# Country Strategy Paper
# Vietnam
# Extension period: July 2010-June 2013

**Pesticide Risk Reduction "IPM Component"/Towards a non-toxic environment in South East Asia – Phase I (GCP/RAS/229/SWE)**

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## 1. Background and rationale

### 1.1 IPM training and implementation in Vietnam

**The Vietnam National IPM Programme**

#### 1.1.1 Brief history

The National IPM Programme in Vietnam was established in 1990 with support from FAO to address concerns regarding heavy reliance on chemical inputs in crop production and protection, negatively affecting smallholder farmers, their livelihoods, consumer health and the environment. The implementation of the FAO Intercountry Programme for IPM on rice was carried out from 1992-2002. The Plant Protection Department (PPD) under the Ministry of Agriculture and Rural Development (MARD) became the responsible implementation agency of the programme in Vietnam. A network of farmer field school (FFS) facilitators was established nationwide that trained over half a million farmers in rice IPM. Following the success with the rice programme, other crops like maize, sweet potato and estate crops (such as tea) became targeted for IPM implementation on smaller scale in specific areas. The FAO Intercountry Programmes on rice, vegetables and cotton, and the DANIDA ASPS Programme on rice and vegetables provided support to the National IPM Programme/PPD for implementation of IPM farmers training during the last decade, bringing the total number of trained farmers to more than one million. Additional initiatives were supported by various NGOs [e.g. CIDSE on tea, maize and soybean IPM and the plant genetic resource conservation and development project (BUCAP) implemented by the INGO SEARICE and funded by the Norwegian Development Fund]. Initiatives have also been supported by national and international research institutes. For example, research and development for extension of IPM in citrus implemented by the National Institute for Plant Protection (NIPP) under an ACIAR-funded project and development of IPM for potato and sweetpotato with support from the International Potato Center (CIP).

#### 1.1.2 The Vegetable IPM Programme:

The first phase of the FAO Vegetable IPM Programme was implemented from 1996-2001. From 1999-2005, the NGO Agricultural Development Denmark Asia (ADDA) supported the Hanoi Farmers Union and local PPSD to implement vegetable IPM farmer training. From 2004-2009, ADDA supported farmer training in organic agriculture in six provinces (Hai Phong, Tuyen Quang, Lao Cai, Vinh Phuc, Bac Giang and Bac Ninh). The DANIDA-ASPS-IPM project, local governments as well as a range of national and international NGOs also supported vegetable IPM training. Over the last decade, a clear shift in main funding sources for farmer training in vegetables could be observed. Whereas initially all training was funded from external donor sources, local governments at provincial level are now the major funding sources for IPM FFS training. In tandem with these developments, FAO - in recent years - has shifted its technical assistance approach from developing a stand-alone IPM farmers training programme towards strengthening key government capacity to implement - and provide M&E support for - quality IPM training within the context of government funded programmes, such as the Safe Vegetable Programme and more recently, the umbrella National Food Safety Programme. Whereas FAO continues to face several opportunities and challenges with regards to targeting its support towards such government-led initiatives, from a point of national ownership and sustainability this has been a major shift for the better.

**1.1.3 Achievements under the Vegetable IPM Programme (1996-2006):**

FAO's support initially focused on establishing a nation-wide cadre of vegetable IPM facilitators in then 61 provinces in 1996. Subsequently, FAO's support focused on strengthening and enhancing the capacity of IPM facilitators in the major vegetable producing provinces and linking up with provincial Safe Vegetable and the national Food Safety Programmes. In 2001, the Plant Protection Law was revised and the IPM policy was included in the revised Law. Local PPSDs have increasingly implemented and funded Farmer Field Schools as an integral capacity building strategy in their local GAP/Safe Vegetable and Food Safety programmes. Training focused initially on four of the most common vegetable cash crops (tomato, cabbage, green bean and cucumber) as all of these crops are prone to frequent pesticide applications in conventional cultivation practices. At the same time, effective IPM options to replace pesticides were readily available. During the period 1996-2006, the following training activities were implemented:

- *Participatory Needs and Opportunity Assessment (PNOA)*. A study was conducted for two seasons in 2003 to profile rice and vegetable production systems and to identify needs and opportunities for training.
- *Training of Trainers*. A total of 19 vegetable IPM courses training 582 trainers mainly from the Plant Protection Department as well as some NGOs.
- *Farmer Field Schools*. 948 IPM FFS training about 28,260 vegetable farmers.
- *Multiple learning cycle FFS*. A model that involves more follow-up action research activities by FFS groups over several seasons after initial participation in a season-long FFS was piloted. Though participants evaluated the model positively, a self-revolving training fund failed to establish due to the programme's funding structure. Experimentation with revolving fund mechanisms for continued action research among farmers working toward pesticide risk reduction as a precondition for linking up with accreditation programmes (e.g., GAP) will be explored under the Pesticide Risk Reduction programme.
- *FFS Follow-up activities*. Included field studies for better awareness and utilization of biological control based alternatives, e.g., evaluation of parasitoids (*Diadegma semiclausum and insulare*) for DBM management, insect pathogens (NPV and Bt) for *Spodoptera*

management, biofumigation against tomato soil-borne diseases as well as other topics such as bean fly biology and management, tomato variety trials, flea beetle management in Brassicas, comparison of pesticide load on fields where IPM and non-IPM practices were employed using the EIQ risk indicator model for impact assessment.

- *Training materials development*. Ecological guides on cabbage, tomato, cucumber and beans were prepared, translated in Vietnamese and distributed to IPM Trainers in all provinces. The English versions of the guides on cucumber and beans were uploaded on the website of the Regional Programme.
- *Development of monitoring and evaluation system and impact assessment of main programme activities.* Monitoring and evaluation guidelines and instruments have been developed and are currently being tested in ongoing farmer training activities. The impact assessment report using data from one province was completed in October 2008. Results show that farmers in the IPM communities did clearly better during the period of impact assessment than the farmers in the control villages but the reasons for the difference could not be determined due to limitations of the data.

## 1.2 Current context and rationale for community education for Pesticide Risk Reduction

### 1.2.1 Agriculture production and plant protection in Vietnam:

Over the last decade, the agricultural production in Vietnam has shown significant progress. Yield increases have been attributed to various factors including the implementation of agricultural policies, improved irrigation systems, increased level of investments and input-intensive farming.

