers to acquire knowledge and skills on effective cultivation techniques of King mandarin and improving ability of provincial and district Department of Agriculture and Rural Development (DARD) officials to guide farmers in acquiring effective cultivation techniques and SOFRI's ability to provide farmers and provincial and district DARD officials with effective technical support, the project aimed at improving the extension system for applying better cultivation techniques on King mandarin, thereby improving the living standard of farmers in the target area through productivity increase.</p> <ol style="list-style-type: none"> Overall Goal: The living standard of farmers in the target area is improved through productivity improvement of King mandarin in the area. Project Purpose: Extension system for applying better cultivation techniques on King mandarin with the resources of SOFRI is improved. 				
Activities of the Project	<ol style="list-style-type: none"> Project Site: Ben Tre, Soc Trang, Tien Giang, Tra Vinh and Vinh Long Provinces Main Activities: (1) The project selects model farms in the target area, applies improved King mandarin cultivation techniques on the model farms, develops teaching materials and extension tools for dissemination on King mandarin cultivation, and conducts trainings, workshops and study tours for model farmers to disseminate the improved cultivation techniques; (2) SOFRI develops a manual and conducts trainings on King mandarin and guava cultivation for provincial and district DARD officials, provincial and district DARD conducts workshops and trainings for farmers in the target area, provides technical guidance and monitors the model farms, and promotes the use of disease free seedlings in the target area, and provincial DARD establishes the Plant Clinic in each province; and (3) SOFRI provides provincial and district DARD officials with trainings on King mandarin marketing and enhances necessary foundation for producing and utilizing a mother stock and disease free seedling etc. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Japanese Side <ol style="list-style-type: none"> Experts: 3 persons (long term) and 4 persons (short term) Trainees Received: 43 persons Equipment: vehicles, electrophoresis system, soil pH meters and moisture meters, thermo and hydro meters, water pH meters, microscopes, etc. Local operation cost: land development of model farms, trainings and extension tools etc. </td> <td style="width: 50%;"> Vietnamese Side <ol style="list-style-type: none"> Staff allocated: 79 persons Project office and facilities Local operation cost: trainings, travel expenses, etc. </td> </tr> </table> 			Japanese Side <ol style="list-style-type: none"> Experts: 3 persons (long term) and 4 persons (short term) Trainees Received: 43 persons Equipment: vehicles, electrophoresis system, soil pH meters and moisture meters, thermo and hydro meters, water pH meters, microscopes, etc. Local operation cost: land development of model farms, trainings and extension tools etc. 	Vietnamese Side <ol style="list-style-type: none"> Staff allocated: 79 persons Project office and facilities Local operation cost: trainings, travel expenses, etc.
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Project Period	October 2009 – October 2014	Project Cost	(ex-ante) 380 million yen, (actual) 258 million yen		
Implementing Agency	Ministry of Agriculture and Rural Development (MARD), Southern Horticultural Research Institute (SOFRI)				
Cooperation Agency in Japan	The Ministry of Agriculture, Forestry and Fisheries				

II. Result of the Evaluation

I Relevance
<p><Consistency with the Development Policy of Viet Nam at the Time of Ex-Ante Evaluation and Project Completion></p> <p>The project was consistent with Viet Nam's development policies such as "improvement of quality and productivity in fruit cultivation" as set forth in "National Socio-Economic Development Plan (NSEDP) (2006-2010)", "MARD Five Year Plan (2006-2010)" and "NSEDP (2011-2015)".</p> <p><Consistency with the Development Needs of Viet Nam at the Time of Ex-Ante Evaluation and Project Completion ></p> <p>The project was consistent with Viet Nam's development needs for improving cultivation techniques of King mandarin at the times of both ex-ante evaluation and project completion.</p> <p><Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation></p>

The project was consistent with Japan's ODA policy as stated in "Country Assistance Program for Viet Nam" (2004) (which included agricultural and rural development through assistance for improvement and diversification of livelihoods).

