Ministry of Agriculture and Rural Development

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Collaboration for Agriculture and Rural Development (CARD) Program

Project Completion Impact Evaluation (PCIE) Report

036/VIE04

Assessing the effectiveness of Farmer Field Schools for Citrus IPM implementation in Viet Nam

(1st – 3rd June, 2009)

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Executive Summary

The project "Assessing the effectiveness of Farmer Field Schools for implementing Citrus IPM in Viet Nam" was completed in April 2009 and had an implementation time of two years (2005-7). The main objectives of the project were to establish an effective citrus IPM extension system in 12 provinces of the Mekong Delta and Central Coast Regions through a "training of trainers" (TOT) approach and subsequent delivery of farmer field schools (FFS) designed to improve the knowledge, attitude and practical skills of farmers in applying IPM on citrus. The assessment of the effectiveness of this approach in increasing farmer knowledge on citrus IPM was also a key component of the project objectives. A project completion impact evaluation mission was conducted by an independent evaluation team from June 1st-3rd, 2009. This report highlights the findings from this mission and provides an assessment on the extent to which the project achieved its objectives. In general, the evaluation team found this project to be relevant to the needs of stakeholders and performed relatively well in terms of the efficiency and effectiveness of project implementation. The move to broaden the base of the project to include a more Integrated Crop Management (ICM) approach rather than focusing solely on IPM was found to be of particular benefit to the participating farmers and helped to increase the relevance of the project. There remain some issues associated with the ongoing sustainability of this type of project due to the costs associated with training of trainers and developing the materials for the FFS, however early signs of positive impact were identified and some lessons learned and recommendations for the future have been made.

1. Introduction

- **Project's general information**

Project Number and Name: ***036/04 - Assessing the effectiveness of Farmer Field Schools for implementing Citrus IPM in Viet Nam***

Vietnamese Institution: Southern Regional Plant Protection Department, MARD

Australian Partner Institution: Centre for Horticulture & Plant Sciences, University of Western Sydney

Date Approved: 2005 **Date Commenced:** Feb. 05 **Date Completed:** April 09

Total Budget (*A$):* 330,026 From: AusAID: 185,778
Australian Inst.: 82,365
Vietnamese Inst.: 61,883

Project Objectives:

1. Conduct training of Trainers (TOT) for master trainers in citrus IPM

2. Master trainers conduct Farmer Field Schools (FFS) in their local region

3. Assess the effectiveness of the FFS model in increasing farmer knowledge in citrus IPM

- **Purpose of Project Completion Impact Evaluation Review**

The objective of the mission is to assess the design, implementation, and management of the project in terms of effectiveness and efficiency as well as the impacts and sustainability of the project after its termination. Recommendations will be made available for future improvement.

- **Evaluation Methodology**

- Initial review to study the project proposal, milestones and reports.

- Clarify the project objectives, outputs and indicators presented in the logframe

- Semi-structured interviews and focus group discussion with project participants

- Analyze the collected primary data from field visits and secondary information of project activities and project results to date.

2. Project Implementation Review

- **List milestones scheduled and completed**

Milestones	**Scheduled**	**Completed**
MS1: Contract signed	February 05	February 05
MS2: 1st six-monthly report	August 05	August 05
MS3: - Master trainer training manual and - Competency assessment of Master Trainers trained in Year 1 as assessed by successful completion of training	September 05	September 05
MS4: 2nd six-monthly report	February 06	April 06
MS5. Farmer participants engagement in attaining IPM knowledge	February 06	May 06
MS6: 3rd six-monthly report	August 06	December 06
MS7: Farmer participants applying IPM knowledge	February 07 (Revised)	November 07
MS8: Project completion	February 07	April 09

Reviewing the project documentation, the PCIE team found that all the MSs have been completed and approved by the CARD program management unit (PMU). Progress reports (MS2, 4, 6) technical documents on citrus IPM (MS3) and the assessment report on farmers' application of IPM knowledge (MS7) are of high quality. Twelve IPM posters were developed effectively with vivid pictures and concise knowledge that were found to be very useful for farmers participating in FFSs. However, in spite of the revised timeframe for delivery, MS7 still lagged behind the schedule. MS8 was significantly behind schedule (2years from original delivery date) due to some changes in key project personnel of the Australian institution partner. Although this seems unacceptably delayed, apparently all project activities were completed by the end of 2007 however report writing and submission took longer due to issues associated with project personnel.