From being a rice importer from 1963 to 1988, the country now exports about 3 million tons of rice surplus a year. In 2006, however, the country fell short of targeted rice exports reportedly due to the infestation of Brown Plant Hoppers (BPH) and associated virus diseases. From 50,000 hectares affected in December 2005, the figure increased to about 170,000 hectares in December 2006 with an estimated 800,000 tones of yield loss. Government Instruction No. 30/2006 dated 11 August 2006 and P.M. Decision No. 1459 dated 7 November 2006 were issued to address the situation. These orders include insecticide spraying for controlling the BPH, destruction of severely infested fields and mass media awareness activities to encourage farmers to control BPH. More recently, due to occurrence of the Southern Rice Black Streak Dwarf Virus Disease primarily vectored by White Backed plant hoppers, Prime Minister Instruction No. 291/TTg-KTN dated 11 February 2010 on the extension of period of validity of P.M. Decision No. 1459 was issued to address SRBSDV and plant hoppers in northern Vietnam. MARD's Circular Letter No. 17/2010/TT-BNNPTNT dated 26 March 2010 was issued providing instructions on the management of SRBSDV, including recommendations for the use of pesticides.

Significant yield increases have also been observed in other crops such as maize, soybean, coffee, tea, sugarcane, cashew, vegetables and fruit trees. In particular, the production of some major perennial fruits such as citrus, mango, lychee and longan has become increasingly important. 2009 statistics places the fruit growing area at 776,155 ha (GSO, 2009). As in rice, the government is encouraging fruit production for export. Farmers report that in the 1980s, hardly any pesticides were applied in fruit crops. While there are no official statistics, it is acknowledged that the policy on open-market economy and the aggressive marketing strategies of pesticide companies have resulted in increased use of agrochemicals in fruit crops. Contributory to these factors are the lack of knowledge and experience of farmers who are shifting to production of new crops for high and fast economic returns. These farmers resort to calendar sprays and excessive amounts of chemical fertilizers in efforts to increase their yields.

The increase in the vegetable production area from 274,000 hectares in the 1980s to about 735,335 hectares in 2009 (GSO, 2006-2010) is mainly a response to market demand. Vegetable production now provides small-scale farmers with higher income than rice. In 2007, the total export volume of fresh and processed vegetables was 275,860 tons, valued at USD 74 million (FAOSTAT, 2007). Horticultural products are exported to approximately 40 countries and territories, including mainly the United States, Russia, Japan, China. Although pesticides falling under the WHO toxicity category Ia have been banned for use in vegetables since 2005 and MARD has issued the pesticide list with alternative less toxic pesticides for use on vegetables, farmers continue to rely on frequent applications of cheap toxic chemical pesticides to maintain intensive vegetable cultivation. In addition, farmers do not adhere to pre-harvest intervals causing high residues on produce. This has resulted in many incidences of domestic food poisoning and rejections of fresh produce intended for export, a situation that led to the adoption of a National Food Safety Programme in 2007.

The pesticide situation from before 1992 to the present is such that from 77 there are now 1,027 active ingredients, from 96 there are now 2,790 product names and from 25 foreign companies there are now over 100 foreign and domestic firms engaged in pesticide production in Vietnam (Table 1).

**Table 1. Status of Pesticide Import and Companies, 2010**

| Year | Active ingredients | Product names | Companies |
|---|---|---|---|
| Before 1992 | 77 | 96 | 25 |
| 2004 | 436 | 1,231 | over 100 |
| 2005 | 508 | 1,432 | over 100 |
| 2006 | 552 | 1,574 | over 100 |
| 2007 | 712 | 2,012 | over 100 |
| 2008 | 760 | 2,271 | over 100 |
| 2009 | 902 | 2,566 | over 100 |
| 2010 | 1,027 | 2,790 | over 100 |

(**Source: Proceedings of the 2005 Regional Workshop on the International Code of Conduct on the Distribution and Use of Pesticides** and the **Viet Nam Plant Protection Department, 2010)**

The annual quantities and value of pesticides used in the country have also increased from 13,000-14,000 tons before 1990 to about 80,000 tons in 2009. In terms of annual values in USD, from 10 million before 1990 this increased to about 350 million USD in 2007. About 99 percent of pesticides used in Vietnam are imported (Table 2).

**Table 2. Amount and Value of Imported Pesticides, 2010**

| Year | Amount (tons) | Value (mil USD) |
|---|---|---|
| Before 1990 | 13,000 – 14,000 | 10 |
| 1999 | 33,715 | 160 |
| 2000 | 33,637 | 158 |
| 2001 | 36,589 | No information |
| 2002 | 37,081 | No information |
| 2003 | 36,018 | 166 |
| 2004 | 48,288 | 159 |
| 2005 | 51,764 | No information |
| 2006 | 71,345 | 291 |
| 2007 | 75,805 | 352.6 |
| 2008 | 105,999 | No information |
| 2009 | 79,896 | No information |

**(Source: Proceedings of the 2005 Regional Workshop on the International Code of Conduct on the Distribution and Use of Pesticides** and the **Vietnam Plant Protection Department, 2010)**

There has been a marked change in the kinds of pesticides used in the country. Insecticide use was reduced from 83 to 43 percent. However, the use of fungicides (from 10 to 29 percent) and herbicides (from 4 to 27 percent) increased considerably (Table 3)

**Table 3. Ratio of Different Kinds of Pesticide Used in Viet Nam, 2009**

| Year | Insecticide (%) | Fungicide (%) | Herbicide (%) | Other (%) |
|---|---|---|---|---|
| 1991 | 83 | 10 | 4 | 3 |
| 1992 | 75 | 7 | 16 | 2 |
| 1995 | 64 | 14 | 19 | 3 |
| 1998 | 48 | 24 | 27 | 1 |
| 1999 | 48 | 23 | 27 | 2 |
| 2000 | 50 | 27 | 20 | 3 |
| 2001 | 47 | 30 | 22 | 1 |
| 2002 | 40 | 33 | 25 | 2 |
| 2003 | 38 | 29 | 30 | 3 |
| 2004 | 35 | 35 | 29 | 1 |
| 2006 | 42 | 25 | 28 | 4 |
| 2007 | 37 | 28 | 30 | 5 |
| 2008 | 56 | 18 | 22 | 3 |
| 2009 | 43 | 29 | 27 | 1 |

**(Source: Proceedings of the 2005 Regional Workshop on the International Code of Conduct on the Distribution and Use of Pesticides** and the **Viet Nam Plant Protection Department, 2010)**

The limited knowledge of farmers about pesticides and alternative options for pest management, the pressure of going into commercial production and the aggressive marketing strategies of pesticide companies and agents, including some government staff, are important factors that explain increased use of pesticides in Vietnamese agriculture.

