

## Summary of Evaluation Result

<b>1. Outline of the Project</b>	
Country: Socialist Republic of Vietnam	Project Title: Improvement of Plant Quarantine Treatment Techniques against Fruit Flies on Fresh Fruits
Issue/ Sector: Agriculture	Cooperation Scheme: Technical Cooperation Project
Division in Charge: JICA Vietnam Office	Total Cost: 2.8 hundred million yen
Cooperation Period	3 years from March 1, 2005 to February 29, 2008
	Partner Country's Implementation Organization: Post Entry Quarantine Center No. II (PEQC), Plant Protection Department, Ministry of Agriculture and Rural Development
	Supporting Organization in Japan: Ministry of Agriculture, Forestry and Fisheries
	Other Supporting Organization: None
<b>1-1 Background of the Project</b>	
<p>In Vietnam, the volume of trading goods including agricultural products has been increasing while Vietnamese economy is accelerating integration into global economy after joining the WTO. Especially, tropical fruits including dragon fruit which are mainly cultivated in the southern area of Vietnam have drawn attention because of their potentiality for trade. When these tropical fruits become able to access to international market, it is inevitable to establish plant quarantine system in line with international standard so that it prevents expanding pest. However, such system has not been properly established in Vietnam, and it may hamper exporting tropical fruits in accordance with the international conditions.</p> <p>In order to solve above challenge, Vietnamese government has decided to enhance the capacity of plant quarantine system in line with international standard, and submitted requests for technical cooperation to Japanese government.</p> <p>Responding to above request, JICA's three-year technical cooperation project which aims at enhancing capacity of disinfestations and at enabling dragon fruit which is planted in Vietnam to access to international market has been launched since March, 2005.</p>	
<b>1-2 Project Overview</b>	
<b>(1) Overall Goal:</b>	
Vietnamese staff is capable of appropriately applying disinfestation method on general tropical fruits.	
<b>(2) Project Purpose:</b>	
Vietnamese staff is capable of applying disinfestation technique of fruit flies that complies with international standard to improve Vietnamese dragon fruit's access to international market.	
<b>(3) Outputs:</b>	
<ol style="list-style-type: none"> <li>1. Rearing method for fruit flies in laboratory is established.</li> <li>2. Method for vapor heat treatment (VHT) disinfestation and its condition are determined.</li> <li>3. The system which stores examination data and analysis results is built and utilized by Vietnamese counterparts.</li> </ol>	

**(4) Inputs (as of December 2007):**

(Japanese Side)

Placement of Experts: 6 experts (69.2 M/M) Provision of Equipment: JPY 105.03 million

C/P training in Japan: 10 C/Ps (including JICA's group training)

Local Cost Support: JPY 2.24 million

(Vietnamese Side)

C/P allocation: 24 C/Ps

Buildings and Facilities

Local Budget: VND1,238 million (equivalent to US\$77 thousand)

**2. Evaluation Team (Japanese side)**

Team	-Leader: Hiroaki Nakagawa, Resident Representative, JICA Vietnam Office	
Members	-Plant Quarantine Treatment Techniques: Takashi Misumi, Senior Researcher, Yokohama Plant Protection Station, Ministry of Agriculture, Forestry and Fisheries	
	-Evaluation Planning: Kensuke Tsuji, Deputy Resident Representative, JICA Vietnam Office	
	-Evaluation Analysis: Kazumi Ueno, Consultant, Overseas Merchandise Inspection Co., Ltd..	
Period	10 December – 21 December, 2007	Type of Evaluation: Final Evaluation

**3. Summary of Evaluation****3-1 Result of Cooperation****(1) Inputs and activities**

Although the project faced rescheduling of the plan due to delay of procurement of equipments, the project succeeded in catching up its delay in the second year. Inputs and activities are being made as scheduled toward termination of the project period.

**(2) Achievement of Output**

The achievement level of Output 1 is high enough. Optimum conditions including temperature, humidity, photoperiod and diet for proper rearing three targeted fruit flies (*B. dorsalis*, *B. cucurbitae* and *B. correcta*) have been identified and established. In addition, sufficient amount of fruit flies egg has been corrected by improving eggging device to induce oviposition. As a result of above improvements, more than 6,000 adult flies has been reared successively.