Furthermore, there appears to have been no follow up on the comments made by the appraisal on MS3 (Master Training Manual) and the manual has not been adjusted accordingly. The format of the manual as a series of PowerPoint slides rather than a comprehensive book with table of contents, glossary etc also seems unconventional for this type of manual. The PCIE team noted that the training manual also did not contain any supporting instructions for trainers delivering the training – for example there were no suggestions on how the training should be delivered and no summary of intended learning outcomes for participants after the training is completed. It was observed by the Australian project leader in MS7 report that the quality of the skills amongst the trainers is different and the ways that the training is conducted is also different. The PCIE team believes that a more detailed training manual could have helped to standardize the way the training was delivered and could have improved the learning outcomes for some participants.

Unlike most other CARD projects, this project did not have a separate baseline study at the beginning of the project, instead pre and post-intervention KAP surveys were conducted and findings reported in MS7 report.

- **Review of project logframe**

Initial Review of Logframe

Although project activities defined in the logframe are relevant, the construction of the project logframe could have been significantly improved. An initial review of the logframe found that some important elements of the logframe are missing or confused such as overall goal, objectives, and outcomes of the project. Performance indicators are too general to measure and mainly exist for the outputs only, not the activities. The assumptions also ignore some conditions that may limit the success of the project. Clarifying these elements would have made the monitoring and evaluation of the project much easier. These issues are further discussed below.

The evaluation team has some suggestions for how the project logical framework could have been improved *(see more details in Annex 3, suggestions were written in different color)*.

Initial Review of Objectives

In the PCIE team's opinion, the objectives of the project are not well defined in the logframe because they are simply describing the activities but not reflecting the improved situation that project aims to achieve. The original objectives of the project include: (i) training of trainers for a great number of extensionists on citrus IPM, (ii) conducting Farmer Field Schools in the 12 provinces with more than 2000 farmers trained, and (iii) assessment of the impact of FFS in participating farmers. Therefore considering these objectives (activities) and then considering the actual implementation of the project which included the revision of the initial IPM training objectives to include ICM content in the training, then objectives of the project could better be defined as:

- To take the initiative in establishing and refining an effective citrus ICM extension model (which includes training in IPM) to improve citrus productivity in 12 provinces of the Mekong Delta and the Central Coast region.
- To improve the well-being of participating farmers due to changes in their knowledge, attitude, and practice towards the application of ICM on citrus.

Initial Review of Assumptions

The assumptions are not sufficiently addressed in the project logframe (see Annex 3). There are also some other conditions that have not been included in the logframe that without them, the sustainability of the project could be jeopardized. They are: (i) government, related institutions, and citrus farmers can finance for the IPM extension service after project completion, and (ii) related policies are in favour of IPM application, for example: the pesticides market is well regulated or policies on development and management of disease-free citrus seedlings and mother trees are in practice. Field visits showed that in some areas, fake and illegal pesticide, high cost of the recommended products, and the absence of disease-free seedlings have limited the IPM adoption of the farmers. Most of the district government offices also reported difficulties in finding the financial sources to fund for the citrus IPM extension service in their areas post-project completion.

- **Summarize the major achievements so far**

Results of reviewing project documents and field visits show that the project has completed well all important activities in the project design and has fulfilled its objectives. All of the outputs can be considered to be satisfactorily achieved.

In relation to Objective 1, Output 1 in years 2005 and 2006, 206 people have been trained and worked as citrus IPM trainers (MS8 Completion report). The number of farmers trained by those IPM trainers accounts up to 2,248 people in 72 FFSs in 12 provinces which meant that Objective 2, Output 2 was satisfactorily achieved. Two books with titles as "Citrus IPM – Ecological guide" and "Field guide for pest and disease of citrus", and a set of 12 education posters were developed to facilitate the FFSs which were necessary for the achievement of Objective 2.

At the end of the project, a meticulous impact assessment (MS7) has been conducted with most of the participating farmers, other major stakeholders, and key project managers. This assessment was necessary for the achievement of Objective 3, Output 3 and has demonstrated positive impacts of the trainings on local citrus farmers in terms of all three social, environmental, and economic aspects. The following paragraphs present observations and results of field work made by the PCIE team when visiting three project districts (Binh Minh, Lai Vung, and Phong Dien). These findings helped the PCIE team to reach the conclusion that overall the project satisfactorily achieved its objectives.