### 1.2.2 Pest and pesticide management policy context

The Pesticide Registration Council under PPD, MARD is the unit responsible for pesticide regulation and determines which pesticides are allowed, restricted and prohibited for use in different circumstances. In general, Vietnam follows international standards regarding pesticide use. In 1989, the country signed the International Code of Conduct on the Distribution and Use of Pesticides. In line with this, the Plant Protection Department of MARD issued Decision No. 50/QD-BNN-BVTV on 25 March 2002 stipulating that pesticide quality assurance, residue control and field trials for pesticide registration must conform to National Standards following the FAO Code of Conduct.

On 10 April 2007, Vietnam signed the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The GoV has also given attention to the effects of pesticides on human health and the environment and as such issued Instruction No. 29/1998/CT-TT on 25 August 1998 strengthening the control on the use of pesticides and persistent organic pollutants in particular. In 2001, an ordinance was passed and legal documents related to pesticides were revised. Every year, the Government reviews and phases out severely toxic pesticides from the list that is permitted to use in the country. In collaboration with various international organizations and non-governmental organizations, the GoV has carried out efforts to make an inventory, collect and dispose of obsolete pesticides. In 1992, the Government banned the registration, trade and use of all WHO hazard category Ia pesticides to address associated threats to the environment, adverse health effects on farmers and others exposed to the pesticides, and negative impact on trade.

### 1.2.3 Prior and ongoing Pesticide Risk Reduction efforts

Starting from 1996, the Ministry of Agriculture and Rural Development (MARD) encouraged provincial governments to establish Safe Vegetable Programmes as a response to public concern after studies detected high levels of pesticide residues in fruits and vegetables. The Ministry of Health (MOH) issued temporary safe vegetable standards, primarily based on global WHO standards, to be used as guidance in safe vegetable production with the primary objectives to reduce the level of toxicity in vegetable products and provide safer food. Through provincial funds, these provincial government programmes organize training activities on safe vegetable production in almost all of Vietnam’s now 64 provinces. In recent years, FAO has supported the VN government’s efforts in expanding the cadre of qualified trainers as well as strengthening the content and methodology of this training by introducing the season-long IPM FFS approach as the farmer education model. This model is also being currently employed in farmer training programmes to support the Government’s National Food Safety Programme established since 2007.

The IPM FFS curricula have always included topics and exercises that demonstrate potential exposure risk associated with unsafe pesticide applications on human health and the environment. Recently, the pesticide risk model, Environmental Impact Quotient (EIQ), was introduced to FFS alumni farmers as tool for impact assessment. Farmers carried out field studies to look at pesticide load on the environment as a result of using IPM compared with non-IPM practices. In addition, the Norwegian Institute for Agriculture and Environmental Research/Bioforsk has done research in collaboration with Vietnamese scientists from several institutions on pesticide residue monitoring and insecticide resistance. Results obtained from the research made available by NIAER in December 2008 confirms the need to stop the use of pesticides that are no longer effective due to resistance development and to promote IPM methods such as encouraging novel management options and restricting the use of insecticide applications to need-basis only.

The SIDA/KemI-supported Pesticide Risk Reduction Programme (Project GCP/RAS/229/SWE) commenced in May 2007. The project aims to eliminate the use of hazardous and persistent agro-chemicals through IPM Farmer Training in conjunction with better access/utilization of alternative pest management options and support for National Pest and Pesticide Management Policy Reform. As of June 2010, under this programme, the National IPM Programme has implemented the following activities:

- *Pilot Community Education Programmes on Pesticide Risk Reduction*. Pilot Community Education Programmes on PRR were implemented by the PPSDs of Hanoi and Thai Binh activities. The curriculum of this pilot initiative includes a full range of advocacy and training activities for various stakeholders that include local leaders, farmers, pesticide sellers, representatives from the public health sector and social organizations. The community education programme is designed to strengthen community ownership in pilot rural communities for planning, management and implementation of the pesticide risk reduction activities. Baseline surveys (inventory and flow of pesticides in the communities as well as health and environment related information) are carried out prior to training activities for local leaders, pesticide sellers, health workers and farmers. Action plans developed by various stakeholders that include local leaders, farmers, pesticide sellers, representatives from the public health sector and social organizations were implemented. Examples of these are the closure of pesticide shops that do not conform to the pesticide policies (e.g. selling banned pesticides) and the development and display of posters on pesticide risk reduction in public places. Stronger local policies on Pesticide Risk Reduction were promulgated and observed effectively enforced in the pilot communes particularly with the GoV's instruction on the institutionalization of the post of a local Plant Protection Staff at the commune level, demonstrating the impact of the pilot initiative on national policy development.
- *Training of Trainers*. One vegetable and one rice IPM-PRR ToT courses were carried out training 60 (1$^{st}$-July-October 2008: 30-46% women) trainers mainly from the Plant Protection Department. The organization of the ToTs was a response to widespread leaf folder damage in rice experienced in the northern provinces that led to unnecessary pesticide use upon the advice of agriculture and local government offices. The ToTs were designed as to prepare field staff to implement community education initiatives aimed at farmers and local communities exploring crop compensation and natural biological control that could provide directions for policy recommendations with regards to more sustainable and ecologically-friendly management of leaf folders. Participants were primarily staff from PPSD, plant protection district stations, Regional Plant Protection Centers (RPPC) and Plant Protection Department (PPD).
- *Training of Master Trainers* (TMoT) in Hanoi from 31 July-1 August 2009 for five Master Trainers from regional Plant Protection Centers to prepare for Refresher Courses in 2009.
- *Refresher Courses* were held in Hanoi (26-29 August 2008) Quang Ngai (17-23 August 2009), Hung Yen (6-13 September 2009) and in Phu Yen (19-23 May 2010) training a total of 118 IPM Trainers who will be tasked to facilitate IPM-PRR FFS. The courses introduced participants to aspects of community-level PRR programmes, regulations on production and trading of safe vegetables applying VietGAP and regulations on pesticide management in the production of safe

vegetables. Also covered in the curriculum was Utilization of biological control, e.g. the predatory earwigs and the entomopathogen *Metarhizium* for the management of insect pests in vegetables and rice, respectively, and the use of Environmental Impact Quotient for impact assessment of pesticide use in control and IPM fields. Included in the curriculum were new exercises on potential risks associated with the distribution and use of pesticides in communities, basic information on pesticides, understanding pesticide labels, effects of pesticides on humans and the environment, storage and disposable of pesticide containers, first aid and other techniques for reducing pesticide risks such as the use of personal protective equipment (PPE).