Regarding Output 2, the mortality tests such as hot water immersion tests, VHT tests, small-scale mortality tests, and large-scale mortality tests were successfully conducted, and the remaining replicates of large-scale mortality and large-scale fruit injury tests are expected to be conducted before the end of the Project. The disinfestation standard for dragon fruit infested with three species of fruit flies is likely to be determined at the end of the Project.

The cause of water soak symptoms in dragon fruit of vapor heat treatment was identified as the physical impact from outside, and it is expected to confirm that there is no injury on condition of VHT by the result of large-scale injury test for avoiding injury occurrence in commercial base.

The achievement level of Output 3 is fair to satisfactory. The examination data and analysis results have

been stored in the database by counterparts, and the methodology of collecting and storing examination data and analyzing results has been built in the laboratory manual which was prepared by the Project. Those data are about to be compiled to prepare the report on plant quarantine treatment, which is to be submitted to fruit import countries.

### **(3) Achievement of Project Purpose**

It was found that the verifiable indicator of the Project Purpose, ‘80% of Vietnamese counterparts is capable of planning and implementing fruit flies disinfestations test on dragon fruit’ is achieved with following reasons. Therefore, the level of achievement of the Project Purpose is high enough.

1. In the Project, fruit flies disinfestations test on dragon fruit has been conducted in accordance with the guideline of FAO which is said to be as an international standard. The counterparts basically understand and acquired necessary knowledge and skills of the requirements and developing procedures of disinfestations techniques of fruit flies which comply with international standard through technology transfer by Japanese experts.
2. The achievement level of Project Purpose is satisfactory since all counterparts has acquired necessary knowledge and skills for disinfestations techniques of fruit flies, and which is confirmed by the interviews with counterparts, the results of the questionnaires and observing documents prepared by counterparts.
3. Rearing fruit flies, mortality tests and fruit injury tests in the rainy season were successfully exercised by the counterparts themselves even when the Japanese short-term experts were absent, and which proves that their capability of disinfestations technique is high enough.

### **(4) Achievement of Overall Goal**

The examination data and analysis results have been stored in the database, and the counterparts have acquire sufficient knowledge and skills for disinfestations technique through the activities of the project. Therefore, they are expected to continue further activities by themselves.

## **3-2 Summary of Evaluation Results**

### **(1) Relevance**

The Project was found to be relevant to the policy of Vietnamese government, which is referred in “the 5-Year Plan for the Agriculture and Rural Development Sector (2006-2010)” as well as Japan’s ODA Policy, and Country Assistance Program of JICA. In addition, the capacity building in the field of plant quarantine is the most important issue to meet the requirements under the situation that Vietnam has become the WTO member in 2007.

### **(2) Effectiveness**

All Outputs have contributed to realize the Project Purpose, and thus the Project has secured its effectiveness successfully. Rearing method for fruit flies in Environment-controlled chamber (Biotron)

was established (as Output 1), and using the fruit flies mentioned above, the method of VHT disinfestation and its conditions were determined (as Output 2). During the activities, all data were stored and analyzed for the compilation of the report of plant quarantine (Output 3), which is to be necessary information for protocol for lifting the import ban.

### **(3) Efficiency**

Inputs and activities have successfully materialized expected outputs. However, some problems including time consuming procurement of equipment from Japan have caused the rescheduling of rearing fruit flies although the Project has made up the lost time through the efforts made by both Vietnamese counterparts and Japanese experts. As for short-term experts, they were dispatched timely to design, implement, transfer technology, and monitor the Project activities. Furthermore, they have been dispatched three times as shuttle bases, and it has contributed to developing good relationship between Japanese experts and counterparts, smooth implementation of training and monitoring of progress of the Project. Regarding long-term expert, the extension of a long-term expert from one year to three years has contributed to systematic and smooth implementation of Project activities by enabling close contact between Japanese short-term experts and counterparts. The enormous ability and diligence of the counterparts and the organization strength of PEQC made the Project fulfill the satisfactory level of achievement.

### **(4) Impact**

Counterparts are expected to continue further disinfestations activities by utilizing their knowledge and skills for disinfestations technique which were transferred through the activities of the project.

The Project has supported to develop report on plant quarantine by collecting data and analysis through activities of the Project. It is expected that Vietnamese dragon fruit could be exported to targeted import countries when Vietnamese government completes the protocol for lifting the importing ban to the countries. In addition, to establish the rearing method of *B. correcta* was a remarkable accomplishment since it had been considered difficult to rear successively in the world. It is expected that the success of establishing rearing method of *B. correcta* through the Project will also contribute to expand export dragon fruit to other countries, which ban *B. correcta*, in future. Dragon fruit growers and exporters will know the conditions of fruit flies disinfestation treatment by the information and training from PPD, and they will be expected to have chance to earn more money from exporting dragon fruit to foreign countries.