Firstly, the team had the chance to meet many stakeholders including local organizations (farmer association and women association), related local authorities such as provincial and district plant protection officers, district agriculture officers, and more than 100 participating farmers who all proved to be very interested and enthusiastic about the citrus IPM trainings delivered by the project. Mr. Cuong from SRPPC and many IPM trainers that the PCIE team met with told the mission that they are happy to participate in the project training on citrus IPM and citrus crop management. For many trainers it was the first time in their career that they had been presented with an opportunity to learn about IPM practices and then run field schools.

Secondly, the mission has received many good comments from interviewed farmers on the FFS and quality of trainers and training materials. Farmers indicated that the training was very practical and delivered in a friendly training environment; it was relatively easy to understand the knowledge and was delivered by enthusiastic trainers. When asked what the farmers had been able to adopt from the training or what skills they had developed, the majority responded that they were now better able to recognize citrus diseases; they had a better way to apply fertilizers and pesticides (less spray of pesticide and change to safer products); they were applying pruning techniques, and had increased the use of natural enemies such as green ant. This is consistent with the evaluation in MS7 of the project.

As an indication of the value of the training for farmers, Mr. Le from Phong Dien district said that "he will not sell his training note books even if the price is 500,000VND!" In Lai Vung district interviewed farmers said that they would be willing to pay for the citrus IPM extension service. Given the limited resources of the district DARDs, this was an encouraging initial sign for the future sustainability of the project. It was also reported by participating farmers that some farmers who did not have a chance to participate in the training showed their interest in the project by buying the book "Field guide for pest and disease of citrus" produced by the project.

However, the mission also received comments from farmers for improving the training and the materials. According to them, the handouts are too condensed and do not cover all details mentioned in the FFS. This is particularly not convenient for the farmers who do not have good note taking skills and then will hinder them from adopting new practices on their orchards as they forget the details for application. In general, farmers also expected to have more chances to practice the training. Mr. Co from Phong Dien district suggested that if the project had made a demonstration model in the area then local farmers could visit, practice the techniques together and learn a lot from the model.

Thirdly, the PCIE team was very pleased to see that the local project coordination was very effectively managed and project implementation was very flexible and quickly responded to the needs of farmers. During the implementation, the project held evaluation workshops at the end of the first season of FFS and then adapted training content to make it more suitable to farmers. The adaptation of the trainings to include knowledge and skills in crop management proved to be a very good decision of the project. Techniques of pruning; plant nutrition and production of compost; planning of rejuvenation of orchards; budgeting and planning for the production cycle were all highly appreciated by the farmers interviewed. In their opinions, many of these techniques are cheap, easy to apply, and have a clear impact on the performance of their orchards. Including these elements in the training clearly increased the relevance of the project to the farmers. Many activities that were not foreseen in the project design were also conducted by the enthusiasm of the Vietnamese partners and some activities have even been paid for out of other sources of funds such as from the additional budget of UWS, some funding from ACIAR and from pesticide companies including Bayer Vietnam and SK Energy from Korea. These activities included additional interviews with pesticide dealers, farmers' study tours and evaluation workshops.

The impact assessment done by the project was also found to be of large scale and good quality. The combination of pre and post intervention KAP survey, interviews with key stakeholders, and field observations has provided a comprehensive assessment of the effectiveness of the FFS model to increase farmer knowledge in citrus IPM. Observations and interviews made by the PCIE team also confirmed the assessment results including an increase of farmers' knowledge and skills in citriculture and integrated pest management. Many interviewed farmers reported changes in practice they have made towards the use of pesticides that are better for the environment and they have increased the use of biological control agents that are better for their own health as well as the health of their trees. Some farmers claimed that their net profit increased due to reduced inputs (chemical sprays) and partly from increased yield and fruit quality, however the PCIE team could not find any farmers who had kept records that could support this claim. The economic analysis conducted by the project team also claims that the cost of FFS is very low and that farmers could afford to pay for FFS in the future. However there are some elements of this assessment that could be debated and will be discussed under the section on project efficiency.

Finally, the mission regrets that we cannot give profound assessments on technical content of the trainings and materials due to the absence of an IPM expert in the team.