- *Farmer Field Schools.* 300 FFS, training about 9,000 farmers in IPM-PRR in rice and vegetable production, were completed. The duration of the FFS was extended to 17 instead of 14 weeks to accommodate the revised - and PRR fortified - curriculum. The farmers carry out a participatory rapid appraisal (including mapping the flow of pesticides in the community, inventory of local pesticide shops and informal interviews with different stakeholders of the community like local leaders, other farmers, etc.). The pesticide risk reduction aspect of the curriculum of these FFS was strengthened with the integration of new exercises on concept of Environmental Impact Quotient (EIQ) for impact assessment; basic knowledge of pesticides; effect of pesticides on human health (including classification according to chemical families, effects according to chemical families, annual liters of pesticide exposure, household storage and disposal of pesticides); effect of pesticides on insect pests and natural enemies; information on pesticide labels; storage of pesticides; first aid and other techniques for reducing pesticide risks and regulations on pesticide management in the production of safe vegetables.
- *Development of Alternative Pest Management Strategies to Reduce Pesticide Risks*. The use of earwigs was introduced to replace farmers' high use of pesticides brought about by major pests such as aphids in sugar cane, beetles in coconuts and pod borers in green beans. IPM FFS alumni groups are also rearing the predator at the community level and are carrying out field releases to augment natural populations. Initially funded under the Swedish-supported PRR project, the Government of Vietnam is now paying for the activities on earwigs, highlighting the changed role of RPPCs from carrying out studies on testing pesticides to rearing and promotion of utilization of biological control. With crucial initial FAO catalyzing support and continued government support, the RPPCs now adapt their workplans, responding to changing demands from farmers, consumers and local/national governments given the current interest in food safety and pesticide risk reduction. The use of minimum tillage practices for potato seed and potato tuber production was explored in action research activities with the purpose to improve farmers' net returns as well as the production environment particularly soil health and microorganisms living in the soil. The studies have allowed farmers to find use for rice straw that is otherwise burned and reduce pesticide, particularly fungicides, using rice straw in the production of potato tuber seeds.
- *Development of monitoring and evaluation system and impact assessment of main programme activities.* Monitoring and evaluation guidelines and instruments have been developed and are

currently being tested in ongoing farmer training activities. The Impact Assessment study on PRR training contracted out to the Hanoi Agriculture University was completed. The study design uses the Double Delta approach or the differences before and after training of control, exposed and farmers trained by the Pesticide Risk Reduction Programme. The results of the Impact Study are expected to be submitted to FAO in the last quarter of 2010.

- *Training materials development*. Various training materials were developed in Vietnamese including the "*Technical Manual on How to Grow Minimum Tillage Potato*", "*SRI Training Manual*" and the "*Training Manual on Policies and Regulations on Pesticide Management and Safe Vegetables*".

Vietnam is one of the few pilot countries for the global exercise on "One United Nations", initiated as part of the UN reform process. Under the "One UN", the work of 14 resident UN organizations in Viet Nam will be integrated into a single planning framework to improve coordination and coherence, and help the UN in Viet Nam "Deliver as One". In 2009, within the context of the "One UN Plan 2", FAO assisted MARD's Plant Protection Department in the preparation of a proposal for support to "*Capacity Building and Policy Reform for Pesticide Risk Reduction in Vietnam*". The project makes available an additional $1.8M for three years (October 2009-December 2011) to expand work on IPM and pesticide risk reduction and pesticide policies in Vietnam within the context of the National Programme for Food Safety. The project builds on capacities and linkages/collaborations established during the implementation of FAO's Regional IPM Programme's assistance to the Vietnam National IPM Programme. This One UN support is seen as a way to expand and complement activities under the current Swedish-supported FAO Pesticide Risk Reduction Programme. Activities are implemented through Letters of Agreements (LoA). So far, a total of 21 LoAs have been issued to support farmer research and training activities. This project is recognition of the importance that the Government of Vietnam places on the beneficial role of IPM-PRR-FFS in government programmes such as the National Food Safety Programme in Vietnam. This recognition was again demonstrated in 2010, when the FAO-WHO joint project "*Strengthening Vietnamese SPS Capacities for Trade – Improving Safety and Quality of Fresh Vegetables Through the Value Chain Approach"* became operational. Farmer Field Schools are intended to be used as the vehicle for training farmers under the project that, among others, aims to increase uptake and implementation of safety and quality control systems by producer groups and other links in the marketing chain.

Under the component on awareness raising, health and environmental education, and advocacy work in support of a non-toxic environment of the Swedish-supported project, the regional civil-society organizations (Pesticide Action Network-Asia Pacific and The Field Alliance) and their local partner CSOs carried out pesticide risk reduction activities complementing the efforts of the National IPM Programme.

In 2008, the local CSO Research Centre for Gender, Family and Environment in Development (CGFED) carried out a survey in two provinces to understand the real situation of pesticide use and analyze its consequences to environment, health and livelihoods of rural people, especially rural women and children studies. The results were presented in a consultation workshop in May 2009 that brought together representatives from government, the academe, other local CSOs and private sector and local mass organization (Women's Union at district level) to share their views and practices in order to define their vision and identify strategies for the Pesticide Risk Reduction Programme. Those include access to safe food, right of every farmer to be trained on sustainable and profitable agricultural production/IPM, policies supportive of pesticide risk reduction in place, and access to alternatives to chemical pesticides. Also in line with advocacy work, CGFED organized two seminars for key farmers on "*Gender and Environment: Pesticide Risk Reduction in Agriculture Production*" where the National IPM Programme was introduced to participants. More recently, the National IPM Programme has cooperated with CGFED in the organization of farmer training through FFS in one province supported by the CSO with funding also from the Swedish project on Pesticide Risk Reduction. The organization has prepared and distributed various publications that include "*A Handbook on Community Monitoring and International Advocacy*" and "*Gender Equity Review (Number 02 and Number 03) on Agriculture and Pesticides"* targeting the audience in rural areas. CGFED has committed itself to awareness raising among a broad sector of farmers, consumers, youth, students, policy-makers and others regarding potential for pesticide risk reduction with special emphasis on pesticide use reduction and alternatives to pesticides.

The regional CSO The Field Alliance has carried out work with the local CSO Center for Rural Progress (CRP) on agrobiodiversity and pesticide impact assessment in schools through its Rural Ecological Agriculture for Livelihood (REAL) project. The project worked with eight schools and community projects related to chemical reduction and/or ecological agriculture in two provinces. Working together with staff from provincial Plant Protection Sub Departments (PPSD), school teachers in pilot areas have been able to demonstrate impacts on livelihood improvement through environmentally friendly production systems and sustainable natural resource management through community involvement. Experiences from REAL experiences and materials have been shared through exhibitions, forum, meetings and workshops. Under the Swedish-supported Pesticide Risk Reduction project, the CSO has been successful in soliciting educational policy to integrate REAL curriculum and activities in schools, educating school children, teachers, and local farmers and communities in biodiversity in farmlands and in obtaining local buy-ins and support to activities to strengthen commune-level chemical risk management programmes.