### **(5) Sustainability**

It can be concluded that the sustainability is likely to be secured from the following three aspects:

1. The institutional sustainability is likely to be secured. The modernization and capacity building of plant quarantine sector is the top priority for export promotion of agricultural commodities in Vietnam as a WTO member country.
2. The sustainability from financial aspects is rather high. PEQC will have a half billion VND as Government budget in 2008 to transfer technology to commercial factories and other organizations.

In future, there will be possibilities that PEQC will have another income sources such as inspection and consultation fees for the commercial VHT facilities.

3. The sustainability from technical aspects is very high. The counterparts formed four working groups such as rearing, disinfestation, reporting and supporting. They have carried out the project activities with supports from Japanese experts, and the results were perfectly compiled in the laboratory manual in PEQC. For this reason, they can utilize such technique by themselves in future.

### **3-3 Promoting Factors**

#### **(1) Factors related to Planning**

The Project was well designed with three outputs, which effectively lead to the achievement of the Project Purpose. Development of laboratory working manual can be good factor to ensure sustainability of the Project by utilizing techniques and equipment.

#### **(2) Factors related to Implementation Process**

The Japanese short-term experts were dispatched three times as shuttle bases, and it contributed to developing good relationship between Japanese experts and counterparts, smooth implementation of training and monitoring of the Project. In addition, simulation studies of disinfestation methods which was voluntary conducted by Japanese experts in Japan before dispatching have realized smooth implementation of project activities and technology transfer in spite of limited period.

It is worth mentioning that the active participation and strong ownership from the counterparts are one of the major factors that contribute to the good progress of the Project.

### **3-4 Hampering Factors**

#### **(1) Factors related to planning**

Although the Project activities have been conducted smoothly by the extraordinary efforts of the counterparts and Japanese experts, they sometimes had to work until midnight or even in holiday for accomplishing not only scheduled activities but also documents preparation for JCC meeting in limited periods.

#### **(2) Factors related to implementation process**

In the first year, the project faced rescheduling of the plan due to delay of procurement of equipments. Although the project succeeded in catching up its delay in the second year, such problem might have caused increased burden on both experts and counterparts.

### **3-5 Conclusion**

According to the result of assessment of the Project based on the 5 Evaluation Criteria, the progress of the Project was generally smooth. Project objectives including each Output were expected to be achieved by the end of February 2008, and the Project could be completed as planned.

Overall, it can be concluded that the counterparts comprehended the issues in plant quarantine techniques

through the Project, and has acquired fundamental technical knowledge and skills, which can be applicable to develop plant quarantine technique. In the future, in order to achieve the overall goal, the future efforts of the Vietnamese side are expected.

### **3-6 Recommendations**

In order to ensure sustainability of the Project, it is recommended that Vietnamese relevant agencies take the following measures:

- To continuously allocate necessary maintenance budget for equipment and its consumables for rearing fruit flies
- To assign appropriate staff for successive rearing fruit flies with its training and extension system
- To submit protocol for lifting the import ban timely, by utilizing the Outputs of the Project.
- To prepare administrative and technical guideline so that commercial disinfestation facilities can be properly installed.
- To apply the plant quarantine treatment techniques to other fruits through Vietnamese own resource, using rearing and disinfestation techniques, which has been acquired by the Project.

### **3-7 Lessons Learned**

- In 1<sup>st</sup> year of the Project, the procurement delay of equipment disturbed the activities for short-term experts. Therefore, it is desirable to supply input timely in order to keep the schedule.
- The long-term expert was scheduled for only one year at the beginning of the Project. But it was necessary to coordinate the project management in the absence of short-term technical experts. therefore the long-term expert stay was extended for three years. This extension caused the project management effectively.
- The short-term experts who have been dispatched by shuttle basis have enabled to establish close and continuous relationship between counterparts and to monitor progress of the Project, and thus it has contributed to efficient and effective implementation of the Project. However, they had lots of scheduled technical activities and some report preparation works for JCC meeting within a limited period. These additional works sometimes overloaded the experts and counterparts. It is desirable to decide the appropriate dispatching period considering necessary period not only for technical transfer activities but also for other factors such as situation of counterparts, other workloads including document preparation works.