- **Shortcoming or problems encountered and assessment of project objectives and outputs against four levels of High satisfactory; Satisfactory; Moderately satisfactory; Un-satisfactory**

In general, the implementation of the project ran smoothly as a result of much effort put into coordinating the TOT and FFS by the Vietnamese project partners. The only major problem encountered in project delivery was the delay in submission of the project completion report. However there are some other issues and constraints that exist outside of the project that would need to be overcome in order for the project to have a greater impact in the longer term. Many of these issues were reported in MS7 and were confirmed on the field. Firstly, management and development of pesticide markets are very weak. There is no list for pesticides registered for citrus and some pesticides which are currently marketed and used for citrus actually have high toxicity for natural enemies and human (e.g. Dandy product). In some areas, the range of pesticides available for purchase from the local shop is very limited and therefore recommended products could not be purchased. One farmer in Phong Dien district also said that he sometimes is afraid that the pesticides that he buys are fake. These issues are serious drawbacks to IPM application of citrus farmers. However this project has been able to effectively engage with chemical companies such as Bayer Vietnam and secure their support for IPM training activities. This represents an important first step in encouraging greater communication and linkages between chemical companies, plant protection departments and farmers throughout the product development and testing phase.

Secondly, belief and practice of farmers, particularly in the Mekong Delta, in using certified and disease-free planting materials are very low. Survey result showed that only about 9 percent of respondents planted certified planting materials sourced from institutes, government variety centers, or private nurseries. Huanglongbing (citrus greening disease) is a major constraint to improving citrus productivity in Vietnam and the use of disease-free seedlings can help to delay the spread of this disease, however as reported by farmers, IPM will not be of much help if your neighbours' orchard is infected.

Thirdly, farmer associations are not well developed in these areas. This consequently hinders the market access and establishment of postharvest treatment facilities of farmers. When individual farmers with small orchard still have difficulties in selling their citrus products and the improvement of quality from adoption of IPM practices is not reflected by an increase in price, then this presents an obstacle to the application of IPM according to some farmers in Phong Dien and Binh Minh districts. Moreover, without some level of farmer cooperation, efforts of the individual in applying IPM become meaningless. Some farmers in Phong Dien district reported that their orchards are continuously attacked by pests from surrounding environment and this makes them fail in applying IPM.

Finally, there remain some factors that need to be considered in relation to the cost of developing the TOT program and the feasibility of scaling up this type of extension model (discussed under Efficiency section). Also in the budget plan of the project, there was no contingency fund for price inflation and for unforeseen project activities and this constraint sometimes made it difficult for the project implementer. Fortunately, the project was able to find some other sources to fund for some additional activities of the project such as from the University of Western Sydney and some local pesticide companies.

Code	Narrative	Assessment
Objective 1	**Conduct training of Trainers (TOT) for master trainers in citrus IPM**	S
Output 1.1	• More than 200 competent citrus IPM trainers	S
Objective 2	**Master trainers conduct Farmer Field Schools (FFS) in their local region**	S
Output 2.1	• More than 2000 farmer participant engagement in attaining IPM knowledge.	S
Objective 3	**Assess the effectiveness of the FFS model in increasing farmer knowledge in citrus IPM**.	H
Output 3.1	• Quantitative information on the beneficiaries of the project and the effectiveness of the FFS model in increasing farmer knowledge in citrus IPM	S

3. Project Evaluation

Five key evaluation questions: Relevance, Effectiveness, Efficiency, Impact and Sustainability.

Relevance: Does the design of the project correctly address problems or real needs?

For many project stakeholders, this was the first time they were introduced to the knowledge and skills of IPM and ICM on citrus. Productivity of citrus in Vietnam has traditionally been low and citrus cultivation has not developed significantly in recent years, due to serious damage of pests and diseases. A lack of skills in ICM extension for citrus has also contributed to this problem. Therefore this project was important to develop a network of skilled extension staff that can support citrus farmers in Vietnam through the delivery of citrus ICM FFS. Findings from the PCIE show that the project correctly addressed the real needs of both citrus farmers and local plant protection staff. The majority of trainers and farmers participating in this project where highly enthusiastic about what they had learned during the project and the results of the project impact assessment (MS7) demonstrated that many of these techniques (e.g. improved identification of pests & diseases, change in use to safer pesticides) had been adopted by farmers. The evaluation workshop conducted by the project team at the end of the first growing season and the subsequent revision of training materials to focus more on ICM was a critical step towards making the project more relevant to farmers during the implementation period.