### 1.2.4 Current opportunities and challenges

The current momentum for MARD's renewed focus and support for food safety programmes stems from the Vietnamese government's priority to ensure agricultural production quality and food safety. MARD's main strategy will be to train farmers on how to produce safer vegetables according to VietGAP standards. Earlier efforts of the FAO Vegetable IPM Programme have assisted MARD/PPD to establish a national network of qualified trainers and trained farmers in all provinces.

Functional links were established with the provincial safe vegetable programmes where IPM is the crop protection policy standard. The GoV has requested technical assistance from the FAO Regional Vegetable IPM Programme to strengthen its food safety programmes, especially on fruits, tea and other crops in addition to vegetables. Technical assistance is sought particularly along curriculum development for farmer training on pesticide risk reduction in relation to programmes on Safe Vegetables/Food Safety in compliance with VietGAP standards that could lead to the development of a national certification system.

Farmers need better financial incentives to produce safe vegetables. Some farmers individually and in cooperatives enter into contracts with companies and deliver products to safe vegetable outlets. In addition to developing more specific GAP standards compatible with international standards, market access can be improved by organizing training for farmer cooperatives on topics such as understanding traceability of products, the importance of pre-harvest intervals, hygienic concerns and food contamination, etc. Further expansion of the farmer training model is a challenge and training quality will be ensured when the pilot participatory monitoring and evaluation system already developed is finally established and implemented.

Farmers' networks need to be strengthened through the organization of "interest groups" and by providing opportunities for follow-up activities like additional training on management (financial management, planning, etc.) as well as establishing an information system so that farmers can be advised on selling produce timely for better profits.

The pressure from the agro-chemical industry is strong and pesticide companies also organize training and village meetings to promote what is referred to as "safe pesticides". More recently, pesticide companies have employed a new strategy of assigning Technicians to live among farming communities to gain their trust as well as to be accessible to provide advice on pesticides for emerging field problems. Farmers should have access to information on the effects of the various pesticides to make better decisions in their crop management. Various strategies, including the use of alternative options for pest management and the provision of an official list of pesticides allowed for use in vegetable production can help reduce the exposure risks to toxic chemicals. Strengthened farmers' networks can also lobby for more government support for action against aggressive marketing strategies of pesticide companies.

The PPD has limited resources and staff to provide efficient enforcement of the existing regulations although measures are being undertaken to improve this. Another factor that makes implementation complicated is the fact that pesticides that are banned in Vietnam are still available and sold in neighboring countries like China and Cambodia. Poor import control along international borders and the large numbers of these products make it easy to smuggle them into the country. Advocacy work on pesticide risk reduction initiated by local CSOs and farmers' groups remains limited to a few pilot areas.

Pilot initiatives carried out by local CSO partners have demonstrated the impact of awareness raising, health and environmental education and advocacy work on communities and at policy level. In pilot areas, there has been collaboration between local IPM Programmes and CSOs. However, the added value of government and CSOs working together in pilot convergence areas on awareness raising, training and advocacy for various stakeholders in communities still needs to be demonstrated.

## 2. Project design for Pesticide Risk Reduction Programme during 2010-2013

### 2.1 Objective and logical framework

Overall development objective: *Strengthened capacity at national and local government levels to innovate, sustain and scale up Integrated Pest Management (IPM) and pesticide risk reduction (PRR) community education programmes for sustainable, safe, profitable and environmentally-sound crop production and food safety in Vietnam.*

A detailed overview of expected outputs, activities and indicators for achievement is provided in the logical framework in *Appendix* 1. A timetable of activities for the period July 2010-June 2013 is given in *Appendix 2*.

### 2.2 Priorities and implementation strategy

The programme strategy for Vietnam for the period July 2010-June 2013 prioritizes implementing activities in crop commodities in selected provinces that are more prone to risks associated with the abuse and overuse of chemical pesticides. Targeted crops will still be vegetables**,** but also rice and selected fruit crops prone to heavy spray applications such as lychee and citrus. Community education activities will be focused in the northern provinces of Nghe An, Ha Tinh and Ha Tay. The following provinces will also be included; Northern Vietnam (Hai Phong, Hai Duong), Central Vietnam (Da Nang), Southern Vietnam (Can Tho, Tien Giang). As to enable FAO and the National IPM Programme to target community education interventions, scoping/baseline studies will be commissioned with the purpose to shed light on the root causes of abuse and over use of pesticides and risks associated with this. FAO will continue to support capacity building of IPM facilitators on vegetables and new crops. Curriculum for new crops, e.g., lychee, would need to be developed. Existing curricula will need to be revised and additional modules will have to be added to strengthen parts concerned with pesticides risk reduction. The revised curriculum should enhance understanding of broader impacts of pesticides on various components of the ecosystem so that farmers can successfully support different production systems (e.g. aquatic- and bee-integrated farming systems). The curriculum will be enriched with the incorporation of more activities along understanding pesticide labels, pre-harvest intervals, food safety and VietGAP standards.

There are already existing farmer IPM-FFS alumni groups and farmer networks involved in action research on more environmentally-sound crop management. These will be supported further by providing opportunities for follow-up activities like additional training on IPM and facilitating the establishment of a market information system so that farmers can be advised on selling produce timely for better profits. Efforts will be exerted to link IPM farmers’ groups with private sector enterprises to facilitate market access. These groups will be encouraged to work on issues to prevent pesticide risks and learn about policies in favor of IPM and pesticide risk reduction. There is already in place a well developed set of pesticide laws and regulations. However, more efforts are needed to ensure effective enforcement and implementation. Development and distribution of a short list of recommended pesticides in safe vegetable production will be a priority. Markets determine to large extent what and how farmers produce. To strengthen pesticide risk reduction, pilot activities on awareness raising for buyers/markets will be carried out with the aim of educating markets to buy products only from farmers who comply with pesticide regulations related to VietGAP and food safety.

**2.3 Monitoring and evaluation and impact assessment**

The pilot M&E system currently developed is aimed at safeguarding training quality on FFS within the context of the Government’s Safe Vegetables Programme. This M&E system will be developed further to include more programme activities and more focused on developing indicators for pesticide risk reduction.