<Evaluation Result>

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

2 Effectiveness/Impact

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

The Project Purpose had been partially achieved by the time of project completion. Principal technology of SOFRI method such as pruning and training trees and the Integrated Pest Management (IPM) method was adopted by ordinary farmers as expected (the percentage of King mandarin farmers who practice pruning and training was 77% on average, and the percentage of King mandarin farmers who apply the IPM method was 61% on average in five provinces, as of September 2014). However, the percentage of King mandarin farmers who plant trees with space of three to four meters were 6% only on average (widening planting distance was still being disseminated at the time of project completion).

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

The project effects have partially continued to the time of ex-post evaluation with improved extension system of better cultivation techniques. Plant Clinics, which were established during Project period, are still maintained in all 5 targeted provinces. Updated information on citrus cultivation, including countermeasures against diseases, has been transferred to farmers through SOFRI's website, plant clinics and trainings courses held by SOFRI and DARDs. Farmers who have adopted SOFRI method also contributed to extending the knowledge and experiences to other farmers.

On the other hand, the percentage of King mandarin farmers adopting SOFRI method at the time of ex-post evaluation has decreased after project completion. The percentage of King mandarin farmers who apply the IPM method at the time of ex-post evaluation is 13.6% on average in five provinces¹. The percentage is lower than the target in Soc Trang, Tien Giang and Vinh Long provinces, as the plant disease rate is higher than other provinces and disease-free seedlings are more expensive in these provinces. The percentage of King mandarin farmers who plant trees with space of three to four meters at the time of ex-post evaluation is 2.5% on average in five provinces. The percentage is particularly low in all provinces, as (1) farmers' production scale is generally small and they tend to apply high planting density for a short life cycle of three to four years to maximize yield of King mandarin in a minimum period, and (2) many farmers use free market seedlings (cheap seedlings) which are susceptible to plant diseases, and thus they tend to apply high planting density to keep standby plants, etc. The percentage of King mandarin farmers who practice pruning and training at the time of ex-post evaluation is 6.7% on average in five provinces. The percentage is lower than the target in four provinces except for Ben Tre, as many farmers tend to apply high planting density as stated above, many of them do not practice pruning and training. Overall, the percentage of King mandarin farmers continuously adopting SOFRI method has been low after project completion, as the method requires initial investment such as fertilizer, agricultural chemicals and disease-free seedlings and farmers have to wait for a certain period of time for cost recovery. Besides, according to SOFRI, another factor that limited the continuation of the project effects is that pressure from root rot disease is too high in provinces in Mekong Delta region, while SOFRI method can only control citrus greening disease.

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

The Overall Goal has been partially achieved by the time of ex-post evaluation. According to data provided by provincial DARDs in five provinces, the percentage of farmers who have increased their productivity (yield) of King mandarin and income from producing King mandarin compared with their productivity and income before adopting SOFRI method is 26.5% on average in five provinces². Moreover, during the field survey for this ex-post evaluation, interviews were conducted for 36 farmers in total including both model and non-model farmers who have adopted SOFRI method in five provinces³. Among them, the percentage of farmers who have increased their productivity and income is 44.4% on average in five provinces. While concrete data on to what extent their productivity and income have increased after adopting the method is not available, according to SOFRI, yield of King mandarin of farmers who have adopted the method has increased approximately 0.2 to 1.5 tons per hectare per year on average in these provinces. While data from interviews with 36 farmers showed that the percentage of farmers who have increased their productivity and income after adopting SOFRI method has achieved the target (40%), it is inappropriate to make an evaluation judgment based only on the interview result due to the limited number of samples (only 36 farmers in five provinces).

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

According to SOFRI, the project has contributed to an increase of women's proactive participation in King mandarin cultivation through provision of trainings on cultivation techniques.

<Evaluation Result>

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

¹ The IPM method includes (1) Application of systemic insecticides (Actara, Admire or Dantotsu) at fixed intervals (Once/1-2 months), (2) Use of disease-free seedlings, (3) Interplanting of guava and (4) Windbreaks surrounding orchard. Farmers who apply any one of these components are all counted in the above percentages.