Findings from the PCIE suggest that the project design has correctly addressed the need for an extension model for citrus production in Vietnam and there now exists the potential for using this skilled network of trainers for scaling up the extension model to other provinces where citrus is grown. However at a higher level, the question still remains whether citrus is considered a priority by the Government of Vietnam for R&D investment in agriculture (e.g. national citrus ICM/IPM program) or if funds could be more effectively used for other crops that have the potential to be more productive and profitable for farmers. Without some

additional government support to provincial DARDs to fund the training of new trainers and delivery of ICM FFS by trainers, it seems unlikely at this stage that this project will have an impact outside of the original target provinces.

Effectiveness: Did the project attain its outputs and objectives? What is the quality of training materials? What are the number of qualified citrus IPM extensionist, FFS, and participating farmers? How good are the technical knowledge and training skills of the trainers?

According to the assessment of milestones by CARD PMU and supported by field work findings, all outputs of the project have been satisfactorily achieved (number of people involved in TOT training in citrus IPM; number of FFSs and number of farmers trained in FFSs; assessment of the effectiveness of the FFS model). The quality of trainings and the training materials were highly appreciated by the interviewed farmers with some suggestions on how they could be improved. The quality of the trainers was also evaluated to be of a high standard. The Vietnamese project partners were highly enthusiastic and proactive during the lifespan of this project with many additional activities (e.g. farmer study tours, interviews with pesticide companies etc) initiated by the project partners to increase the impact of project implementation. They also successfully coordinated the challenging task of organizing training of trainers and delivery of FFS across 12 provinces.

In relation to the delivery of training, some interviewed farmers suggested that it would be better to have advanced farmer-trainers in their areas who they could call on for support easily. This may be a good idea, however in this situation then these farmers would need more training not only in citrus IPM but also extension knowledge and skills. There are also additional costs for them to connect to a network for updating knowledge. Regulations for operation of this position also need to be developed and agreed by local community. In future, this option should be tested firstly on small scale.

Efficiency: Were the resources used in an efficient way or could things have been done at lower cost?

MS7 reports on the cost of FFS in citrus IPM and the relationship between the profitability of citrus production and the cost of FFS. The cost of FFS per participant for the season was calculated as VND 867,361 (approx AUD 71) by taking into account an estimation of a) base cost of existing extension system i.e. salaries and overheads of extension officers employed by PPD, b) start-up cost that includes TOT, c) recurrent costs that include FFS costs , allowances and cost of farmer participation. Average net profit per farmer household is reported as VND 54,247,800. Based on these figures it was estimated that the cost of FFS per participant per season represents only 1.60% of their net profit and that the savings generated from reduction of pesticide use (number of sprays) as a result of IPM training would likely be higher than the investment made in FFS. Based on these figures FFS appear to be a highly efficient form of training for farmers and indicates that committed farmers could likely afford to pay for this training themselves in the future.

However these figures do not account for the initial development costs (e.g. development of training material for TOT and FFS, input of Australian technical staff) of the IPM extension network or the additional costs that would be associated with maintaining and expanding this network in the future. IPM trainers need to be constantly updated on disease situation, innovation of new products, and new knowledge. It also appears unlikely at this stage that there are sufficient trainers to scale up the extension system to other provinces. In relation to the cost of the project and how efficiently resources have been used, if the total cost of the

project (AUD330 026) is divided by number of farmers trained (2248), then the total cost per participant is calculated as AUD146/participant –more than twice the cost of the estimated cost of FFS per participant. Given that most of the cost was associated with the input from Australian staff and that there was limited input of Australian staff in the actual training program of the TOT (MS7p20), this raises the question as to whether the Australian involvement in the project could have been reduced and project delivered at a lower cost. To upscale the citrus IPM extension network it seems likely that provincial governments outside of the target provinces would also need to be prepared to invest in the initial development of the ICM TOT program.

Impact: What is economic, social, and environmental impact of the project?

The assessment conducted by the project and result of the interviews made by the PCIE team with participating farmers confirmed that the major economic impact of the FFS is a decrease in the input cost due to changes in orchard management practices (reduction in higher cost pesticides, less applications and lower labour costs). However it was difficult to confirm this with quantitative evidence as none of the farmers interviewed kept detailed records of their input costs. Additionally, an increase in the use of home-made compost, which doesn't cost as much as chemical fertilisers, was also said to contribute to an increase of yield. However again this was difficult to prove as there are many factors that can contribute to the increase of productivity (e.g. seasonal variation and maturity of trees over the project time frame).