Internal Control Systems will be developed and as part of this farmers will keep field input records to ensure that standards for safe vegetables are followed. This can also be used in a participatory impact assessment that aims at self-evaluation of IPM management achievements by identifying farmers’ own strengths and weaknesses with applying IPM practices (e.g., find out if farmers use pesticides that are not allowed to be used on vegetables, economical analysis, etc.).

Community action plans will be developed based on the regional framework on impact assessment that will show the direct and indirect effects and achievements of farmer and community education activities in relation to the programme development objective. Long-term impact assessment study will be commissioned to an external institution to address the issue of credibility of impact assessment findings. The study will be a follow-up to the impact study carried out during the first phase of the project.

**2.4 Local partnerships**

The links already established with other Programme partners in the first three years of project implementation will be maintained and strengthened further. Pilot convergence areas will be established where the National IPM Programme will implement farmer training and community education while local partner CSOs (i.e., Center for Rural Progress and the Center for Gender, Family and Environment Development) carry out awareness raising, health and environmental education and advocacy work. Annual National GO-NGO Meetings on Community Education for Pesticide Risk

Reduction will be organized to share information on progress and coordinate strategies on pesticide risk reduction activities.

The project will work in partnership with other sectors and stakeholders, specifically from the health, education and environment sectors as well as social organizations and CSOs. In particular, the linkages with Community Education Centers will be developed in view of their mandate and resources to carry out community education programmes. The local communities (local leaders, farmers, etc.) will be actively involved to advocate for policies in favor of IPM. Impact assessment studies and documentation in various formats, e.g., cases studies will be prioritized and results utilized to support advocacy work for policy reform and for mobilizing support for community education initiatives amongst various government levels and various stakeholders, including CSOs and the mass media.

Intensive links will be maintained and collaborations strengthened with the following research and development institutions/projects:

- Norwegian Institute for Agriculture and Environmental Research/Bioforsk and the PPD-MARD Northern and Southern Pesticide Control Center for pesticide residue testing;
- Community plant genetic resource conservation and development project (BUCAP) funded by the Norwegian Development Fund;
- International Rice Research Institute, National Institute of Plant Protection (NIPP) and PPD-MARD Regional Plant Protection Centers for ecological management of rice plant hoppers and associated virus diseases;
- Asian Institute of Technology (AIT), Thailand and the Southern Horticultural Research Institute (SOFRI), Vietnam for the fruit fly IPM project;
- International Center for Tropical Agriculture (CIAT) for biological control of cassava pink mealy bug;
- UC Davis, the Fruits and Vegetable Research Institute (FAVRI), Hanoi Agriculture University, Nong Lam University and the Institute for Agricultural Sciences for pilot activities on sustainable crop production, post-harvest technology, food safety and market access
- The Governments' Safe Vegetable Programmes conducted by PPSDs of selected provinces and funded by provincial governments.

Special attention will be given to advocacy work among all levels of the Plant Protection Department to generate stronger policy support for pesticide risk reduction. Likewise, the National IPM Programme is planning to establish stronger linkages with the Department of Science, Technology and Crop Production, and also with the Ministry of Health, Ministry of Education and Ministry of Natural Resources and Environment. Possibilities for linking up with the private sector will also be explored further, e.g., linking IPM-PRR farmers' groups with companies that engage in fair trade and can facilitate market access.

**2.5 Coordination and management**

A Coordination Committee will be established comprised of the National IPM Programme Coordinator, the Director of CGFED and the Director of CRP. The Committee will decide on activities particularly in pilot convergence areas for Community Education Programmes for Pesticide Risk Reduction.

The National IPM Programme being implemented by the Plant Protection Department, Ministry of Agriculture and Rural Development will continue. The National Counterpart is the Director General of the PPD. The National IPM Coordinator with assistance from the Vegetable IPM Coordinator is in charge of daily management of the Vegetable IPM Programme. Overall programme implementation of the Pesticide Risk Reduction Programme will be coordinated by the National IPM Programme with support from the Regional FAO Vegetable IPM office on planning, management, technical backstopping and administration. The Bangkok-based Programme Development Officer will provide overall support for the Pesticide Risk Reduction Programme in Vietnam. FAO will maintain a country programme office that employs, with One UN project funding, an office manager/programme assistant based in Hanoi. The National IPM programme will assign a national training group consisting of three core trainers who will be responsible for monitoring and evaluation and technical backstopping.

**2.6 Indicative training budget**

Funding support from the Swedish project will be utilized to design and start up pilot pesticide risk reduction initiatives and will be channeled directly to the activity implementing agencies, mainly PPD, based on the workplan approved by the National Counterpart. Under the One UN-supported "*Capacity Building and Policy Reform for Pesticide Risk Reduction*" funding will also continue up to 31 December 2011 and is expected to support the upscaling of initiatives piloted under the Swedish project. The substantial allocation of local government funds to field activities, which has already been the model for the past years, is expected to continue. The FAO IPM office in Hanoi, operating its own imprest account, will continue to be responsible for fund disbursement and compilation and submission of financial reports.

The indicative training budget (in US$) for GCP/RAS/229/SWE project activities from July 2010-June 2013 follows.

| Activities | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| *Capacity building:* | | | | | |
| Training for Trainers (TOT), Integrated IPM, Safe vegetable/VietGAP | 0 | 0 | 0 | 0 | 0 |

| Activities | 2010 | 2011 | 2012 | 2013 | Total |
|---|---|---|---|---|---|
| FFS curriculum development workshop | 0 | 5,000 | 0 | 0 | 5,000 |
| Vegetable and fruit IPM FFS | 0 | 0 | 0 | 0 | 0 |
| Refresher course | 0 | 5,000 | 0 | 0 | 5,000 |
| Manual development, review and publication | 0 | 5,000 | 0 | 0 | 5,000 |
| *Assessment and pilot models:* | | | | | |
| Surveys and impact assessment | 0 | 0 | 25,000 | 0 | 25,000 |
| Monitoring and evaluation implementation | 0 | 1,000 | 2,000 | 2,000 | 5,000 |
| Farmer led field studies | 5,000 | 5,000 | 5,000 | 5,000 | 20,000 |
| Pilot activities | 5,000 | 10,000 | 10,000 | 10,000 | 35,000 |
| Total | 10,000 | 31,000 | 42,000 | 17,000 | 100,000 |