² Due to limitation of data availability, the number of farmers who have adopted SOFRI method in Soc Trang, Tra Vinh and Vinh Long provinces was calculated as follows: the number of farmers who have adopted SOFRI method = the number of farmers who apply IPM + the number of farmers who plant trees with space of three to four meters + the number of farmers who practice pruning and training of trees. On the other hand, the number of farmers who have adopted SOFRI method in Ben Tre and Tien Giang provinces was provided by provincial DARDs.

Moreover, according to SOFRI and interviews with farmers, farmers who have increased their productivity have also increased their income. It should be noted that there is a possibility that the percentage of farmers who have increased their productivity and income might be higher than the above figures, as farmers who apply more than two components of SOFRI method might be double counted in the calculation in Soc Trang, Tra Vinh and Vinh Long provinces.

³ The number of farmers interviewed was four persons in Ben Tre and eight persons each in other provinces (36 persons in total).

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results																																			
(Project Purpose) Extension system for applying better cultivation techniques on King mandarin with the resources of SOFRI is improved.	Proportion of farmers who adopt cultivation techniques developed by SOFRI (SOFRI method) among the farmers who newly plant King mandarin is more than 20%. Definition of SOFRI method: 1) Apply the IPM method for citrus greening disease. 2) Plant King mandarin trees with space of 3 to 4 meters. 3) Prune and train King mandarin trees.	Status of the Achievement: partially achieved (partially continued) (Project Completion) Two out of three components of SOFRI method had been applied by more than 20% of farmers. (Ex-post Evaluation) The percentage of farmers who apply SOFRI method is lower than the target on average at the time of ex-post evaluation. [Percentage of farmers who apply SOFRI method]																																			
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(Overall Goal) The living standard of farmers in the target area is improved through productivity improvement of King mandarin in the area.	Proportion of farmers who mention that they have increased their income from orchard among the farmers who adopt SOFRI method is more than 40%.	(Ex-post Evaluation) partially achieved The percentage of farmers who have increased their productivity and income from orchard is 26.5% on average according to data provided by provincial DARDs and 44.4% on average according to the interviews with farmers. [Farmers who have increased their productivity and income]																												
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*Note: The percentage in the “Average” column was calculated by (the number of farmers who apply IPM method in total in five provinces) / (the number of farmers who plant King mandarin in five provinces) x100. The percentages in the rest columns were also calculated in the same way.
Source : Final Report, questionnaire survey and interview with SOFRI, interview with provincial DARDs and farmers

3 Efficiency

Both the project cost and the project period were within the plan (ratio against plan: 68%, 100%, respectively). The outputs of the project were produced as planned. Therefore, the efficiency of the project is high.

4 Sustainability

<Policy Aspect>

The needs for crop diversification from rice cultivation to other crops and improving the efficiency of agricultural production are stated in “NSED (2016-2020)” and “Decision No. 3367/QĐ-BNN-TT (signed by the Minister of Agriculture and Rural Development in 2014)”.

<Institutional Aspect>

The number of quota for staff allocation in units/departments related to this project within SOFRI is five in the Cultivation Technique

Faculty, six in the Plant Protection Faculty, four in the Technology Transfer Center and five in the Plant Clinic, all of which are filled at the time of ex-post evaluation, and according to SOFRI, the number of staff is sufficient to provide farmers and provincial and district DARD officials with effective technical support to increase production of King mandarin. In provincial and district DARDs, the number of staff in charge is five in provincial DARD and eleven on average in district DARDs in Ben Tre province, five in provincial DARD and seven on average in district DARDs in Soc Trang, Tien Giang and Tra Vinh provinces, and fifteen in provincial DARD and seven on average in district DARDs in Vinh Long province. According to these provincial DARDs, the number of staff is sufficient to guide farmers in acquiring effective cultivation techniques on King mandarin in Tien Giang and Vinh Long, while not sufficient in other provinces.

<Technical Aspect>

Most project counterparts (C/Ps) still work for SOFRI and provincial and district DARDs at the time of ex-post evaluation. According to SOFRI, it has participated in a range of research projects and its staff have been trained in and outside of the country, and thus they have sufficient expertise to perform above duties. According to provincial DARDs, the skill level of staff is generally sufficient to perform above duties in provinces except for Tra Vinh, which stated that some DARD staff need to accumulate practical experiences to support farmers more effectively. SOFRI has conducted trainings on citrus cultivation techniques for government officers and farmers in Ben Tre, Tien Giang, Tra Vinh and Vinh Long provinces since project completion, in which 917 people in total have participated. Provincial and district DARDs in five provinces have also conducted trainings on King mandarin cultivation techniques and SOFRI method for farmers since project completion, in which approximately 4,400 farmers in total have participated. Textbooks, monitoring book, and explanation video etc. produced under the project are still utilized at SOFRI and provincial and district DARDs. Most equipment procured under the project are also still utilized, except for two projectors and a notebook computer, which have reached the end of its service life.

<Financial Aspect>

Neither did SOFRI or provincial DARDs clarify whether they have sufficient amount of budget to sustain project effects, nor was their detailed financial data available. However, it is considered that SOFRI has a financial viability to a certain extent to sustain project effects, as it has been able to provide trainings for government officers and farmers, consultations in the Plant Clinic and disease free seedlings of King mandarin since project completion. Provincial DARDs are also considered to have a financial viability to a certain extent to sustain project effects, as they have allocated a certain amount of budget for provision of trainings for farmers, consultations in the Plant Clinic (approximately 20 to 60 million VND has been allocated annually for operation of the Plant Clinic in Soc Trang, Tra Vinh and Vinh Long) and monitoring of farms etc.

<Evaluation Result>

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

5 Summary of the Evaluation

The project partially achieved the Project Purpose and the Overall Goal: Two out of three components of SOFRI method had been applied by more than 20% of farmers by project completion. At the time of ex-post evaluation, the proportion of farmers who have increased their income from orchard among those who adopt SOFRI method is 26.5% according to data provided by provincial DARDs and 44.4% according to the interviews with farmers. One of the factors that limited the Effectiveness/Impact of the project is that pressure from root rot disease is too high in provinces in Mekong Delta region, while SOFRI method can only control citrus greening disease. Sustainability of the project is evaluated as 'fair', since some provincial and district DARDs have self-evaluated that they do not have sufficient number of staff. Besides, detailed data on financial aspect is limited. Nonetheless, no particular problem was observed in Relevance and Efficiency of the project.

Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- As stated above, the number of farmers who have continued to adopt SOFRI method has been decreased due to initial investment required in terms of cost and time. Thus, provincial DARDs should continue working with related parties to promote lending system for farmers who have financial difficulties for adopting SOFRI method.
- As stated above, many farmers tend to apply high planting density for a short life cycle to maximize yield of King mandarin in a minimum period. Therefore, SOFRI and provincial DARDs should continue explaining both advantages of low planting density in a long term and disadvantages of high planting density to farmers through workshops and trainings. In case it turns out to be no longer realistic for farmers to apply planting space of three to four meters, it is recommended that SOFRI work with stakeholders to research and propose a new spacing standard as well as a modified SOFRI method which is more adaptive to current King mandarin production environment with effects equivalent to the original one.

Lessons Learned for JICA:

- As stated above, some model farmers have stopped adopting some components of SOFRI method after project completion, as they considered that the cost of adopting the method is high. When implementing a similar project in future, economic efficiency and/or cost effectiveness of a method to be introduced should be carefully examined and sufficiently shared with beneficiaries.



Textbooks, monitoring book and explanation video etc. produced under the project are continued to be utilized at SOFRI



Staff in Plant Clinic in Tra Vinh