Regarding social impact, it is recognized that after FFSs many farmer clubs have been established. Farmers share their experiences and together contact IPM trainers for additional support in these clubs (MS7). Interviewed farmers also mentioned that they increased exchanging their IPM and ICM experiences during normal social events such as in wedding and funeral parties, or other gatherings together (reported by farmers in Lai Vung and Binh Minh districts). It was reported that in Lai Vung district, more than 60% of farmers in one village have copied the techniques from trained farmers. This is a good indicator that the potential for a lower cost model of farmer-to-farmer extension could be effective in this area in the future.

Furthermore, the proportion of female farmers participating in the project is only 12.3% but the proportion of female trainers is pleasing high, up to 30%. After the training, Ms. Phan Thi Cam Van – a very active trainer from Tra On district has pursued post-graduate study in plant protection at Can Tho University and still frequently communicates with resource persons in the SPPC as well as in the university on the citrus IPM topics. The PCIE team was especially impressed by the active participation of female farmers during discussion in Lai Vung district. FFS was found to be not only good for farmers but also for trainers. Through FFSs, the professional staff and experts gain more practical experiences, for example this is the first time for both Vietnamese and Australian staff know about side-effect of PSO that make better fruit appearance in Dong Thap province.

It is more difficult to identify the environmental impacts of the FFSs than social and economic impact. However, surveys in Hau Giang, Vinh Long, and Tien Giang provinces showed that after the FFSs there is a tendency of using more green ants as a natural enemy of pests. This is in line with the change in practice of farmers in using less pesticides and moving from use of broad-spectrum pesticides towards more environmentally and human safe pesticides. This change has improved the environment and makes it liveable to green ants.The benefits of using natural enemies are becoming better known and more readily accepted by Vietnamese farmers. This has also been demonstrated in the CARD project 029/05 which has introduced the use of weaver ants on cashew to significantly reduce the reliance on

insecticides (CARD project 029/05). In addition, there were also some reports from farmers about the improvement of the environment such as the reappearance of fish in canals or the canal water no longer makes them itch if they wash their hands in it.

Sustainability: Are positive outcomes from the project likely to be maintained, replicated or extended after the termination of the project? Was there any further FFS training conducted? Is there any mechanism or channel to support these activities when the project's support ceased?

There are two main aspects to sustainability for this project. The first is related to the ongoing implementation of ICM practices by participating farmers and the delivery of FFS by trainers who participated in the TOT sessions, and the second aspect is related to the potential for scaling up the citrus IPM/ICM extension model.

In relation to the first aspect, findings from the mission suggest that there are some efforts from local agencies such as district agriculture offices and sub-PPDs, or local farmers to maintain the positive results of FFSs but they are scattered and potentially not sustainable. According to Mr. Cuong from SRPPC, there has already been some more training for farmers on citrus IPM that has been funded from government budgets in four provinces: Tien Giang, Vinh Long, Ben Tre, and Dong Thap. However funding for these activities is limited and all district DARD offices reported that they could not afford to conduct FFS for farmers in the future in the absence of a national strategy or national IPM program for citrus that would help to cover these costs.

In three visited districts, farmers have established farmer clubs and sometimes contact the trainers for consultations. These efforts are positive signals for ongoing implementation of ICM practices by farmers who were involved in the original project and are also a positive indicator that the farmer-to-farmer extension model could work in these areas. However these efforts are not likely to be sufficient to significantly extend the benefits of the project beyond the original recipients. Also, there has been no assessment done on the number of farmers who were implementing IPM during the project yet who have returned to previous farming practices post-project completion. However in the districts visited by the PCIE team, the meetings were enthusiastically attended by the majority of trained farmers who claimed that they continued to follow the ICM practices.

In the longer term it appears that the citrus IPM/ICM extension model established by this project will only work if there is additional financial support from the government, or if farmers have sufficient funds to pay for these trainings themselves. If the cost of the FFS as calculated by the project (MS7) is an accurate representation of the actual cost once the citrus ICM extension model has been established, then a user-pays system may be possible in the project target provinces. Although it was found that farmers have indicated some degree of willingness to pay for IPM trainings in the future in some project areas, this is not a model that has been effectively implemented by PPD/district DARD in the past and they seemed reluctant to trial it at this stage.