**Annex 1: Tentative logframe**

| | Overall Objective: Strengthened capacity at national and local government levels to innovate, sustain and scale up Integrated Pest Management (IPM) and pesticide risk reduction (PRR) community education programmes for sustainable, safe, profitable and environmentally-sound crop production and food safety in Vietnam. | | | | |
|---|---|---|---|---|---|
| | **Outputs** | **(Indicative) Activities** | **Indicators** | **Sources of Verification** | **Assumptions** |
| 1 | Functional networks of programme partners established as to strengthen IPM and pesticide risk reduction field programmes | • Establish new - and strengthen existing - functional linkages with research and development institutions, private enterprises, traders and agricultural suppliers, and non government organizations<br>• Set up a PRR Programme Coordination Committee comprised of the National IPM Programme Coordinator, the Director of CGFED and the Director of CRP to coordinate activities particularly in pilot convergence areas for Community Education Programmes for Pesticide Risk Reduction<br>• Hold regular meetings among project partners at local and national levels (e.g. GO-NGO National Coordination meetings, etc.) | • Regular communication meetings/networking among a diversified set of project partners at local and national level | Meeting notes/reports published | Governments, CSO partners and private sector commit to joint sharing of experiences and programme planning. |
| 2 | Fortified FFS, TOT and Refresher Training curricula and training materials developed with focus on pesticide risk reduction, including IPM for new invasive pest/diseases, crops and climate change adaptation | • Update existing baseline data and develop/update country strategy paper to prioritize curriculum development and training interventions<br>• Conduct national curriculum development workshop to revise current curriculum of training models and field research activities to align with new programme focus on Pesticide Risk Reduction per recommendations of the Impact Assessment Study (e.g., including enhanced community involvement in development of and implementation of community action plans; training of applicators to include strengthened focus on pre-harvest intervals, treatment of unused pesticides and containers, reducing pesticide risks by following correct application techniques, among others) and to include aspects of pesticide management and regulatory framework<br>• Undertake collaborative action research activities involving agricultural universities and private sector in developing IPM strategies for new crops subject to heavy pesticide abuse<br>• Action research and curriculum development focusing on | • Availability and use of baseline survey reports and country strategy paper<br>• Fortified pesticide risk reduction curricula is available and widely used by facilitators and farmers<br>• Diversity and quality of training materials available and utilized | Progress reports including list of training materials developed<br>Training materials (including ecological guides for new crops, e.g. fruits and curriculum guidelines for climate change FFS) available in English and Vietnamese and distributed to local trainers and farmers | As climate warming will bring about marked changes in agricultural pest distribution patterns, national governments would be tasked to assist rural communities to adapt and manage these new problems with minimal use of pesticides. |

| | **Overall Objective: Strengthened capacity at national and local government levels to innovate, sustain and scale up Integrated Pest Management (IPM) and pesticide risk reduction (PRR) community education programmes for sustainable, safe, profitable and environmentally-sound crop production and food safety in Vietnam.** | | | | |
|---|---|---|---|---|---|
| | **Outputs** | **(Indicative) Activities** | **Indicators** | **Sources of Verification** | **Assumptions** |
| | | development of local risk mitigation/adaptation strategies to prepare communities for prevention and management of newly emerging pest/disease problems related to climate change<br>• Develop and translate existing production manuals for new crops | | | |
| 3 | Capacity of national and private sector programmes to train farmers in IPM and pesticide risk reduction strengthened and increased | • Implement 3 Refresher Courses with special attention on new topics related to pesticide risk reduction | • Farmers express satisfaction with the training provided | Some 90 additional IPM trainers involved in implementation of farmer education activities | Governments will make available staff for participation in training and will allow their staff to implement farmer training thereafter. |
| 4 | At least 1,000 additional farmers and other stakeholders participated in FFS and post-FFS Pesticide Risk Reduction Farmer Training in pilot GO-CSO convergence areas and at least 50% of trained farmers and other stakeholders involved in community learning activities and implementation of community action plans and new initiatives for pesticide risk reduction.<br><br>At least 3,000 additional farmers will have *indirectly* benefited from FAO technical support for the National IPM Programme through participation in FFS and post-FFS activities supported under the One UN2-funded project, *Capacity building and policy reform for pesticide risk reduction*, and local IPM-PRR funded initiatives. | • Coordination, technical support and backstopping to local IPM Programmes in the conduct of about 120 IPM-PRR/safe vegetables Farmer Field Schools and follow-up activities, e.g., farmer field studies<br>• Update recommended short list of pesticides allowed to use on vegetables<br>• Conduct of campaigns to raise awareness and advocacy for pesticide risk reduction by development partner institutions<br>• National IPM Programme and local CSOs carry out full range of awareness raising and community education, health and environmental education, advocacy work in support of pesticide risk reduction in pilot convergence areas<br>• FFS alumni engage in follow-up activities and in the establishment of an information support system for farmers<br>• Establish linkages between IPM farmers' groups and private sector enterprises to facilitate market access<br>• Training of vegetable traders and shop owners in pilot communities on food safety requirements and pesticide regulations<br>• Experiment with revolving fund mechanisms for continued action research among farmers working toward pesticide risk | • Reduction in use of hazardous pesticides and shift to less toxic alternatives.<br>• Level of use of alternative pest management among farmers trained<br>• Community actions taken for pesticide risk reduction<br>• Data on benefits that farmers are able to get from selling produce timely based on an information system<br>• Number of IPM farmers' groups linked with private sector enterprises for market access<br>• Number of farmer groups involved in experimenting with revolving fund mechanisms and with initial indications of success | Surveys showing:<br>- a reduction of Class I by at least 40% among FFS trained farmers<br>- at least 40% among FFS trained farmers shift to less toxic pesticides<br>- IPM\FFS trained farmers at least halved pesticide use<br>- at least 90% of trained farmers increase use of alternative pest management approaches, including soft products<br>Documentation on Community Action Plans for Pesticide Risk Reduction<br><br>Progress reports including number of | |