In relation to scaling up the citrus extension model to include provinces outside of the project, as discussed in earlier sections, this appears only likely to work if national/provincial governments were prepared to invest in the additional development costs associated with training of more trainers and the delivery of the first season of FFS to farmers. If a national citrus ICM strategy or program was developed it could also aim to solve some of the current strategic limitations such as the unregulated pesticide markets, and could also create an opportunity for diverse stakeholders (including private sector) to participate in providing the citrus ICM/IPM service.

4. Conclusion and recommendations

Based on the evaluation findings, this project can be considered to have satisfactorily achieved its objectives. An extension network of qualified citrus IPM trainers has been established and farmer field schools were conducted in local areas that have been of benefit to the participating farmers and to some surrounding farmers. Trainers have greatly benefited from the TOT programs as many had no prior experience in ICM and IPM theory and practice. A detailed assessment of the effectiveness of FFS model was also conducted which provides valuable background information on the farming practices of citrus farmers in target provinces prior to project intervention and demonstrates how the practices and beliefs of farmers have changed as a consequence of participation in FFS. Major changes have been the increase in use of more environmentally friendly pesticides (PSOs) and a greater understanding of pest control methods.

In relation to the relevance of the project and project design, the PCIE team found that the logframe could have been improved if the project had defined an overall goal and if objectives were defined in relation to the improved situation that the project was aiming to achieve rather than the core activities that it was intending to implement. However, the activities designed were found to be relevant to all stakeholders and the evaluation workshops at the end of each growing season were a great way to reassess the relevance of planned activities and make adjustments accordingly. The quality of the outputs delivered were generally of a high standard and despite the delays in reporting towards the end of the project (MS7 & 8), the majority of the milestones were delivered more or less on time without any significant problems. The training manual could however have been improved if it had included some support notes for trainers and intended learning outcomes for farmers.

In terms of the impact of the project, good evaluation was done before and after project completion which have helped to demonstrate impact. While it is relatively early to predict longer-term economic, social and environmental impact of the project, at this stage early signs of positive impact were identified in all three areas. The social impact of this project in relation to the development of farmer clubs and the upskilling of female trainers were particular positive to see, as was the anecdotal evidence associated with improved on-farm environmental conditions.

In relation to project sustainability and recommendations for further impact, application of IPM on citrus should be considered as a continuous process due to changing situation of diseases, appearance of new products and new methods for pest management. For this reason, the project should be considered as an initial initiative as further measures will still be required to make it sustainable (e.g. cooperation of government agencies, chemical and pesticide companies, commitment of farmers to planting disease free seedlings, stronger farmer associations etc). General consensus amongst project participants (Plant Protection Department and trainers) were that the costs associated with maintaining and coordinating a provincial/district level IPM network with regular FFS are too high for local DARDs/PPD without the support of a national citrus IPM strategy/program. While good farmers should be encouraged to take the lead in training other farmers in their local areas, there remain some challenges associated with this approach and it appears that they cannot do this at this stage without some additional support. The potential for scaling up the citrus extension network to other provinces in Vietnam also appears to be difficult in the absence of additional government funding to cover the establishment costs.

In summary, in relation to the relevance, effectiveness and efficiency of the project, the evaluation team found that the project has performed satisfactorily when assessed against these factors.

Annex 1. LIST OF INTERVIEWEES

1. ***Vietnamese counterpart in the project:***
   - Mr. Cuong: Vice director of SRPPC.
2. ***Can Tho province:***
   - Ms. Son: Vice director of Can Tho Plant Protection subdepartment
   - Mr. Huynh Thanh Vui: staff of Can Tho province Plant Protection Office
   - Ms. Nguyen Thi Bich Hong: staff of Omon – Binh Thuy interdistrict Plant Protection Office
   - Ms. Luong Thu Dung: staff of Can Tho Plant Protection subdeparment
3. ***Phong Dien district, Can Tho province:***
   - Mr. Pham Huu Luan: citrus farmer in Phong Dien district
   - Mr. Nguyen Van Co: citrus farmer in Phong Dien district
   - Mrs. Nguyen Thi Le: citrus farmer in Phong Dien district
   - Mr. Tran Hoang Tuan: head of Phong Dien district agriculture office.
4. ***Binh Minh district, Vinh Long province:***
   - Mr. Nguyen Van Tam: citrus farmer in Binh Minh district, Vinh Long province.
   - Mr. Le Van Bien: vice head of Binh Minh district agriculture office
   - Mr. Tuan: staff of Plant Protection Station in Binh Minh district
   - Ms. Phan Thi Cam Van: technical staff of Plant Protection Station in Tra On district.
   - Mr. Nghia: staff of Plant Protection Station in Tra On district
   - Mr. Chanh: staff of Plant Protection Station in Tra On district
5. ***Lai Vung district, Dong Thap Province:***
   - Ms. Anh: technical head – Plant Protection Sub-department in Dong Thap province
   - Mr. Huynh Van Ton: vice head of Lai Vung district agriculture office
   - Mr. Thuyen: head of Lai Vung district Plant Protection Station.
   - Mrs. Nguyen Thi Ngoc Mai: citrus farmer in Lai Vung district
   - Mr. Nguyen: Plant Protection Sub-deparment in Dong Thap province
   - Mr. Tran Thanh Mung: Plant Protection Sub-deparment in Dong Thap province
   - Mr. Nguyen Van Minh: Lai Vung district Plant Protection Station
   - Mr. Mai Hoang Linh: Lai Vung district Plant Protection Station

6. Annex 2: PHOTOS FROM PCIE FIELDWORK


Working in Binh Minh district with farmers and other project stake holders (pictures 1&2)


Working in Phong Dien district with farmers and other project stake holders (pictures 3&4).

Examples of education posters used in FFSs

Annex 3: PROJECT LOGFRAME (revised by the evaluation team)

Code	Narrative	Performance Indicator	Means of Verification	Assumptions/Risks
Objective 1	• To take the initiative in establishing an effective citrus ICM extension model that includes IPM in 12 provinces of the Mekong Delta and the Central Coast region.	• Number of extensionists working on citrus ICM and number of farmers got trainings in the FFSs	• Post assessment report.	• Government, related institutions, and citrus farmers can finance for the IPM extension service after project completion • Related policies are in favour of IPM application, for example: the pesticides market is well managed or policies on development and management of disease-free citrus seedling are in practice
Output 1.1	• More than 200 competent citrus ICM trainers	• List of competent citrus ICM trainers	• Training assessment records of trainers in ToT trainings and assessment of FFSs given by farmers	
Activities 1.1.1	• Development of ToT and FFS curriculums	• Education posters, leaflefts, books, training manuals.	• Assessment of these documents given by experts and farmers	
Activities 1.1.2	• Identification of regions within each of the 12 participating provinces to be targeted for the program	• List of locations	• Criteria for selecting the areas	
Activities 1.1.3	• Selection of trainers from each targeted region to undertake master training in citrus.	• List of trainers	• Criteria for selecting trainers	
Activities 1.1.4	• Master training in citrus ICM undertaken.	• List of trainers succefully complete	• Results of tests, examinations, or	

		the trainings	assessment of the master trainers.	
Activities 1.1.5	• Review workshops	• Proposals made by the workshop.	• Workshop reports	
Objective 2	• To improve well-being of the farmers due to their changes in knowledge, attitude, and practice towards application of ICM including IPM on citrus.	• Social, economic and environmental impact on citrus farmers	• Post assessment report	• Government, related institutions, and citrus farmers can finance for the IPM extension service • Related policies are in favour of IPM application, for example: the pesticides market is well managed or policies on development and management of disease-free citrus seedling are in practice
Output 2.1	• More than 2000 farmer participant engagement in attaining IPM knowledge.	• List of farmers successful participating in the FFSs	• Training assessment results including both practical and indoor assessment.	
Activities 2.1.1	• Representative proportion of farmers from all stakeholder groups within each region invited to participate in FFS.	• List of farmers invited	• Criteria for selecting the farmers and the way to invite them.	
Activities 2.1.2	• FFSs undertaken	• List of FFSs undertaken	• Report	
Activities 2.1.3	• Review workshops	• Proposals made by the workshop.	• Report	
Output 2.2	• Assessment report on farmer participants applying ICM knowledge	• Status of ICM application of the farmers.	• Report	

Activities 2.2.1	• Focus group meetings and interviews with farmers to identify beneficiaries and assess pre-intervention knowledge	• Identification of beneficiaries and status of farmers' knowledge before the FFSs commencing.	• Report	
Activities 2.2.3	• Focus group meetings and interviews with farmers to assess post-intervention knowledge	• Status of farmers' post-intervention knowldege	• Report	
Activities 2.2.5	• Writing report detailing findings on the beneficiaries of the project and the effectiveness of the FFS model in increasing farmer knowledge	• Effectivenes of FFSs	• Report	