| | Overall Objective: Strengthened capacity at national and local government levels to innovate, sustain and scale up Integrated Pest Management (IPM) and pesticide risk reduction (PRR) community education programmes for sustainable, safe, profitable and environmentally-sound crop production and food safety in Vietnam. | | | | |
|---|---|---|---|---|---|
| | **Outputs** | **(Indicative) Activities** | **Indicators** | **Sources of Verification** | **Assumptions** |
| | | reduction and/or as a precondition for linking up with accreditation programmes (e.g., GAP) | | farmers' groups engaged in marketing and revolving fund schemes | |
| 5 | Internal monitoring and evaluation system for training quality control using quality standards for PRR-fortified IPM-FFS training developed | • Adapt existing and develop new PRR standards and indicators as to strengthen M&E system to ensure quality training of IPM/safe vegetables and PRR-fortified FFS training<br>• Implement a standard M&E system for all training activities under the pesticide risk reduction programme<br>• Conduct national training and workshop on monitoring and evaluation system for PRR-fortified IPM-FFS training<br>• Regular monitoring and backstopping visits by National Team and IPM trainers on implementation of Community Action Plans for pesticide risk reduction | • Information on activity implementation is continuously available and used for strengthening quality of field training<br>• Quality standards for FFS and TOT issued by relevant national and other authorities | Study material produced and reports documenting Community Pesticide Risk Reduction Action Plans<br><br>Assessments<br>Studies of standards | |
| 6 | National and local government providing policy and funding support for IPM and Pesticide Risk Reduction training | • Implement pilot activities to demonstrate beneficial role of IPM-FFS in government programmes on safe vegetables and GAP<br>• Promote the development and scale-up of model Pesticide Risk Reduction communities by local governments and other donors<br>• Design, conduct and document follow-up impact assessment study among IPM FFS graduates, with particular focus on pesticide risk reduction.<br>• Popularize the impacts of IPM-FFS and pesticide risk reduction training through TV, newspaper, publications and radio broadcasts<br>• Initiate dialogues to sort out the current intertwined institutional interests between promoting IPM and pushing pesticides<br>• Organize policy level workshops to support local policy development and institutional reforms | • Case studies, news, video clips on successful pilot models of community education for pesticide risk reduction developed and disseminated<br>• Impact Assessment reports available and utilized to strengthen training interventions<br>• Local and national policies in support of pesticide risk reduction generated by results of impact assessment studies | National and local government/community plans and policies<br>Impact assessment studies<br>Newspaper, press releases and promotion materials (video/tv/radio clips)<br>Inventory of funding support from government, donors and other development organizations | |

## Annex 2: Tentative workplan for GCP/RAS/229/SWE supported activities in Vietnam (period July 2010-June 2013)

| Activity number | Activity | 2010 | | | | | | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | | 2013 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J |
| 1.1 | Establish new –and strengthen existing- functional linkages with research and development institutions, private enterprises, traders and agricultural suppliers, and non government organizations | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | |
| 1.2 | Set up a PRR Programme Coordination Committee comprised of the National IPM Programme Coordinator, the Director of CGFED and the Director of CRP to coordinate activities particularly in pilot convergence areas for Community Education Programmes for Pesticide Risk Reduction | | | | | | | X | X | X | X | X | X | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.3 | Hold regular meetings among project partners at local and national levels (e.g. GO-NGO National Coordination meetings, etc.) | | | | | | | | | X | | | | | | X | | | | | | X | | | | | | X | | | | | | X | | | |
| 2.1 | Update existing baseline data and develop/update country strategy paper to prioritize curriculum development and training interventions | | | | X | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.2 | Conduct national curriculum development workshop to revise current curriculum of training models and field research activities to align with new programme focus on Pesticide Risk Reduction per recommendations of the Impact Assessment Study (e.g., including enhanced community involvement in development of and implementation of community action plans; training of applicators to include strengthened focus on pre-harvest intervals, treatment of unused pesticides and containers, reducing pesticide risks by following correct application techniques, among others) and to include aspects of pesticide anagement and regulatory framework | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Activity number | Activity | 2010 | | | | | | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | | 2013 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J |
| 2.3 | Undertake collaborative action research activities involving agricultural universities and private sector in developing IPM strategies for new crops subject to heavy pesticide abuse | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | |
| 2.4 | Action research and curriculum development focusing on development of local risk mitigation/adaptation strategies to prepare communities for prevention and management of newly emerging pest/disease problems related to climate change | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | |
| 2.5 | Develop and translate existing production manuals for new crops | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | |
| 3.1 | Implement 3 Refresher Courses with special attention on new topics related to pesticide risk reduction | | | | | | | | | | | | X | | | | | | | | X | | | | | | | | | X | | | | | | | |
| 4.1 | Coordination, technical support and backstopping to local IPM Programmes in the conduct of about 120 IPM-PRR/safe vegetables Farmer Field Schools and follow-up activities, e.g., farmer field studies | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 4.2 | Update recommended short list of pesticides allowed to use on vegetables | | | | | | | | X | X | | | | | | | | | | | X | X | | | | | | | | | | | X | X | | | |
| 4.3 | Conduct of campaigns to raise awareness and advocacy for pesticide risk reduction by development partner institutions | | | | | | | | | | | | X | | | | | | X | | | | | | X | | | | | | X | | | | | | |
| 4.4 | National IPM Programme and local CSOs carry out full range of awareness raising and community education, health and environmental education, advocacy work in support of pesticide risk reduction in pilot convergence areas | | | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

| Activity number | Activity | 2010 | | | | | | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | | 2013 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J |
| 4.5 | FFS alumni engage in follow-up activities and in the establishment of an information support system for farmers | | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 4.6 | Establish linkages between IPM farmers' groups and private sector enterprises to facilitate market access | | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 4.7 | Training of vegetable traders and shop owners in pilot communities on food safety requirements and pesticide regulations | | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | |
| 4.8 | Experiment with revolving fund mechanisms for continued action research among farmers working toward pesticide risk reduction and/or as a precondition for linking up with accreditation programmes (e.g., GAP) | | | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 5.1 | Adapt existing and develop new PRR standards and indicators as to strengthen M&E system to ensure quality of IPM/safe vegetables and PRR-fortified FFS training | | | | | | | X | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.2 | Implement a standard M&E system for all training activities under the pesticide risk reduction programme | | | | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 5.3 | Conduct national training and workshop on monitoring and evaluation system for PRR-fortified IPM-FFS training | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.4 | Regular monitoring and backstopping visits by National Team and IPM trainers on implementation of Community Action Plans for pesticide risk reduction | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| 6.1 | Implement pilot activities to demonstrate beneficial role of IPM-FFS in government programmes on safe | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

| Activity number | Activity | 2010 | | | | | | 2011 | | | | | | | | | | | | 2012 | | | | | | | | | | | | 2013 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J |
| | vegetables and GAP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.2 | Promote the development and scale-up of model Pesticide Risk Reduction communities by local governments and other donors | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X | X | X | X | | | |
| 6.3 | Design, conduct and document follow-up impact assessment study among IPM FFS graduates, with particular focus on pesticide risk reduction | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 6.4 | Popularize the impacts of IPM-FFS and pesticide risk reduction training through TV, newspaper, publications and radio broadcasts institutional reforms | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 6.5 | Initiate dialogues to sort out the current intertwined institutional interests between promoting IPM and pushing pesticides | | | | | | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | |
| 6.6 | Organize policy level workshops to support local policy development and institutional reforms | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | |