Bi-Annual Regional Meeting for the FAO Vegetable IPM Programme
Bangkok, Thailand
12-14 November 2008

Executive summary:

The Bi-Annual Regional Meeting for the FAO Vegetable IPM Programme, jointly organized by the Government of Thailand and the FAO Vegetable IPM Programme, was held in Bangkok from 12-14 November 2008. Forty-three participants representing core Greater Mekong Sub-Region countries as well as observer countries, selected regional and donor organizations, resource persons and FAO Vegetable IPM Programme staff participated in the meeting. Partners from the Swedish Chemicals Agency and International NGO networks such as Pesticide Action Network – Asia Pacific and the Field Alliance, involved in the collaborative ongoing Pesticide Risk Reduction work in the GMS also participated in the Meeting.

The activities included (i) country presentations and other presentations on work carried out by NGO partners, (ii) theme presentations and discussions on Impact Assessment, (iii) presentations of the findings of the Final Review Mission for the Norway-supported Vegetable IPM Programme (Project GCP/RAS/209/NOR), and (iv) discussions on community education initiatives for pesticide risk reduction in GMS and an interim meeting of the APPPC – IPM Steering Committee.

The Bi-Annual Meeting aimed to:

1. *share highlights of achievements and impact resulting from IPM FFS training interventions supported by the Phase II FAO Regional Vegetable IPM programme (2002-2008);*
2. *present and discuss findings and recommendations of the Final Review Mission for the Phase II FAO Regional Vegetable IPM Programme;*
3. *strengthen regional networking on matters concerning IPM, Pesticide Risk Reduction and farmer education among nationals, partner organization representatives and FAO staff;*
4. *assess needs, opportunities and mechanisms for continued regional IPM collaboration beyond the current life time of the Phase II FAO Asia Regional Vegetable IPM Programme.*

Evaluation by participants of the Meeting indicated that the organization and facilities were excellent and the coverage of the contents was very good. Among others, suggestions for future meetings included the inclusion of technical inputs and new initiatives on IPM for refreshers and extending the duration of the meeting programme as to accommodate field visits. Participants were looking forward to meeting at the next Bi-Annual Meeting, which will most likely be organized somewhere in the GMS in late 2009.

1 Background

Throughout Phase II of the *FAO Inter-Country Programme to Strengthen IPM Training and Sustain IPM Practices among Vegetable Farmers in South and Southeast Asia*, twice yearly meetings among project staff, national counterparts, and related organizations have been held in different member countries. Thailand hosted the last bi-annual meeting under Phase II of the Norway-supported project in Bangkok during the period 12-14 November 2008.,

Objectives

The overall objectives of this meeting were:

- To share highlights of achievements and impact resulting from IPM FFS training interventions supported by the Phase II FAO Regional Vegetable IPM programme (2002-2008);
- To present and discuss findings and recommendations of the Final Review Mission for the Phase II FAO Regional Vegetable IPM Programme;

- To strengthen regional networking on matters concerning IPM, Pesticide Risk Reduction and farmer education among nationals, partner organization representatives and FAO staff;
- To assess needs, opportunities and mechanisms for continued regional IPM collaboration beyond the current life time of the Phase II FAO Asia Regional Vegetable IPM Programme.

Participants:
A total of 43 people attended the Bi-Annual Meeting including:

- 23 participants from five member countries (Cambodia, China PR, Lao PDR, Thailand and Vietnam) within the FAO-supported IPM Programme,
- five participants from four countries with ongoing National IPM Programmes (Bangladesh, Indonesia, Nepal, and Philippines), associated with the FAO-supported Regional IPM Programme,
- 11 participants from selected regional and international NGOs and donor organizations, resource persons and the FAO Vegetable IPM Programme, and,
- four members of the Final Review Mission.

The List of Participants and Contact Details is attached to this report as Appendix 3.

2 Opening and Introductory Notes

Ms. Alma Linda Morales-Abubakar facilitated the introduction of the participants whereby each participant stated their field of work and country of origin.

The Bi-Annual Regional Meeting for the FAO Vegetable IPM Programme was officially opened when Mr. Jan Willem Ketelaar, the Chief Technical Adviser (CTA) of the Programme delivered Introductory Notes to welcome participants and explained the objectives and programme of the meeting **(Reference to Concept Note)**. Participants were requested to share their experiences and to learn from one another during the meeting.

3 Country Presentations

Each GMS country was asked to organize a presentation on about one or two case studies or selected activities implemented during the project period. These could include the process or results of innovative activities and/or topics of particular interest in that country's programme. However, most of the presentations provided instead an overview of all activities implemented and underway. The presentations included some examples of innovative initiatives. In addition to power point presentations, in some cases handouts were also provided. A summary of these country presentations are included below.

3.1 Greater Mekong Sub-region Countries
Chairperson: Dr. Prabhat Kumar, IPM Consultant, Asian Institute of Technology, Bangkok

3.1.1 National IPM Programme in Cambodia
Mr. Ngin Chhay. Deputy Director, Department of Agricultural Legislation-MAFF and National IPM Programme Coordinator

The Ministry of Agriculture, Forestry and Fisheries (MAFF) initiated the IPM Programme in 1993 after a National Workshop on "Environment and IPM" with the overall goal to promote food security and safety by enhancing the sustainability of intensified crop production systems through the promotion of Integrated Pest and Crop Management skills at farm level. MAFF officially declared Integrated Pest and Crop Management (IPM) as one of the country's key crop production strategies with the aim of making IPM the standard approach to crop management in Cambodia and the National IPM Program to facilitate coordination of all IPM activities in Cambodia irrespective of donor agencies and crops involved.

The Programme has been operating in all major agricultural production provinces in close cooperation and collaboration with other concerned ministries, provincial departments of agriculture, local and international organizations and research institutions at all levels. It aims to develop the capacity of agricultural trainers and extension workers and to educate farmers on agricultural technologies by enhancing their knowledge on field ecology and by developing skills in managing crops effectively to reduce the dependency on agricultural chemicals, (especially pesticides), and in agricultural production to increase productivity and profitability in an environmentally friendly and health-safe manner.

Major training activities implemented are training of trainers courses on rice, vegetable, water melon, rice-fish-vegetable and mung bean; training of Farmer Trainers; Farmer Field Schools on the mentioned crops; Farmer Life Schools; refresher courses for District and Farmer Trainers; living soils training; training on farmer self studies on pesticide health hazards; monitoring and impact assessment; farmers' congress; study tour and exchange visits; workshops and meetings; field studies and experiments; development of community IPM and establishment of farmer clubs; organic rice production; and establishment of vegetable associations. In close collaboration with al involved organizations the Programme has trained more than 700 trainers 2,500 Farmer Trainers and 150,000 farmers through season-long FFS. Moreover, the Program has also worked with school teachers and students and formed more than 900 farmer clubs involving 17,000 farmers.

Results from several impact studies have shown that IPM farmers have increased technical knowledge and decision making skills, obtained higher yield, reduced pesticide application and received higher incomes. In conclusion, IPM training leads to more sustainable and cost-effective production, reduction of ecological disruption and environmental contamination, improvement of public health through the reduction of toxic residues in food, improvement of livelihood, biodiversity and marketability of produce. This makes a huge contribution to food security promotion, poverty alleviation, and ultimately to the national economic growth which are the priories of the Royal Government policy and strategy.

Questions/*Answers*:

- Dr. Dam Quoc Tru from the Plant Protection Department-MARD, Vietnam asked whether pesticides policies or enforcement were important for the control of pesticides. *Response: In Cambodia policies are in place but there is weak enforcement of these policies. Porous borders also contribute to the enforcement problem because of illegal trade. For example, the pesticide law states that pesticides should be labeled. However, smuggled pesticides are still in foreign language. Only those who are caught smuggling can be punished. The promulgation of a law in itself is insufficient. The country needs to work on a law enforcement mechanism.*
- Ms.Tattanakorn Moekchantuk, IPM Training Expert, Thailand raised the point about IPM Trainers moving to work with other organizations after having been trained by the IPM Programme as a problem not only in Cambodia but also in Thailand.
- Dr. Jesie Binamira from the National IPM Programme, Department of Agriculture, Philippines mentioned the experience in the Philippines about farmers' increased production costs after participating in FFS training as a result of using better - but often more expensive - pesticides. He added that the costs for insecticides are reduced but the cost for herbicides have increased. However, there are generic herbicide products without patents and these are cheaper. Dr. Binamira mentioned that this (i.e., the selling of cheaper generic herbicide products without patents) was an area that the APPPC IPM Standing Committee should take a position on.
- Mr. Md.Hasanul Haque from the DANIDA-supported Bangladesh Department of Agriculture Extension Component-ASPS asked what Cambodia was doing about banned pesticides that are still in use. *Response: The Government has prepared a list of banned pesticides but they continue to be sold and farmers continue to use them. It is difficult to take action on the spot. The procedure requires the filing of a complaint in court. What the Government is now doing will take three steps: 1) enforcement through zero import of highly toxic pesticides (based on active ingredient)or controlling official import; 2) control*

through shops by training shop keepers and inspectors; and 3) control at farm and field level by working with farmer applicators.

3.1.2 Country Report China PR
Ms. Hu Xinmei, National Programme Officer, FAO-IPM Kunming

In Guangxi province, the main focus of activities this year was on identifying needs and strategies to establish an IPM farmer education programme. A fortified pesticide risk reduction curriculum (based on the four principles of IPM) was developed that was used in ToT, FFS and follow up activities. Among other aspects, a set of Guidelines and Structured Learning Exercises on Pesticide Risk Reduction and use of Personal Protective Equipment was developed to help participants use fluorescent tracer technology to identify pesticide contamination and exposure. The fortified PRR curriculum, piloted in the Guangxi Training of Trainers course, held in Tianyang, Baise from April to August 2008, is now being used as model for further development and up-scaling of such PRR training within the context of refresher training and ongoing FFS and post FFS training activities in Guangxi and Yunnan. NATESC, Guangxi PPS, Yunnan PPS and FAO IPM office continue to provide coordination, M&E and technical backstopping.

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Community IPM Model Development in Yunnan Province, China-Case study from IPM Village in Kunming

A community IPM model has to be developed for larger extension of IPM technology to achieve sustainable vegetable production and community prosperity based on current challenges in vegetable production. FAO/China Vegetable IPM programme started in 2003 in Yunnan Province. IPM principles have laid the basis for model IPM village development. The pilot community IPM model includes the following components: IPM organizational system, IPM FFS, pesticides monitoring and regulatory system, pest warning and forecasting system, IPM technology standard system, IPM demonstration system, linkage of IPM products to the markets. The IPM demonstration villages have gained social, economical and ecological benefits. The demonstration villages have aroused attention from various levels of government. As a result, local governments have embedded IPM FFS as an important extension approach to achieve sustainable agriculture. Furthermore, the innovative demonstration villages have set up models and driven the development of 110 IPM communities in other prefectures in Yunnan Province and other provinces and cities in China.

Questions/*Answers*:

- Ms.Tattanakorn Moekchantuk, IPM Training Expert, Thailand asked for clarification on the conduct of FFS in the evening. *Response: This was done only in the first weeks of the FFS as farmers were busy harvesting tomato, then the meetings were shifted to day time.*
- Dr. Jessie Binamira of the National IPM Program, Department of Agriculture, Philippines asked about how effective the use of Personal Protective Equipment (PPE) is in China. He explained that the recommended PPE is difficult to use in the Philippines because farmers complain that wearing such PPE is too hot and the mask is too expensive. And that it is better not to use pesticides at all. *Response: Even if the use of PPE is difficult, it is better than none. And, it must be noted that use of PPE is much more widespread and viable under the temperate climatic conditions prevailing in southern China. The recommendation to have training focus on reduced use of pesticides and adoption of IPM -rather then a continued use of pesticides with a focus on use of PPE- still stand though!*

3.1.3 Farmers Learn Value of Wet Season Tomato Crop in Lao PDR
Mr.Boun Oum Douangphrachanh. Deputy Director, Department of Agriculture

Agriculture Production in Lao PDR
Rice is the main crop in Lao PDR. It is grown on 80% of crop land. Major vegetable crops grown include cabbage, Chinese kale, onion, garlic, lettuce, tomato, cucumber, melon, yard long beans, mustard, chili and eggplant. Most commercial production of vegetables is concentrated around larger urbanized areas of Vientiane, Savanhnakhet and Pakse.

Vegetables IPM Achievements
Various activities related to farmer training programmes from 2000-2008 have been successfully accomplished. Since 2000, the IPM Programme has organized training for vegetable farmers around cities of various provinces and piloted the growing of off-season crops, including tomato. One example of the most successful case was - *farmers learn value of wet season tomato crop* using participatory action research. Studies on off-season tomato growing focus on bacterial wilt disease management and the overall economic feasibility study of wet season tomato production. During the off-season, tomatoes are in great demand and are imported from neighboring countries to meet the market demand. In addition, the high farm gate prices give farmer an incentive to explore the potential for wet season production and apply the best cultivation technique. From 2002, due to the success of the programme, many farmers in various provinces were able to boost their off-season tomato production and obtained five-ten times more profit.

In conclusion, most of the IPM Farmers earn higher profits in crop production, especially from off-season tomato, resulting from better yields and low input cost from reduced use of agro-chemicals and better management decision making.

No Questions/*Answers* on the presentation

3.1.4 Food Safety Promotion by the Thai Government through the FFS
Mr. Aroonpol Payakphanta. Director, Pest Management Promotion, Pest Management. Division-DoAE

IPM in Thailand developed utilizing the Farmer Field School (FFS) approach since 1999. 464 IPM Trainers throughout the country have participated in Training of Trainers (ToTs) in rice, vegetables and fruit trees. Currently, the Thai Budget Administration of the country is orientated to decentralization and many main tasks are being transferred to local agencies. The main responsibility of the Department of Agricultural Extension (DoAE) is then to train the local authorities on Integrated Pest Management using Farmer Field School processes (IPM-FFS). Many multimedia such as posters, DVDs, key cards, manuals and so on have been produced to support the training process. In future regional IPM seminars, multimedia materials may be shared between countries for the purpose of further development and enrichment of IPM programmes.

A Pilot Project on Crucifer IPM for the Northern and Northeastern Highlands of Thailand through IPM-FFS
Areepan Upanisakorn, Director, Bio-Control Group, Pest Management. Division-DoAE

Vegetable production is faced with many pest problems for which a wide range of pesticides have been used by farmers since a long time ago. Pesticide use has resulted in high cost of production and development of resistance of pests to the chemicals. As to address the situation, the DoAE's Biological Control Group, Pest Management Division, Bureau of Agricultural Products Quality Development implemented a pilot project on ***Crucifer IPM for the Northern and Northeastern Highlands of Thailand through IPM- FFS***. The project commenced in 2005 and was completed in December 2008. The project involved a survey of cabbage fields,

introduction of classical biological control options and rearing & releases of the parasitoid *Diadegma semiclausum* (Ds). The use of the biological control was introduced through FFS approach. Field monitoring after the study showed that parasitoids had established and could control the pest well. The farmers used to spray 10-12 times per season but this has been reduced to 2-3 pesticide applications for other pest problems (fleabeetle and cabbage white butterfly), using softer pesticides and biopesticides (e.g. Bt). Some farmers have stopped the use of chemicals altogether and now only use bio-agents. Farmers used to practice calendar spraying but now, if they need to apply pesticides, the decision is based on monitoring and analyzing the ecosystem. They have also learned how to avoid plant diseases by using botanicals and the practice of seed treatment before planting. They have also changed their attitude towards using manure and compost rather than using only chemical fertilizers. Farmers have not only changed their pest control methods but have also changed their behavior towards planning their cropping patterns. Whereas –before- they practiced cabbage monocropping, now -after FFS training- they plan their year-round cropping patterns, including cabbage production, in consideration of pest prevention and marketing strategies. They have started to grow other crops for better price and profit. The farmers have started to work in groups instead of individually. Using their Q-GAP certification, they have also contacted other organizations for possible market links as opposed to having to sell only to one supplier. Market access facilitation for IPM farmers is also explored by the Royal Project and a Taiwanese company sourcing higher quality cabbages for export markets in Taiwan.

Questions/*Answers*:

- Dr. Dam Quoc Tru from the Plant Protection Department-MARD, Vietnam asked about what happens to other farmers because the FAO-supported activities only reach a few who are involved in the pilot activities. *The province takes on the responsibility for the uptake and spread of IPM activities to other minority groups.*

3.1.5 Vietnam IPM Programme

Mr. Ngo Tien Dung. Chief of Plant Protection Division, PPD-MARD and National IPM Programme Coordinator

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.

Implementation Arrangements

- Plant Protection Department (PPD) designated by MARD to implement the National IPM Program.
- FAO IPM Programs work closely with an IPM Group of specialist officers in the Plant Protection Division of PPD Hanoi, in support of the National Programme
- Plant Protection Sub Departments (PPSD) of 64 provinces and cities involved in IPM implementation at the provincial level.
- At Commune: farmer group/Clubs organize IPM activities

Goal of the Programme

Empower small-scale farmers to become skillful and better informed decision-makers in managing the crop production system. The main activities of the programme include:

- Training of Trainers (ToT)
- Farmer Field Schools (FFS)
- Follow up FFS: Develop local IPM programmes to strengthen IPM and agriculture in the villages; farmer-led field studies

Training achievements

- IPM FFS have been conducted in more than 95% of rice planting communes nationwide
- More than 10% of farming households across the country participated in IPM FFS

- Training of Main Trainers: 3,032 Plant Protection Technicians were trained in ToT on different crops (including rice, vegetables, cotton, maize, sweet potato, tea, citrus),and technical aspects such as biodiversity, nutrient management, EIQ, etc.
- 5,855 farmers were trained through ToT to become the Farmer Trainers on different crops and technical aspects
- 1,073,650 farmers attended FFS
- 3,318 IPM Clubs organized

Impact

One of the National IPM Programme's aims has been to develop a comprehensive participatory monitoring and impact evaluation system for the National IPM Programme in order to: i) improve monitoring and evaluation skills among farmers and IPM trainers; ii) provide leadership at all levels with information enabling them to improve decision making and thereby regularly develop activities; and iii) document impact. These internal impact studies have been supplemented by external impact evaluations carried out by Universities. All in all the studies have included more than 3,000 households.

Indicator	Non IPM	IPM	Dif. (%)
Pesticides	4.64	2.97	**-38**
Insecticides1	-	-	**-60**
N (kg/ha)	102	87	**-15**
Seed rate2	-	-	**-16**
Yield (t/ha)	5.82	6.31	**+8**
Input costs	2.36	2.16	**-8**
Income	8.31	9.61	**+16**

Apart from the impact on agricultural practices and income, the studies also indicate that participation in FFS improves farmers' analytical skills and critical thinking capacity, which have long-term effect. Farmers have gained a better understanding about pesticides impact on human health and the environment, and therefore pay more attention to safety precautions. Trained farmers reported less health hazards (e.g. headache, respiratory problems or vomiting) in connection with spraying pesticides. Many farmers, after having served as IPM Trainers in the community for a certain period, have been selected for local leadership positions.

Activities and Accomplishments under Phase II FAO Regional Vegetable IPM Programme (2002-2008)

- The Programme has covered 23 vegetable growing provinces throughout Vietnam[1]
- The Programme is aimed at supporting capacity-building through training staff to become IPM-safe vegetable trainers who facilitate farmers to conduct activities in the province.
- FFS, alumni have conducted diverse follow up activities including field studies on topics such as soil born diseases management, biological control of vegetable pest, leaf miner management, flee beetle management, etc.
- Piloting of the “Model of Community-based Pesticide Risk Reduction Programme” in five sites in Hanoi, Thai Binh, and Bac Giang provinces. The Model aims to strengthen pesticide risk reduction and develop vegetable production along GAP orientation at the commune level. In the Model, farmers study on how they can reduce pesticide risks.
- Training achievement: 16 ToTs were organized for 480 Plant Protection staff of PPSDs (including 15 Local-TOT with 450 participants and one National ToT for 30 Plant Protection Technicians).
- 170 vegetable FFSs were organized for 6,600 farmers and 16 sweet potato FFSs for 480 farmers.

[1]Ha Noi, Hai Phong, Ho Chi Minh city, Ha Tay, Lam Dong, Hai Duong, Lao Cai, Da Nang, Quang Nam, Tien Giang, Vinh Phuc, Bac Ninh, Hung Yen, An Giang, Tay Ninh, Ha Tinh, Hung Yen, Yen Bai, Dac Nong, Dac Lac, Nghe An, Long An and Thai Binh

- Training materials developed: Curriculum for sweet potato IPM FFS, Curriculum for Maize IPM FFS, Curriculum for EIQ study, Cabbage Integrated Pest Management – An Ecological Guide, Cucumber Integrated Pest Management – An Ecological Guide, Green Bean Integrated Pest Management – An Ecological Guide, Tomato Integrated Pest Management – An Ecological Guide.
- Project studies included Baseline studies (PNOA[2]) and Impact Assessment.
- Other studies: Environmental Impact Quotient (EIQ); Participatory Action Research (PRA); Maize IPM study in Phu Tho and Quang Binh provinces; Flea Beetle study in Hai Phong City.
- Parasite mass rearing and release: attempts to import and multiply cultured populations of *Diadegma insulare* from Florida, USA. *Diadegma semiclausum* cocoons collected from Da Lat and brought to the North to augment populations of the natural enemy during the winter season. Earwig mass rearing and releases at three Regional Plant Protection Centres and farmers' fields.

Questions/*Answers*:

- Dr. Dam Quoc Tru from the Plant Protection Department-MARD, Vietnam asked how to persuade monks to participate in FFS. (*Monks like IPM as it utilizes natural methods to protect against insect pests.*) Dr. Dam Quoc Tru also recommended additional discussions on the integration of IPM and GAP in safe vegetable programmes for interested participants in small group meetings.
- Mr. Ngin Chhay from the Department of Agricultural Legislation-MAFF, Cambodia raised two questions: 1) how to link IPM with safe vegetable production, and 2) how to integrate this in FFS. *Response: The National IPM Programme focuses on strengthening capacities. When provinces develop their Safe Vegetable plans they incorporate IPM. This makes safe vegetable production more sustainable. All provinces have Safe Vegetable programmes that integrate GAP (Vietnamese standards) guidelines and an IPM component.*

3.1.6 Research on Vegetable IPM in Vietnam 2005-2007 (BioForsk Subcontract under FAO Project GCP/RAS/209/NOR)

Dr. Trond Hofsvang. Research Director, Bioforsk Plant Health and Plant Protection Divison

The project consisted of five components: 1) Leaf miner thresholds and effects on pesticides on natural enemies, 2) Disease control: Late blight in potato and tomato, 3) Pesticide resistance (insecticides), 4) Pesticide fate and residues in vegetables and water, and 5) Pesticide risk indicator model (EIQ). The main partners in Vietnam have been PPD (MARD), Hanoi Agricultural University and Nong Lam University, Ho Chi Minh City.

Semi-field experiments in large cages have been performed to develop action thresholds for the leafminer *L. sativae* on French beans, cowpeas, pack-choi cabbage, cucumber and tomato. The threshold has been estimated for each of the vegetables. The effect of ten commonly used pesticides has been tested on ten natural enemies and has been classified according to the mortality as harmless, slightly, moderately or very harmful.

Field experiments to study late blight in potato and tomato have been performed in the areas of Da Lat and Hanoi using three cultivars with different levels of resistance, two different dosages of fungicides and simple forecasting rules and sanitation procedures. Based on the field experiments it seems to be possible to have reduced input of fungicides in potatoes in Vietnam using reduced dosages of modern protective fungicides and improved timing of applications (forecasting) combined with resistant cultivars.

During the work on pesticide resistance management of key pests in vegetables in Vietnam the following have been achieved/developed: new information on insecticide resistance in leaf

[2]Participatory Needs and Opportunities Assessment (PNOA) in Ho Chi Minh City, Lam Dong, Da Nang, Tien Giang, Vinh Phuc provinces

miners and whiteflies, standard protocols for dose-response tests with pesticides and Insecticide Resistance Management (IRM) guidelines for key pests.

Analytical multi-methods for pesticides analysing have been implemented at Northern Pesticide Control Centre in Hanoi. Using these new methods pesticide residues in selected crops in different provinces and possible effect of introducing IPM on the level of pesticide residues of frequently used pesticides have been studied.

A database of a pesticide risk indicator model (Environmental Impact Quotient – EIQ) on all approved pesticides (more than 1700 trade names) in Vietnam has been prepared. Information obtained from the other parts of the project has been included, such as pesticide resistance and pesticide effects on natural enemies. Available information on pre-harvest interval (PHI) has also been added to the database.

Questions/*Answers*:

- Mr. Harry van der Wulp from FAO Rome asked two questions: 1) if the changes in the pesticide residues found in 2005-2006 could have been caused by a change in the sampling procedure. *Response: There were no changes in the statistical procedures*; 2) on the effect of pesticides on beneficial organisms, since the EIQ values were developed by Cornell, could there be a margin of error when the tool is used in Asia due to the richness of species, e.g., in Vietnam. *Response: More EIQ data are needed relevant to tropical and sub-tropical ecosystems.*
- Mr. Chou Cheythyrith from the National IPM Programme, MAFF Cambodia asked how Bioforsk analyzes the action thresholds for pests on different crops.
  Response: There is a standard document that could be provided to those who are interested.
- Mr. Jan Willem Ketelaar from the FAO Regional Vegetable IPM Programme commented that many things were learned from the studies.
- Dr. Dam Quoc Tru from the Plant Protection Department-MARD, Vietnam recommended that the full and final report from the BioForsk Subcontract Research work in Vietnam be made available as to be able to share the results with policy makers in the country.

3.2 Countries associated with the FAO-supported IPM Programme
Chairperson: Dr. Dam Quoc Tru. Deputy Director, Plant Protection Department-MARD, Vietnam

3.2.1 Country Report: Bangladesh
Mr. Md.Hasanul Haque. Project Director, Extension Component, Agriculture Extension Component-DANIDA ASPS

IPM in Bangladesh

IPM activities started in 1979 with the first phase of FAO's Inter-Country Rice ICP programme. The Bangladesh Rice Research Institute (BRRI) was involved in rice research work to develop rice pest control methods and the Department of Agricultural Extension (DAE) was responsible for transferring rice-pest control methods to the farmers through block demonstrations. The FAO Inter-country Vegetable IPM Programme started working in Bangladesh upon a request from the DAE in 1996. During rice ICP period, several pilot FFSs were conducted for both rice and vegetables (brinjal/eggplant). The FAO Vegetable IPM programme supported a curriculum development workshop to design the first vegetable TOT in 1997 and sponsored two season-long ToTs on vegetable IPM, training 64 officers (62 DAE and 2 NGO). Under the FAO Vegetable IPM Programme, field studies on the ecology of brinjal and new options for disease and pest management were carried out especially for the brinjal fruit and shoot borer. Two large IPM projects conducted several ToTs between from 1997-2002: the UNDP/FAO funded IPM

project and the DANIDA funded SPPS Project. During 2008, GoB/IPM project conducted 6 ToTs.

BARI has reported that IPM projects in Bangladesh (rice and vegetables) resulted in reduced pesticide use by trained farmers. IPM trained farmers have been able to: (1) reduce the cost of pesticides in brinjal by 55% in comparison to untrained farmers; and (2) increase their crop yield even up to 25%. IPM projects have also resulted in:

- A national IPM Policy developed and approved by the Government of Bangladesh in 2002 to provide overall guidelines in support of IPM in the country.
- The policy provides base to develop a national IPM programme bringing all IPM programme together under one roof and bringing all 465 *upazilas* under IPM coverage by 2016 in a two phase process.
- A Strategy and Action Plan for Implementation of the policy was completed in 2006 but is not yet implemented.

The DANIDA funded SPPS- phase II gave emphasis on community IPM which includes Farmer-to-Farmer Training and establishment of IPM clubs. As a result, 1800 Farmer Trainers in rice and vegetable IPM have been developed and they are now establishing FFS in their localities to train their neighbors. Each FFS is transformed into an IPM club which is a permanent body which helps sustaining IPM work in the community. IPM clubs have their own way of generating fund, which include pest management in vegetable fields (of club and non-club members) on a contractual basis, raising nurseries and seedlings, chicken and duck farming and monthly subscription from the club members. The IPM clubs are the key for the promotion and sustainability of community IPM in Bangladesh. About 8000 active IPM clubs have already been established.

The DANIDA-supported Agricultural Sector Program Support (ASPS) is a collaboration between the governments of Bangladesh and Denmark. The first phase was carried out in 2001-2006 and the second phase (ASPS-II) commenced in 2006-2011. The ASPS has three separate but related components: (1) Agricultural Extension Component (AEC); (2) Regional Fisheries and Livestock Development Component (RFLDC); and (3) Rural Road and Market Access Component (RRMAC). It should be noted that both AEC and RFLDC component are currently using the FFS approach for farmer training on crops (AEC) and fisheries and livestock (RFLDC). The immediate objectives of AEC are: (1) improved, demand driven, integrated and decentralized extension systems developed to support poor, marginal and small farmer households; and (2) enhanced capacity of the concerned agencies of Ministry of Agriculture (MoA). The main emphasis of AEC is to train farm households on Integrated Crop Management (ICM) through FFS.

Outlook for the future and needs for FAO support

- In future, Bangladesh will continue to use FFS for training farmer groups on IPM/ICM and other topics. It is clear that more and more emphasis will be given for the establishment of farmer clubs for the sustainability of IPM/ICM and also for its lateral spread in the country. The work on community IPM/ICM will be strengthened through the development of more Farmer Trainers (FTs) and establishment of more farmer clubs in future.
- The ongoing AEC programme has a strong focus on rice farming. Activities in vegetables are mainly targeting homestead vegetable growers. There is a need for greater diversification in training programs including other (commercial) vegetables and field crops. Currently 10 pilot FFS in potato ICM are being conducted by the ICM/AEC.
- There is an opportunity for the FAO Vegetable IPM Programme to continue strengthening and technically supporting the development and spread of vegetable IPM in Bangladesh through several programmes like IPM/GOB project, ICM/AEC and agricultural research institute (BARI). This support could be in the form of short-term technical assistance, sharing training materials, and assisting with developing technical knowledge and skills of vegetable IPM Trainers. Support could also include provision for regional exchanges and

participation in regional study tours and workshops on key innovative vegetable IPM matters relevant to the development of IPM and farmer education in Bangladesh.

Questions/*Answers*:

- Mr. Mario Corado, IPM Consultant, Philippines asked whether there is a national organization, government or nongovernmental organzation, that is looking after the 10,000 IPM clubs mentioned in the report. *Response: Yes, the National IPM Programme.*
- Mr. Binod Saha from the National IPM Programme, Nepal asked two questions: 1) the difference between IPM and ICM; and 2) the position of the government on the use of either IPM or ICM. *Response: The content and training process is the same but the donors sometimes want another name hence the term ICM was introduced.*

3.2.2 Support of Crop Protection to Competitiveness of Horticulture Produce in Indonesia Mr. Nugroho Wienarto. Director, Field Indonesia Foundation

The presentation provided a picture of strategies, programs and activities of the Crop Protection Directorate for Horticulture to support the Government's plan on horticulture export market preparation and the necessary technical assistance. Some cases of export activities on horticulture products, e.g. mangosteen, etc. were described. The presentation also provided information on the medium term planning of the Horticulture Directorate General related to IPM, Good Agricultural Practices, Sanitary and PhytoSanitary measures and Codex Alimentarius.

Questions/*Answers*:

- Dr. Dam Quoc Tru from the Plant Protection Department-MARD, Vietnam asked whether the ban on 57 pesticides during the time of President Suharto still holds and whether the government is still enforcing the policy.
  Response: *The pesticides were banned for use only in rice but not for other crops. Some pesticides continued to be illegally used in rice production. So the ban was extended for use of the pesticides in all crops. However, due to the pressure from pesticide companies, it was revoked. In 1998, a Minister revoked the ban for use in rice but NGOs reacted strongly hence it was re-enacted and re-signed.*
- Mr. Harry van der Wulp from FAO Rome expressed appreciation for the presentation and mentioned that it was great to see that there is continued implementation of IPM in Indonesia.
- Ms. Lawan Jeerapong from the Pest Management Division-DoAE, Thailand requested that a full report on the presentation be shared by email.
- Mr. Ngo Tien Dung from the Plant Protection Department, Vietnam requested for more information about Indonesia's work on production of biological control agents.
  Response: *Food crops and agriculture people learned from the successful implementation of IPM/biodiversity programmes. With support from the Clemson University and FAO, Indonesia started not only production but socializing it with farmer groups. It was successful and was copied in many provinces. But, the large-scale production of biocontrol agents was discontinued because of lack of resources for purchase of refrigerators, lack of electricity, and others.*
- Ms. Sun Jing from the NGO Pesticide EcoAlternative Centre (PEAC), China asked two questions: 1) if money from the government was transferred to farmers' groups to support field level activities; and 2) if there was an auditing procedure that was followed to ensure that the money is used properly. *Response: This is a strategy adopted by the government as suggested by the World Bank. Money is given directly to farmers' groups.*
- Dr. Jesie Binamira of the National IPM Programme, Department of Agriculture, Philippines commented that the FAO Community IPM Programme was responsible for stirring up IPM agenda for all the countries. But when it stopped, Asian countries continued to adopt IPM as an agenda. This means that IPM is an accepted agenda for Asian countries. What is critical

is that IPM and FFS can not be separated. He mentioned that the week after the Bi-Annual Meeting, a meeting would take place in Manila where the ASEAN HRD group will accept FFS as an agenda for most countries. Dr. Binamira said that they were expecting FAO's presence in the meeting and to provide support. However, IRRI (which has a lukewarm attitude to FFS) will be leading the meeting.

3.2.3 National IPM Programme in Nepal: An Overview
Mr. Binod Saha. National IPM Coordinator, Plant Protection Directorate-DoA

IPM in Nepal

In early 1997, due to BPH outbreaks in early rice in Chitwan District, Nepal sought assistance from FAO and a TCP Programme was formulated. Nepal formally became a member of the FAO InterCountry Programme and the Community IPM Programme for Asia from 1998-2003. During that time, Nepal succeeded in creating initial human resources to support IPM and encouraged by the results of activities, GoN adopted IPM as one of the "pillars of Agriculture" (1990) and decided to expand the programme through out the country. GoN identified and adopted IPM as the backbone of crop protection programs. IPM has been taken as an integral component of crop intensification and diversification goal for the long term Agriculture Perspective Plan (1995-2015).

Built on the success of earlier efforts of various IPM programs in the country (1997-2003) and around the Asia Pacific region, grant assistance in the amount of 1.3M US$ for the project "Support to the National IPM Programme" (SNIPMP) was provided by the Norway Government to Nepal. Technical and management support to the project was provided by FAO. The project envisioned to contribute to sustainable broad-based poverty alleviation and food security while contributing to environmental protection by: (1) institutionalizing a sustainable national IPM Programme in Nepal through strengthening the capacity of the PPD, national, regional and district level training and extension institutions; and (2) empowering farmers to increase production and productivity efficiently while protecting the environment.

The first phase of the SNIPMP brought about impacts in the following areas: (1) farmers' understanding of the ecosystem; (2) reduction in the use of hazardous pesticides; (3) better health conditions among IPM farmers and possibility of raising fish in ricefields; (4) food security in terms of increased yields and income; (5) FFS were able to bring together different social groups and political orientations in a common programme contributing to peace building; (6) linkage, coordination and collaboration among farmers and local governments as well as GO-NGO partnership and increased funding for FFS from local resources.

A Phase II, now in place, is estimated to be 13M US$, out of which the Government of Norway has granted NKR 27 million (approximately 5 million US $) to Nepal with the remaining 8M million US$ to be mobilized jointly by FAO and the Government of Nepal from other potential donors. Phase II will run from March 2008 to February 2013.

Expected Areas of Collaboration with FAO Regional Vegetable IPM Programme

The successes in implementing IPM in Asia show that the FAO Regional IPM Programme continues to provide technical support in the implementation of Participatory IPM. Since the thrust of the up-coming phase of National IPM Programme in Nepal is to consolidate, up-scale and institutionalize IPM through developing and adopting the modules of intensification and institutionalization of IPM in the country, it is believed that support of FAO Regional Vegetable IPM Programme in the above and in many other relevant areas, would ensure an effective implementation of the National IPM Programme in Nepal.

In particular, the programme expects support in the following areas:

- Curriculum development for year-long FFS, ToF and Refresher courses (officers, non-officers and farmers)
- Development of crop-specific IPM tools and technologies for vegetables, potato and other high value commodities such as citrus, apple, tea, ginger and coffee) for further testing, validation and adoption by the Nepalese IPM farmers;
- Development of novel options for pest management including support towards strengthening of laboratories to undertake activities like identification, testing, mass rearing and promotion of bio agents for biological pest management as well as preparation of relevant guidelines/manuals;
- Development of GAP standards (vegetables, potato and other high value commodities - citrus, apple, tea and ginger) and farmers self certification system for IPM products;
- Impact Assessment of the IPM Programme in Nepal
- Establishment of M&E and Information system

No Questions/*Answers* on the presentation

3.2.4 F.I.E.L.D.S. Extension Plan and Barangay Food Security Volunteers
Mr. Jesie Binamira. National Programme Manager, Department of Agriculture, Philippines

Agriculture and rural development play a critical role in ensuring food security and alleviating poverty and hunger in the Philippines. The emerging challenges to food security include: 1) increasing costs of agricultural inputs and declining real farm incomes; 2) increasingly liberalized global trade environment; 3) rapidly changing consumer preferences and demand for stronger food safety and quality assurances; 4) increasing risks associated with pests and diseases and weather; 5) land fragmentation and conversion; 6) greater importance of non-farm activities as a source of income; 7) declining ability to meet future water demands; 8) implications of climate change on the livelihood of poor farmers; and 9) decentralization of agricultural extension services. The development objective of the FIELDS extension plan is to improve the conditions of poor small farmers and fisherfolk in terms of incomes, food security, market access, health and productive environment. The programme strategies include: 1) adoption of knowledge-intensive, diversified, profitable and sustainable farm technologies to increase productivity, improve cost efficiency and product quality; 2) development of management and complex decision-making skills for farmers to adapt multi-commodity farming technologies to local conditions and markets; and 3) development and promotion of an integrated form of village-based participatory research and extension addressing the whole-farm production system — including the sustainability of natural resources and the protection of the environment. These will entail the transformation of the Farmer Field School alumni into Barangay Food Security Volunteers. IPM FFS alumni will be joined by members of other organizations such as Rural Improvement Clubs, 4H Clubs, NGO/church-based POs who will be tasked with taking care of the locale's food, community, and the environment. Among others, they will: 1) monitor food security; 2) demonstrate model farms and processing centers; 3) establish village seed nurseries; 4) carry out farmer-managed crop and animal pest and disease surveillance systems; 5) develop village waste recycling facilities; 6) set up village bio-control laboratories; and 7) undertake participatory action research.

Questions/*Answers*:

- Mr. Nugroho Winarto from the FIELD Indonesia Foundation asked a question (in relation to the work that had been started on high yielding varieties (HYV)) on what the relation between high yielding varieties (HYV) and hybrid rice is. *Response: I do not believe in hybrid but farmers can produce HYV and can brand it.* Mr. Winarto also commented that the concept of farmers as "barangay" (village) food security volunteers seems to be a big thing. *Response: It seems complicated but it is simple. We just have to ensure that decisions are made by farmers.*
- Mr. Ngo Tien Dung from the Plant Protection Department, Vietnam inquired about the government's position on Genetically Modified Organisms (GMO). *Response: I do not*

want to comment on it. But I am trying to argue on the need to establish refugia for natural enemies.

- Mr. Jan Willem Ketelaar from the FAO Regional Vegetable IPM Programme expressed appreciation for the excellent presentation. He added that the reason that participants were in the meeting is to talk about farmer education. He reminded participants to think about what the countries needed from FAO, i.e., what FAO can contribute to farmer education.
- Dr. Paul Ferrar, Team Leader of the Review Mission commented that the response of the country representatives as to what FAO can contribute to farmer education was important, especially for the Review Mission team.

4 Other Presentations

Chairperson: Mr. Nugroho Winarto. Director, FIELD Indonesia Foundation

4.1 Overview of PAN AP and Partners' Collaborative Work and Initiatives in Farmer Education, Risk Reduction and Sustainable Agriculture

Ms. Bella Whittle. Pesticide Action Network – Asia Pacific, Ms. Sun Jing. Pesticide EcoAlternative Centre (PEAC), Mr. Keam Makarady, Cambodian Center for Study and Development in Agriculture (CEDAC) and Ms. Pham Huong Thao. Research Centre for Gender, Family and Environment in Development (CGFED)

Pesticide Action Network Asia and the Pacific (PAN AP)[3] was introduced by Bella Whittle, highlighting the Community Pesticide Action Monitoring (CPAM) approach, which links local level training and action with policy advocacy, organising, and promotion of alternatives.

PAN AP is currently involved in the Swedish-funded programme for pesticide risk reduction in the Mekong Sub-Region entitled "Towards a non-toxic environment in Southeast Asia". Currently in Phase 1 of the project, PAN AP and partners are focused on "broad awareness raising about issues related to agricultural chemicals- among the public at large, governments, private sector, consumers, farming communities, rural youth", through the components of CPAM, support to databases and their use, policy research and advocacy, and public education.

Three partners of PAN AP shared their work in CPAM under this programme in 2008 (all including photo documentation available in the powerpoint presentation):

Sun Jing from the Pesticides Eco-Alternatives Centre (PEAC) described monitoring conducted in two study sites in Yunnan: Kunming and Shizong. Major findings were shared on pests, natural enemies, and pesticide practices. Strong reliance on pesticides was observed. Even with local government's regulation and monitoring, some illegal use (methamidophos) was found, and some incorrect disposal of containers and poisonings noted. PEAC undertakes awareness raising, participatory alternatives development and provides an information platform on pesticides.

Makarady Keam from the Cambodian Centre for Study and Development in Agriculture (CEDAC) shared on CEDAC's monitoring in several provinces in Cambodia following consultation and training of Key Farmers and Young Community Volunteers. Results of a survey found a majority of labels written in foreign languages and some trends observed include increasing herbicide use, mixing different kinds of pesticides, BPH attacks and donations of pesticides. CEDAC also undertakes education activities (ecological agriculture, system of rice intensification and organic agriculture), publications, and a regular radio programme.

[3] Presenters' URLs: PANAP: www.panap.net; CEDAC: http://www.cedac.org.kh/home.asp; PEAC: http://www.panchina.org/english/; CGFED: http://www.cgfed.org.vn/index.php?option=com_content&task=view&id=24&Itemid=27&lang=english

Pham Huong Thao from the Research Centre for Gender, Family and Environment in Development (CGFED) shared some key results of monitoring in Thai Nguyen (tea production) and Nam Dinh (vegetable and rice production). One observation was a changing role from men to women in agricultural production, with women's health affected by pesticides. As factors, reliance on pesticides for production, low education and lack of PPE were noted. CGFED recommends a focus on women, food security and pesticides, through study, awareness raising and a workshop.

Questions/*Answers*:

- Dr. Jesie Binamira from the National IPM Programme, Department of Agriculture Philippines raised two problems: 1) International trade especially in banned or generic Class 1 pesticides (they cannot be used safely); and 2) The problem of donor funding of pesticides in agricultural development programmes. What is PAN AP doing on these issues*? Response: PAN AP is critical on these issues, and is aware of the problems raised. While no specific position paper is available, PAN AP will include these issues further (in the planning for future work and campaigning in this region. (NB: PAN AP has always taken a strong position against cross border trade of illegal pesticides, and has in its history opposed pesticides donations).*
- Mr. Johannes Ketelaar from the Regional Vegetable IPM Programme raised the subject of paraquat, and suggested that PAN AP share with the Chinese delegates the problems with this herbicide. (*Agreed. PEAC and PAN AP to discuss this with Chinese delegates.)*
- Dr. Dam Quoc Tru from the PPD, Ministry of Agriculture and Rural Development, Vietnam questioned the kind or degree of policy interventions (as mentioned in third slide) and what the relationship should be. (*Forms of advocacy and campaigns were elaborated on, noting the relationship with the local group.)*
- Ms. Dada Abubakar from the Regional Vegetable IPM Programme suggested that NGO-Government relations in Vietnam should be discussed. (*Agreed and discussed later in small group meetings).*
- Mr. Ngin Chhay from the Department of Agricultural Legislation-MAFF, Cambodia clarified that IFAD does not give money to farmers to buy pesticides.

4.2 Towards a Non-Toxic Environment in SouthEast Asia

Mr. Marut Jatiket. Director, The Field Alliance and Thongdam Phongphichith. Programme Officer, Community Development and Environment Association (CDEA)

In mid 2007, The Field Alliance (TFA) conceptualized the Rural Ecology for Agriculture and Livelihood (REAL) Project under the Swedish-supported regional initiative "Toward a Non-Toxic Environment in SE Asia". TFA works with partners organizations in Lao PDR (Community Development and Environment Association-CDEA), Cambodia (Srer Khmer and Agriculture Technology Services Association-ATSA), Vietnam (Center for Rural Progress-CRP) and Yunnan, China (Pesticides EcoAlternative Center-PEAC). Major activities that have been undertaken since 2007 include: regional training on Agro-Biodiversity Conservation (ABD) and Health Impact Assessment, monitoring and technical support to in-country trainings and activities. In 2008, activities on regional exchange and networking of REAL Project partners commenced. In addition, TFA supported the FAO School/ IPM programmes in the Philippines by assisting in workshop planning and carrying out monitoring visits to their activities.

Major outcomes included under the REAL project are: curriculum on ABD and PIA adapted and translated in Khmer, Chinese, Laos, and Vietnamese; and REAL activities integrated into the school system and teachers, students and communities participated in various activities. Approximately 1,000 students from 20 schools, 100 farmers, and 75 staff from partner organizations have participated in various activities. In addition, several ABD conservation projects were initiated by schools and communities with support from key stakeholders in the community. Currently, the project has created awareness among key segments of the public on

pesticides risk reduction and on the importance of ABD at the community and district levels. However, the benefits of ABD need further exploration and there is a need to establish linkage with government and global priorities aimed at increasing farm productivity, reduction of poverty, increased Food and Nutritional Security and environmental conservation as to solicit support and disseminate information on REAL activities. Upcoming activities are aimed at expanding the project as well as collaborating and integrating efforts with FAO and partner organizations in each country as to work together in convergence areas piloting activities on pesticide risk reduction.

Questions/*Answers*:

- Dr. Prabhat Kumar from the Asian Institute of Technology, Dr. Jesie Binamira of the National IPM Program, Department of Agriculture Philippines, and Mr. Thongsavanh Taipangnavong from the FAO Vegetable IPM Programme Lao PDR commented on the possible error on the data on the amount of active ingredient on slide #27 in the presentation.
- Dr. Jesse Binamira from the National IPM Programme, Department of Agriculture Philippines shared information from the country on the presence of a biodiversity group/advocates whose organization is attached to the Department of Education. Biodiversity is managed under a bigger umbrella. (*Biodiversity is a global initiative under the UN FAO biodiversity and food security project.)* He also raised a concern about the concept of "safe use" while there is still a prevalence of Category I pesticides in local markets.
- Mr. Harry van der Wulp from FAO Rome added his view on the concept of "safe use" of pesticides, i.e., that there is no safe use of pesticides. He mentioned FAO's position on efforts reduce risk related to pesticide use, namely: 1) reduce/cut use of pesticides; 2) use those that are less risky; and 3) proper use of pesticides. In addition, he mentioned that there has been a significant progress made in cutting down the marketing and use of Class I pesticides. In China, the use of organophosphates (OPs) has been reduced by 60% as a result of the ban on use and production of the 5 most toxic OPs. Thailand banned Class I pesticides since two years ago. Vietnam is also following the same trend. There has also been a reduction in the use of methylparathion in Cambodia. Five years ago, Class I pesticides could be seen in many shops but the same pesticides are hardly found today. In terms of enforcement, FAO is working with Cambodia and Laos to educate traders and coming up with more stringent measures and licensing guidelines will be more strict.

4.3 Field School-related Programs
Mr. Nugroho Wienarto. Director, FIELD Indonesia Foundation

FIELD Indonesia Foundation activities basically use Farmer Field School and Action Research approaches learned and practiced in IPM Programmes across the region to continue work with rural communities in broader context but in smaller scales. The following cases were presented: Field School for Microwatershed Conservation to support the Environment Services Programme, Field School on Vegetable Gardening to support the Household Food Security and Nutrition Programme, Field School on Model Conservation Villages to support the Orangutan Conservation Services Programme, and Field School on Participatory Varietal Selection and Participatory Plant and Goat Breeding to support the Program on Plant and Animal Genetic Resources. In addition to field school on vegetable IPM and farmer studies on oranges, FIELD has also experienced supporting rural communities in conducting action research for livelihoods as part of advocacy activities of local governments and parliaments.

Questions/*Answers*:

- Ms. Sun Jing from the NGO Pesticide EcoAlternative Centre (PEAC), China asked two questions: 1) how seeds are shared in the community; and 2) whether storage facilities are provided for the community. *Response: Many countries have implemented "seed banks"*

but were not successful. The FIELD Indonesia Foundation does not encourage farmers to manage big seed banks."

- Dr. Jesie Binamira from the National IPM Programme, Department of Agriculture Philippines commented that seeds can be stored by Universities.
- Mr. Binod Saha from the Nepal National IPM Programme asked about mechanisms to ensure seed quality in programmes supported by the FIELD Indonesia Foundation. *Response*: *There is no single answer. You have to work with resource-poor farmers and work out with them acceptable standards in dealing with distribution and maintaining seed quality.*

4.4 Schools, Community, and Environment: Glimpses of the Agro-Biodiversity Conservation and Pesticides Impact Assessment Project in Davao del Norte, Philippines
Mr. Mario Corado. IPM Consultant, FAO, Manila

The Agro-biodiversity and Pesticide Impact Assessment Project which commenced in September 2007 is a collaborative effort of the FAO Regional IPM Programme on IPM for Vegetables, Thai Education Foundation, and the Province of Davao del Norte. The project, implemented by the Provincial Agriculture Office and Department of Education of Davao del Norte, aims to build the capacity of local trainers, farmers, teachers, and school children in conservation of farmland animal and plant species and evaluate pesticides impact on health through schools, community, and FFS activities. It also aims to strengthen integration of environment concepts in the school curriculum and core subjects such as Mathematics, Science, and Language courses.

The project works with eight schools and four FFS groups in selected municipalities of Davao del Norte province. Project activities include capacity-building, teaching materials development, evaluation workshops, training on living soils, and others. Local species of trees, frogs, eel, and catfish are some of the species selected by schools for their conservation activities. Schools have started working with Parents, Teachers, and Community Associations to ensure greater involvement of the community in the agro-biodiversity efforts.

Studies on the Impact of Pesticides on Health have also been carried out by students and FFS groups focusing on areas such as types of pesticides used in different crops, spraying behaviors, and storage practices. Pesticide use in rice, for example, was observed to be low. However, the threat to the agro-biodiversity conservation initiatives come from heavy use of aerial and ground sprays on banana plantations.

Strong local government support contributed significantly to the success of the pilot agro-biodiversity conservation activities. There is a need to conduct in-depth studies on the impact of pesticides from banana plantations on the project communities and sustain the agro-biodiversity project for another two to three years so that tangible results are realized.

The project is slowly involvement of the community in the conservation efforts provided support for the pilot implementation of Schools and Community Farmland Biodiversity (BD) Conservation and Pesticide Impact Assessment (PIA) Project in selected schools and farmer groups in Davao del Norte. The project is being implemented in collaboration with the Provincial Government and the Provincial Agriculturist Office (PAGRO) and the Department of Education, Davao del Norte province. The project is funded by the Provincial Davao government and Food and Agriculture Organization (FAO) under project GCP/RAS/NOR/2009.

The Project served as a follow-up of the work done under the Children Participation in Integrated Production and Pest Management (CP IPPM) Program implemented by World Education (INGO) in the provinces of Antique, Camarines Sur, and Davao del Norte from 2003 to 2005. The CP IPPM Program goals, among others, included strengthening environmental education and discovery-based learning.

Capacity building for teachers and trainers using participatory learning approaches are the cornerstones of Project implementation. The Project also aims to develop learning materials to ensure the integration of Farmland BD Conservation and PIA concepts in core subjects in the elementary and secondary schools curricula.

Davao del Norte Province was selected for this pilot project for the following reasons: a) a pilot IPM in School Program with support from the FAO was implemented in the province as early as 1998; b) World Education with support from the Netherlands Government continued and expanded activities in the province from 2002 to 2005; c) there is an existing core group of IPM trainers in schools, non-government organization, farmer organizations, Provincial Agriculturist Office, and local government units who have the experience to manage IPM programs, d) strong support from the Regional Agriculture Office and KASAKALIKASAN (National IPM Program, and e) demonstrated strong local government support including counterpart funding to the implementation of Farmland BD Conservation and PIA activities.

This report provides updates of the Farmland BD Conservation and PIA project activities in Davao del Norte Province.

No Questions/*Answers* on the presentation

5 Theme Presentation and Discussions: Impact Assessment - Lessons Learned and Recommendations

Chairperson: Mr. Harry van der Wulp. Senior Policy Officer, FAO Rome

Dr. Harry van der Wulp introduced the session by stating the importance of Impact Assessment (IA): 1) as a reality check; 2) in demonstrating how the programme contributes to the reduction of pesticides and rural poverty; and 3) as a tool for advocacy. He added that IA requires practitioners to be careful about the methodology of the study particularly because there are some factors that may influence the results such as: 1) choice of control groups; 2) influence on reduction of pesticides when subsidies are cut; and 3) other factors.

5.1 Report on Impact Assessment of China/FAO Vegetable IPM Farmer Field School Programme in Yunnan Province, P.R. China
Mr. Yang Puyun. Deputy Director of Pest Control Division-NATESC

The impact assessment of vegetable IPM-FFS was carried out in 11 villages of four vegetable-growing prefectures (Yuxi, Kunming, Chuxiong and Lijiang) in Yunnan Province, China PR during the period 2003-2007.

The study revealed that there were significant gains in knowledge about vegetable pests, natural enemies, pest ecology and management among the FFS farmers after training. However, no significant changes of knowledge about natural enemies, ecology and pest management among the control farmers were observed before and after training. The study showed that the IPM-FFS enabled farmers to acquire simple pest knowledge as well as complex ecological knowledge.

This study clearly demonstrated that FFS farmers significantly reduced their use of pesticides, but the reduction patterns varied substantially in different crops and by using different indicators (measurements). The EIQ study[4] clearly demonstrated that FFS farmers significantly reduced their pesticides risks, but the reduction patterns varied for different vegetable crops as well.

[4] Environmental Impact Quotient (EIQ) is an indicator for measuring loads of pesticide risks to farm workers, consumers and the environment.

Economic analysis revealed that FFS farmers increased their economic efficiencies for all the three surveyed vegetable crops (sugar pea, Chinese cabbage and broccoli) after participating in FFS training, by increasing or maintaining their yields and revenues.

The benefit costs analysis of China/FAO vegetable IPM-FFS in Yunnan project demonstrated that net present value of the IPM-FFS project is 1,171,736.5 US$ and that of the conventional training project is 107,841.2 US$. The benefit cost ratio is over 1 using a discount rate (CPI) of 12% for IPM-FFS project. The IRR for IPM-FFS project is as high as 37%. **This study has shown that the investments in vegetable IPM-FFS is well justified.**

The education investment through FFS has produced outcomes beyond vegetable IPM, i.e., farmers' contributions to social and community developments. Results clearly demonstrated that the IPM-FFS training has significant impacts and advantages over the conventional training in terms of human resources, economic, environmental and health developments. Recommendations for further improving the vegetable IPM-FFS were put forward based on key findings of this study.

The lessons learned from the impact assessment, challenges faced and suggestions for conducting future Impact Assessment Studies were also discussed.

After the presentation from the Chinese delegation, Mr. Harry van der Wulp asked representatives from the other GMS countries to share their experiences on IA.

5.2 Highlights of Impact Assessment on Rice and Vegetable IPM in Vietnam
Mr. Ngo Tien Dung. Chief of Plant Protection Division, PPD-MARD and National IPM Programme Coordinator

- farmers change vegetable crops over seasons as per market demand and so data analysis is difficult due to these changes;
- extreme weather conditions affect yields and thus results of Impact Assessment studies;
- in assessing the impact of food safety – it is difficult to select control groups as IPM training/FFS have been conducted in all villages in the country ;
- problems in data collection by farmers;
- a lot of information - sometimes too much - is collected and difficult to analyze, if possible to analyze at all;
- there is a need to strengthen efforts in assessing impacts of follow-up activities, farmers need to be trained more on bookkeeping activities;
- there is a need to conduct in-depth case studies.

5.3 Key Constraints of the Impact Assessment Study in Cambodia
Mr. Ngin Chhay. Deputy Director, Department of Agricultural Legislation-MAFF and National IPM Programme Coordinator

1) **Too many crops mixed together**
   - Different crops have different characteristics and practices
   - Requirement of inputs are different, so the management is also different
   - As a result it comes to a comparison of a pear and apple

2) **Different interviewees**
   - Farmers attending only 2-3 sessions were targeted as IPM farmer groups
   - The one who completed FFS was absent, other members of their family were interviewed and answered the interviewers' questions

- After receiving training on a particular crop, they stopped to grow that crop because of low market demand
- As a result the respondents are not representative of IPM/FFS group

3) Different interviewers

- The pre- and post- interviewers were different
- They had not been trained well on data collection
- They have limited knowledge and field experience, especially on pests and pesticides
- As a result some data collected are confusing and sometimes are not reliable and unrealistic

4) Recall data

- Farmers did not make records on inputs used and their expenses, instead they provided information based on their recollection/what they can remember
- Farmers could not read the labels written in foreign languages on chemical fertilizers and pesticides
- As a result wrong information was collected

5) Unclear questionnaires

- Too many questions asked, but not all information was relevant
- Important and relevant questions were missing
- Some questions are not very clear on the information that was needed from the respondents
- As a result there is insufficient information for analysis

Final point: It is worthwhile to realize that Impact Assessment is not a straight forward job especially on vegetable crops given the complexity and complicated nature of its production. In Cambodia, only a limited number of people/consultants are qualified and experienced to be able to satisfactorily carry out impact study and then still the design, implementation, analysis and write up of a solid IA study is quite challenging and resource-demanding.

Questions/*Answers*:

- Dr. Jesie Binamira from the National IPM Programme, Department of Agriculture Philippines shared some issues and considerations in carrying out IA: 1) IPM is both a process and a technology and there is a need to be clear on which of the two aspects is being assessed; 2) since IA has to be precise, there is a need to consider the following in the selection of respondents – time of training, gender, age; 3) the acceptability of the EIQ Model; and 4) impact is simply the happy face of the farmer.
- Mr. Ngin Chhay from the Department of Agricultural Legislation-MAFF, Cambodia commented that care must be taken in carrying out IA, particularly on who conducts the study, because there are cases where the data could be used against the IPM Programme.

6 Presentation and Discussions of Final Review Mission Findings (Reference to presentations and country consultations on the Final Review Mission findings)

Final Review Mission of the Phase II FAO Regional Vegetable IPM Programme
Dr. Paul Ferrar. Team Leader of Review Mission

The members of the Final Evaluation Team were: Dr. Paul Ferrar (Team Leader), Dr. Pham Van Du (Country Representative, Vietnam), Mr. Carlos Tarazona (FAO Evaluation Section), and Mr. Jens Rydder (Norwegian Government/donor representative).

The Final Evaluation Mission visited Vietnam (north and south), China (Yunnan and Beijing) and Cambodia. The remainder of their evaluation was based on reports and interviews with country representatives at the Bi-Annual Meeting.

The Evaluation Team found that the programme used a well-developed system of Farmer Field Schools and Training of Trainers to deliver IPM to increasing numbers of farmers in the participating countries – particularly the Greater Mekong Sub-Region countries. The Programme was highly relevant to the countries' needs, and fitted well with national priorities for food security, food safety, environmental protection and income generation for farmers.

The National IPM Programmes in each country are now running their own IPM training (to varying extents), with quality control and technical inputs from FAO. As a result, increasing numbers of farmers are now using IPM, and these farmers are also teaching IPM to other farmers. Pesticide use has decreased, crop yields and farm incomes have increased, and farmers and their families have reported improvements to their health.

The Evaluation Team considered that National IPM Programmes are now well established and well supported by the government in Vietnam, China and Thailand. Good progress has also been made in Cambodia and Lao PDR, but the governments of those countries have not been able to support IPM activities to a major extent. Some involvement of NGOs has helped, but FAO remains a key player in those two countries.

The Evaluation Team concluded that vegetable IPM in future should be the responsibility of National IPM Programmes in each country, with FAO providing quality control and specialist technical assistance as required. The exceptions may be Cambodia and Lao PDR which may continue to need assistance with IPM implementation in the future.

There is also scope for increased regional cooperation facilitated by FAO, with countries exchanging information and sharing experiences with IPM implementation. All work should integrate with national policies on food safety, safe pesticide use and food security, and attention should be given to appropriate market chains for IPM produce.

Questions/*Answers*:

- Dr. Dam Quoc Tru from the Plant Protection Department-MARD, Vietnam requested for a copy of the Final Review Mission report as to present it to staff members from his Department. Later he added that (in the GMS countries) IPM work should be sustained specifically in line with pesticide risk reduction, food security, and food safety and that FAO should be there to provide technical support, e.g., on Maximum Residue Levels (MRLs).
- Ms. Bella Whittle from PAN AP inquired about the meaning of soft pesticides. *Response*: *Soft pesticides usually include those that have low mammalian toxicity; degrade fast; are not toxic to natural enemies; does not cause resistance problems; and are mostly biological control agents. - Harry van der Wulp*
- Mr. Harry van der Wulp from FAO Rome shared two points: 1) in support of the issue raised by Dr.Tru, there are organizations in Vietnam that address food safety but the missing part in their activities are the farmers; and 2) in Cambodia, the pesticide conference led to the conceptualization of the Swedish project which includes dealing with the industries.
- Mr. Johannes Ketelaar from the Regional Vegetable IPM Programme said that the programme should evolve towards pesticide risk reduction, food safety and income generation as well as scaling up as to reach a larger number of farmers. These would depend on the uptake of the programme at local levels as well as decentralization.

7 Plenary Presentations on Additional Meetings

7.1 Summary Discussions on Meeting on ongoing Community Education Initiatives for Pesticide Risk Reduction in GMS (*for GCP/RAS/229/SWE countries*)
Mr. Marut Jatiket. Director, The Field Alliance

Participants were divided into country groups; each group comprised of GO and NGO representatives. Summary discussions on common countries activities and interests are provided herewith:

1. **Farmer Education:** The overall country interests along this area include (a) the revision of FFS curriculum to integrate food safety, GAP, pesticides risk reduction, agro biodiversity, markets, etc.; (b) impact assessment of pesticides on health and environment in the communities; and (c) campaign and dissemination of information about FFS and Pesticide Risk Reduction in communities, provincial and national agencies via a variety of activities and involving all stakeholders.
2. **School and Communities:** Further improvement of program and curriculum on HIA and ABD with the educational systems is recommended. Also suggested are activities on (a) studies of impacts of hazardous waste on health/environment of communities; (b) habitat studies of local and indigenous species; and (c) campaign, dissemination and awareness raising in the communities.
3. **Pesticides Regulatory Issues:** Common interests mainly refer to improvement of programme activities and development along pesticide regulations, laws, enforcement, and management. Also recommended are development of (a) guidelines for local authorities and communities; (b) dialogue with pesticide industries on "Stewardship"; and (c) policy recommendations workshop on Risk Reduction, impact assessment and FFS..
4. **Cooperation and Collaboration between Government and Civil Societies' program**: This effort can done through, for example, (a) sharing and dissemination of information particular on Pesticide Risk Reduction efforts; (b) joint technical support to ToT, FFS and activities to integrate work carried out by GO-CSOs; and (c) strengthening and/or seeking collaboration with public health and environment ministries.

Re: regional support, requests from the countries include (1) financial contribution; (2) technical assistance to curriculum development; (3) sharing and exchange of information on plans and strategies for ABD and PRR; and (4) coordination and collaboration for exchange of efforts and participation in events at the Regional level.

Summary Discussions of country groups are attached to this report as Appendix 4 Summaries of Country Group Discussions on ongoing Community Education Initiatives for Pesticide Risk Reduction in GMS (for GCP/RAS/229/SWE countries)

Questions/*Answers*:

- Dr. Jesie Binamira from the National IPM Programme, Department of Agriculture Philippines commented on: 1) the need to integrate IPM in GAP particularly because sometimes there are conflicts between GAP and IPM implementation; and 2) the need to get poisoning issues in the agenda of the ASEAN Ministers' Meeting.
- Mr. Ngin Chhay from the Department of Agricultural Legislation-MAFF, Cambodia mentioned that cross border illegal trade of pesticides has always been a top agenda in previous Bi-Annual Meeting discussions. He raised two questions: 1) what is the group's position on the matter? and 2) how can a common action be formulated to address the issue of cross border illegal trade of pesticides?

- Mr. Harry van der Wulp from FAO Rome commented that the issue of cross border illegal trade of pesticides had not been fully discussed in previous meeting and for this reason, it is included as an agenda in the current Bi-Annual Meeting for the APPPC- IPM Standing Committee. He added that for pesticides under WHO Category Class I, there is a need to refer back to the Rotterdam Convention as it requires two sides to effectively curb illegal trade, monitoring and enforcement.
- Dr. Jesie Binamira from the National IPM Programme, Department of Agriculture Philippines added that in some countries, enforcement by Government is strong at the farmers' level but very lax when it comes to pesticides that are being used in plantation crops.
- Mr. Binod Saha from the Nepal National IPM Programme mentioned that his country also has porous borders. Following the principle of increasing taxes on cigarettes to discourage people from using them, he asked if this could be applied to pesticides. *Response*: *There are many problems related to illegal trade of pesticides in Cambodia. For example, the Ministry only thinks of the end product but not issues/concerns at the point of production. In addition, staff members from the Customs Department manning the borders have no knowledge and training about pesticides. Increasing the taxes on pesticides may result in more illegal trade. - Ngin Chhay; Controlling illegal trade at the border and at the farm is difficult so the focus now is on the shops and near the vicinity of pesticide industries. The sanctions may include: fines, providing a list of banned pesticides, legislations.- Harry van der Wulp*

7.2 Summary Discussions on Interim Meeting of Asia and Pacific Plant Protection Commission –IPM Standing Committee: Lessons and Experiences in BPH and Brontispa Management
Mr. Ngin Chhay. Chairperson, APPPC- IPM Standing Committee

1. BPH Situation

- Serious breaks of BPH occurred during 2005-2007 mainly in Viet Nam, China and Cambodia, but the problem is now reduced. However, it is uncertain whether the problem will occur again;
- Root causes of the outbreaks mainly include mis- and overuse of pesticides destroying ecosystem balance and using susceptible varieties, possible change in biotype and climate change;
- Some interventions particularly subsidies on pesticides and spraying campaign have caused more problems;
- BPH also carry plant virus diseases such as ragged and grassy stunt posing extra challenges;
- Key Best Practices:
  - Education of all concerned players including policy makers on understanding ecosystem functions and responses;
  - Continuous monitoring (using light traps) to understand BPH population dynamics;
  - Use of synchronized planting and escape strategies;
  - During outbreaks, BPH are collected using nets and local policy on buying collected BPH from farmers (Cambodia);
  - In cases of high population and high virus infection, soft pesticides like Butyl and Buprofezin are used (Viet Nam);
- More research is needed to learn the impact of climate change and BPH migration behavior and pattern;
- Capacity building is needed on the use of ELISA method for virus testing in many countries, including Cambodia;
- Migration studies should dwell on local and long-distance migration;

- APPPC and FAO should try to coordinate means for sharing information, best practices and other related information on BPH. FAO should help to mobilize more funds for needed research and for farmer training.

2. Coconut Beetle

- Coconut beetle has been and is still a problem for coconut production in Viet Nam, Thailand, Laos, Philippines and Cambodia;
- Some control methods using pesticides (such as Actara stem injection) have been introduced but were not effective and Bt has also been tried but application was difficult;
- FAO has provided assistance for a biological project on the introduction, rearing and releasing of *Asecodes* sp in Viet Nam, Thailand, Laos and Cambodia. The results are very good in Viet Nam. The study showed that three years after parasitoid releases there is only a 2-3% re-infestation. However, parasitoids need to be released continuously with an appropriate number as to be effective. In Cambodia and Laos, the number of parasitoids released was small and there was a problem with low survival rate in the dry season (hot temperature);
- A predator called earwig is also effective for the control of this insect and it is comparatively easy to produce. However, earwigs are not host-specific and there is a problem with bringing them to close to the host in the coconut trees;
- In Thailand there are some private companies like Beer Chang that have ventured into commercial rearing of parasitoids. However, the mummies of parasitoids brought from the private sector were reported to have some problems;
- Sevin applied in the laboratory proved to be the best control for coconut beetle. However, the problem of applying it in the field remains;
- Food source and availability for the parasitoid is a major problem along with labor requirements. Bacterial contamination on larvae of coconut beetle is also a problem;
- Chemical control such as using Actara and Bt is not a viable and sustainable option. Rearing and releasing parasitoids seem to be the best method that has high potential and efficiency to control coconut beetle;
- Each country needs to set-up small labs near to the place where coconuts are grown and farmers have access, e.g., at district level and government support is needed both for activities related to collecting from nature and rearing the natural enemies in the laboratory;
- Thailand and Vietnam are willing to provide initial culture of and accept participants from other countries for training on the use of parasitoids as a biological control agent;
- Budgetary support is needed at country and regional levels to do more research on topics such as the required number of mummies of parasitoid per plant, functions of other natural enemies, long term population establishment studies and indigenous natural enemies;
- APCC (Asia-Pacific Coconut Commission) Jakarta needs to be taken on board to further persuade officials from the Philippines Coconut Authority to accept the use of parasitoids based on experiences in the Philippines. Data on the efficiency of *Asecodes* as a host-specific parasitoid for the control of CHB is needed by the Philippines.

3. APPPC and ASEAN-IPM

- ASEAN IPM is primarily aimed at networking and sharing of information and there is no funding support available for supporting activities on the ground.
- The Technical Working Group on Agriculture Training and Extension in ASEAN should have members from IPM communities. At the moment, this TWG is not supportive of IPM. However, another group in the ASEAN, the Senior Officer Meeting (SOM) is very supportive to IPM activities.

- NPPO from some countries, e.g., Cambodia who participate APPPC meetings are not supportive to the IPM agenda, hence change is needed as to provide support to the IPM agenda in APPPC.
- FAO IPM Programme should support IPM partners from member countries to participate, as official government representatives, in plant protection related meetings of ASEAN and also to the APPPC.

Questions/*Answers*:

- Mr. Marut Jatiket. Director of The Field Alliance asked if the Government can also promote the field collection of coconut beetles like it buys BPH.
- Dr. Jesie Binamira from the National IPM Programme, Department of Agriculture Philippines requested for clarification on the production by Beer Chang of parasitoid mummies for biological control of coconut beetle. *Response*: *It was the Government who provided 50 million Baht so that the project can commence.- Lawan Jeerapong.*
  Dr. Binamira also raised the concern about representatives from National IPM Programmes (supported by FAO) not being considered as official delegates in APPPC meetings. As such, they are not given a "voice" in the meetings. They should be part of the official delegation from countries so that they can actively participate in policy formulation. It was unfortunate that the FAO Regional Plant Protection Officer (who is also the Secretary of the APPPC) was not around to comment on the issue that was raised.

8 Workshop evaluation

In order to help improve future Bi-Annual Meetings, an evaluation of the current one was conducted by obtaining feedback from participants on its strength and weaknesses. The main findings as highlighted below are:

Participants' Evaluation of **meeting facilities** (answers expressed as % - based on the number of responses received)

Facilities	Excellent	Very good	Good	Fair	Poor
Meeting room	48	44	8		
Lodging	56	32	12		
Food	44	44	12		

Other comments:

- DSA was poor
- No comments, excellently managed
- Thank you for excellent organizing work by FAO (Nawarat)
- Internet access was limited and expensive

Participants' Evaluation of **training content** (answers expressed as % - based on the number of responses received)

Training content	Excellent	Very good	Good	Fair	Poor
Country and CSO presentations		79	21		
Presentation of Review Mission Findings	13	83	4		
Consultations with Review MIssion	12	76	12		
Theme Discussions (Community Education for Pesticide Risk Reduction/IPM Standing Committee)	9	74	17		
Plenary on Summary Discussions of Sub Group Meetings	8	84	8		

Other Comments

- Should conduct Field Trip
- Possible new technical inputs by resource persons for refresher and/or new ideas

Participants' Evaluation of **meeting organisation** (answers expressed as % - based on the number of responses received)

	Excellent	Very good	Good	Fair	Poor
Process	37	50	13		
Scheduling of Activities	20	68	12		
Facilitation	24	68	8		

Other Comments

- No

Suggestions for future meetings:

- Process should be initiated 2-9 months earlier
- Should be a bit more interactive
- Should include more technical aspects for discussion
- Should be organized every year as to find problems and try to solve problems together
- Meeting should be longer to allow for field visit
- Media from each country should be shared and displayed (like small exhibition)
- Country presentations should focus on themes rather than describing country programme similar to the November 2005 meeting at Kanchanaburi
- Should include topics/discussions on new initiatives on IPM
- Should include topics/discussions on pesticide risk reduction (also pesticide industries), etc.
- Would be good to have a next meeting a year from now under the Swedish project
- Each country should bring media used in FFS for exhibition
- For Indonesia, please invite also government representatives

9 Wrap up and Closing notes

Mr. Ule Johansson, Mr. Piao Yongfan and Mr. Jan Ketelaar delivered the closing remarks for the Bi-Annual Meeting.

9.1 Mr. Ule Johansson, Senior Advisor, Swedish Chemical Inspectorate, Stockholm

Ule Johansson representing both the Swedish expert agency KemI as well as the Swedish donor SIDA, in his closing remarks, stressed the importance of the work done. He was impressed by all the activities and the results achieved so far. He compared regional cooperation in the Nordic countries with the regional cooperation developing under the FAO Regional IPM Programme. He saw equally positive signals of stronger networks, sharing of experience and methods, arranging regional workshops and a good support for the countries when they work at the national level. Even if he couldn't make any commitments at the meeting, Ule Johansson appeared positive with regards to a continuation of the Swedish-supported Pesticide Risk Reduction Programme after 2009 and stated that he would do his best to support a new proposal.

9.2. Mr. Piao Yongfan, Plant Protection Officer, FAO Regional Office for Asia and the Pacific, Bangkok

It is expected that the capacity of addressing new issues and challenges has been enhanced through implementation of the project especially those core cadres of training facilitators who have been involved in FAO IPM programmes for many years. There will be various opportunities to be involved in follow up post-project activities with improved knowledge/skills and continue to enhance the capacity in each country in terms of food safety, organic food production, GAP, BPH, coconut beetle management and agro-biodiversity approaches. These

activities may provide the chance for innovative evolution of IPM through various initiatives of these core group members and may strengthen their collaboration either at national or regional levels. The APPPC IPM Standing Committee might be one of preferable platform for exchanging information, experiences and lessons learned from such initiatives and approaches. It may also produce strong influence on senior officials/policy makers who will attend the APPPC Biennium Session and will follow up related action plans, that will impact country plant protection policy direction, country commitment and schemes concerned. Such demonstration of their potential capacity to various stakeholders may receive more and more support, create alliance and opportunity to practice and maximize the outcomes of IPM Programmes as well as ensure sustainable development in the countries.

9.3 Mr. Jan Willem Ketelaar, Chief Technical Adviser/Team Leader, FAO Regional Vegetable IPM Program, Bangkok

The CTA briefed the plenary meeting on the Final Review Mission's presentation on major mission findings and recommendation to FAO RAP staff and donor representatives. The debriefing meeting was held at FAO-RAP on Friday morning 14 November. Although no donor commitments were made, donors expressed appreciation with the mission's debriefing and positive project results and impact presented. The achievements that were seen by the Final Review Mission were only possible because of the hard work of all the partners and their commitment to the cause of farmers. Finally, the CTA expressed his thanks, on behalf of FAO, to all participants, organizers and resource persons for their contribution in making this a successful meeting.

As part of the Closing, the project website was launched. Participants were informed that they would be given the "username" and "password" so that they could access the website. Countries were invited, in particular, to view their respective webpages as to confirm or correct information that has been included. The website would be a "work in progress" and more and relevant information would continue to be added.

Everyone was invited to the Dinner Cruise before the Bi-Annual Meeting was declared closed.

10 Acknowledgements

Sincere thanks are due to the collaborating institutions and many people who have contributed to the success of the Bi-Annual Meeting, in particular:

- All country participants for their country presentations and active participation and cooperation in all the sessions,
- The Thai Government, Director and staff of the Department of Agriculture Extension for hosting the meeting,
- All resource persons for freely sharing their knowledge and experiences during formal presentations and discussions with participants, and
- The FAO Regional Vegetable IPM Programme staff for making the Bi-Annual Meeting possible.

Appendix 1 Concept Paper
Bi-Annual Regional Meeting for the FAO Vegetable IPM Programme
Bangkok, Thailand, 12-14 November 2008

Background:

Throughout Phase II of the *FAO Inter-Country Programme to Strengthen IPM Training and Sustain IPM Practices among Vegetable Farmers in South and Southeast Asia*, twice yearly meetings among project staff, national counterparts, and related organizations have been held in different member countries. Thailand will be hosting the last bi-annual meeting under Phase II of the Norway-supported project, and this is scheduled to be held in Bangkok.

The activity will be geared towards reviewing and summarizing the accomplishments over the past six years (2002-2008) of the farmer training programme on vegetable IPM. The meeting will also coincide with the de-briefing of the Final Review Mission.

Objectives:

The overall objectives of this meeting will be:

1. To share highlights of achievements and impact resulting from IPM FFS training interventions supported by the Phase II FAO Regional Vegetable IPM programme (2002-2008);
2. To present & discuss findings and recommendations of the Final Review Mission for the Phase II FAO Regional Vegetable IPM Programme;
3. To strengthen regional networking on matters concerning IPM, Pesticide Risk Reduction and farmer education among nationals, partner organization representatives and FAO staff;
4. To assess needs, opportunities and mechanisms for continued regional IPM collaboration beyond the current life time of the Phase II FAO Asia Regional Vegetable IPM Programme.

Organising and Funding Body:

The meeting will be organized by staff of the Royal Thai Government's Department of Agricultural Extension, Ministry of Agriculture and the FAO Regional Vegetable IPM Programme. All costs, including participant travel, will be covered by the FAO IPM Programme.

Dates, Location and Schedule:

The Meeting will be held at the Royal River Hotel, located in the heart of Bangkok on the Chao Phraya river. The dates of the meeting are for three days (not including travel and free time) from Wednesday to Friday, November 12th to 14th, 2008. A tentative schedule is attached in Annex I.

Participants:

Participants at the proposed workshop will total some 25-30 persons, including two to three persons from each of the core Greater Mekong Sub-Region member countries (Cambodia, China, Lao PDR, Thailand and Vietnam), 3-4 representatives from selected regional and donor organizations, resources persons and FAO Vegetable IPM Program staff. Partners from the Swedish Chemicals Agency and International NGO networks such as Pesticide Action Network – Asia Pacific and the Field Alliance, involved in the collaborative ongoing Pesticide Risk Reduction work in the Greater Mekong Subregion, will also be invited to participate in this meeting.

Preparation:

Each country is expected to prepare for the various agenda items included in the workshop. A brief outline of these expected preparations, along with general logistical information, is included in Annex 2.

Appendix 2 Programme
Bi-Annual Regional Meeting for the FAO Vegetable IPM Programme
Bangkok, Thailand
12-14 November 2008

Date	Time	Activity
Tuesday 11 Nov.	AM PM	• Arrival of participants • Preparations for the meeting (participants work on their own in respective country-groups) • Meals on their own
Wednesday 12 Nov.	08.30 AM	• Registration/Opening/Introductory notes • Country Presentations (Dr. Prabhat Kumar, Chairperson) ⇒ Thailand ⇒ Cambodia ⇒ China ⇒ Laos ⇒ Vietnam ⇒ BioForsk (Subcontract Research work in Vietnam)
		• Lunch at the Royal River Hotel
	PM	• Country Presentations (Dr. Dam Quoc Tru, Chairperson) ⇒ Bangladesh ⇒ Indonesia ⇒ Nepal ⇒ Philippines
	18.00	• Welcome Reception & Dinner, hosted by the Thai Government and FAO
Thursday 13 Nov.	AM	• Other Presentations (Mr. Nugroho Winarto, Chairperson) ⇒ Pesticide Action Network – Asia Pacific (PAN-AP) ⇒ The Field Alliance • Theme Presentation and discussions: Impact Assessment - Lessons learned and recommendations (Mr. Harry van der Wulp, Chairperson) *China IPM FFS Impact Assessment (2003-7)*
		• Lunch at the Royal River Hotel
	PM	• Plenary Presentations and Discussions of Final Review Mission Findings • Country-level consultations on findings/recommendations of Final Review Mission and formulation of priorities and recommendations for future Regional Exchange and Collaboration on IPM farmer education in the Asia Region
		• Free/ Dinner on their own
Friday 14 Nov.	AM	• Additional meetings and/or free time (see options below): o Option 1: Meeting on ongoing Community Education Initiatives for Pesticide Risk Reduction in GMS (for GCP/RAS/229/SWE countries) o Option 2: Interim Meeting of Asia and Pacific Plant Protection Commission – IPM Steering Committee
		• Lunch at the Royal River Hotel
	PM	• Plenary on Summary Discussions of Sub-group Meetings • Plenary Presentation on country-level consultations on findings/recommendations Final Review Mission and identification of needs/priorities for future Regional Collaboration, if any • Wrap up and Closing notes
	18.30	• Farewell Dinner hosted by FAO-IPM (River Cruise)
Saturday 15 Nov.	AM PM	• Continuation of additional meetings, if needed • Check out time 12.00 PM • Participants depart from Bangkok

Appendix 3 List of Participants and Contact Details

From	Name	Designation/ Organization	Email Address
Bangladesh	1. Mr. Md.Hasanul Haque	Project Director, Extension component, DAE, Dhaka	panna_hasan @yahoo.com
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	5. Mr. Meach Centmill	Programme Officer, NGO Srer Khmer, Phnom Penh	srerkhmer@online.com.kh
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Appendix 4 Summaries of Country Group Discussions on ongoing Community Education Initiatives for Pesticide Risk Reduction in GMS (for GCP/RAS/229/SWE countries)

Cambodia

Members:
Ms. Pan Sodavy, ATSA
Mr. Meach Centmille, Srer Khmer
Mr. Keam Makarady, CEDAC
Mr. Mr. Chou Cheythyrith, FAO Vegetable IPM Programme
Mario Corado, FAO IPM Consultant

Discussion outputs follow as presented by **Mr. Chou Cheythyrith** on behalf of the National IPM Programme and the NGOs:

- Training on Pesticides Impact on Health for Students and Communities: In the past, the National IPM Programme and CEDAC jointly trained communities on the Negative Effects of Pesticides on Human Health and the Environment. Srer Khmer and ATSA recently worked with students to educate them on Bio-diversity.
- Information Campaign on Pesticide Risks: the National IPM Programme and collaborating NGOs (CEDAC, Srer Khmer, ATSA) will work together to increase awareness amongst Cambodian people on the negative effects of chemical pesticides on human health and environment.
- Strengthening collaboration with Health Departments and Ministry of Environment: the National IPM Programme and collaborating NGOs (CEDAC, Srer Khmer, ATSA) have engaged in collaboration with Health Departments, Ministry of Environment and other organizations working on pesticide risk reduction issues in Cambodia. We will set up a network with all NGOs and government institutions working on these issues (including the National IPM Programme). The members of the network will hold monthly meetings and discussions on issues related to pesticide use, environment and other chemical used in agriculture, and how to solve the problems encountered.
- Pesticide Policy Regulation and Enforcement (Particularly on Trade and Importation): Activities along this area will be implemented by the Government (GoC) and the NGOs will also help to provide some information to the Government for use as inputs in the preparation of the pesticide policy and regulations. The NGOs will also help the Government to disseminate information on pesticide regulations to farmers.
- Capacity-building on Crop Production: The National IPM Programme will continue to build up farmers' capacity on crop production focusing on *organic farming and chemical-free* vegetables and rice. Furthermoe, the programme will continue to strengthen IPM Trainers' capacity through the conduct of Refresher Courses and technical trainings. Srer Khmer and ATSA will continue to work with students on *Biodiversity Conservation* on activities such as habitat studies on indigenous fish, fruits and crop species.
- Linking IPM Clubs to Market Networks through CEDAC: The National IPM Programme with link the IPM Clubs to available market of organic products that set up by CEDAC.
- Impact Assessment for Community and Impact Assessment of the Pesticide Risk Reduction Training Programme: The FAO Vegetable IPM Programme will support the conduct of impact assessment of the Pesticide Risk Reduction Programme through a Letter of Agreement with. the Royal University of Agriculture. The baseline data for impact assessment was collected in 2008.

China P.R

Members:
Mr. Zhou Jinyu, Yunnan PPS
Mr. Wang Kaixue, Guangxi PPS
Ms. Sun Jing, PEAC
Ms.Hu Xinmei, FAO Vegetable IPM Programme

Discussion outputs follow as presented by:

A. **Ms. Hu Xinmei** on behalf of Vegetable IPM Programme in China:

1. Workplan for the year 2009 for Yunnan and Guangxi, respectively

For Yunnan:

- Policy recommendation workshop at provincial level based on impact assessment studies
- RToT to imbed pesticide risk reduction component and strengthen IPM component
- More FFS
- Farmers' Congress
- Public awareness raising (VCD, pamplets, etc.)
- Case studies to capture highlights of programme development and serve as impact assessment

For Guangxi

- Provincial FFS Field Day to promote FFS approach
- RToT to upgrade Facilitators
- FFS
- Develop and experiment on various ToT training models
- Farmers' Congress
- Case studies
- Eco-engineering demonstration integrating green control technologies and agro-biodiversity conservation and utilization, etc.

2. Willingness to cooperate with NGO and other institutions like from the health sector on areas like public awareness raising, training resources sharing, and health studies

B. **Ms. Sun Jing** on behalf of PEAC:

1. Workplan for the year 2009

- Biodiversity and pesticide training for teachers and students for local communities
- Sharing of experiences with more schools and education administration
- Information platform establishment for training the teachers

Lao PDR

Members:

Mr.Boun Oum Douangphrachanh, DoA
Ms. Keooudone Philangam, DoA
Mr. Thongdam Phongphichith, CDEA
Mr.ThongsavanhTaipangnavong, FAO Vegetable IPM Programme

Discussion outputs follow as presented by **Mr. ThongsavanhTaipangnavong** on behalf of the National IPM Programme and the NGOs:

Workplans for 2009

Activities	National IPM Pro.	SAEDA	REAL
1. Pesticide Risk Reduction (PRR) curriculum development - Conduct workshop to revise current curricula with regard to PRR training	✓		✓
2. Pesticide Risk Reduction (PRR) ToT - Conduct training of Trainers (ToT) IPM and PRR courses on target high pesticide-use crops	✓		
3. Pilot Farmers Field School - Conduct pilot farmer field school on PRR in two provinces (Vientiane capital and Vientiane province)	✓		
4. Seminar - Organize a seminar on the effect of pesticide use on human health and environment for senior government officials, NGOs, and concerned projects	✓	✓	✓

Activities	National IPM Pro.	SAEDA	REAL
5. Baseline survey - Conduct baseline survey in Xayabouly, Oudomexay, Xiengkhouang, Vientiane Capital and Vientiane provinces as to assess pesticide use and distribution	✓		
6. Raising awareness/Campaign on PRR - Awareness raising activities through TV, Newspaper, Posters, Leaflets, and Radio broadcast	✓	✓	✓
7. Training on Monitoring and Evaluation on PRR - Conduct national training/workshop on M&E system	✓		
8. IPM-GAP FFS - Establish IMP farmer groups work in collaboration with other projects (e.g., Phonsoung Agriculture Development Poject) on safe vegetables and fruits production, e.g., Good Agriculture Practice (GAP) to better link farmers to markets	✓		
9. Sustainable Agriculture Farmers Group - Establish farmer groups on organic rice and vegetable production in Xiengkhouang province		✓	
10. Action Research - Undertake action research activities, such as field studies on pesticide reduction in water melon, cucumber, yard long beans and crucifer crops	✓		
11. Biodiversity and Conservation Agriculture Fair - Medicinal Plants - Local Vegetable, Fruits, Seed, NTFP varieties - Local Aquatic Resources - Nutritional preparation of Local food items - Handicrafts - Art Competition - And others	✓	✓	✓
12. Impact Assessment on PRR training - Organize workshop on IA design - Conduct impact study on the impact of pesticide on health and environment - Documentation	✓		
13. SA curriculum development - Develop training materials for improving curriculum for sustainable agriculture resource (handouts, media, and others)		✓	
14.Policy workshop - Organize policy workshop for policy makers and other related sectors	✓		

Vietnam
Members:
Mr. Ngo Tien Dung, Plant Protection Department-MARD
Ms. Pham Huong Thao, Research Centre for Gender, Family and Environment in Development (CGFED)
Ms. Bella Whittle, PAN-AP

Discussion outputs follow as presented by:
A. **Mr. Ngo Tien Dung** on behalf of National IPM Programme:

1. Current Situation

- In 2002, Ordinance of Plant Protection promulgated by the National Assembly (plant protection, plant quarantine, including IPM and pesticide management) currently being drafted into a Law
- In 2003, Decisions of Ministry of Agricultural Rural Development on Pesticide Management:
  ⇒ Pesticide registration and Use,
  ⇒ Formulation, distribution and trade
  ⇒ Inspection

- At Commune level: the implementation of the related pesticide management regulations and ordinance is quite weak
- Law enforcement on pesticide distribution and retail is weak (small amount of fines)
- Government has the Program on Safe Vegetables and Food Safety/GAP but the implementation at communes is very limited. The standards for safe vegetables and GAP need to be improved.

2. There are no studies on Impact of Pesticides on health (especially women's health), studies on effect of pesticides on the environment in all aspects (climate change, poverty reduction, food security, food safety, etc.)Future Role of the Plant Protection Department

- Elevating the Plant Protection Ordinance to Law in 2010 with support from FAO and other international organizations in the drafting process
- Revise the standards of Safe Vegetables + Viet-Gap (European-GAP, Asian-GAP)
- Strengthen enforcement of pesticide management, safe vegetable programme/GAP at commune level
- Education:
  - ⇒ Training curriculum: develop/revise curriculum for training on pesticide risk reduction, preparation of training manual on pesticide regulation
  - ⇒ Training on pesticide regulation for farmers, technicians, consumers, local authorities, mass social organizations
- Implementation in pilot areas (Hanoi and Thai Binh Province) of the community-based pesticide risk reduction and production with GAP orientation (stakeholders: farmers, local authorities, mass organizations, pesticide dealers, consumers):
  - ⇒ Pesticide management: training and development of commune regulations, generate commitment of stakeholders
  - ⇒ Safe vegetables
  - ⇒ GAP
  - ⇒ IPM
  - ⇒ Agro-biodiversity
  - ⇒ Establishing farmer organizations
  - ⇒ Cement tank for disposal of pesticide containers
  - ⇒ Collaboration with NGOs to organize the model
- Dialogue with pesticide companies on "product stewardship"
- Working with mass media on pesticide risk reduction

3. Collaboration with international organizations/NGOs

B. **Ms. Pham Huong Thao** on behalf of CGFED:

1. Workplan for the year 2009

- Establish a network of NGO for Action on Pesticide Risk reduction for information sharing
- Organize a seminar/workshop on Women and Pesticide Risk Reduction/safe food, food security for NGOs, InNGOs, GOs, Health and other sectors
- Develop IEC (leaflet, manuals, etc.) materials on pesticides for famers
- Training for farmers as well as leaders at local levels on IPM, Pesticide Risk Reduction, etc.
- Carry out campaign on "No Pesticide Use" at commune level
- Deliver talks for students/teachers at secondary and high school on Environment Issues (including pesticide risk reduction)
- Organize activities with the Farmer's Union Club (dancing, singing, performances, games on Pesticide Risk Reduction)
- Working with Mass media at grass-root level on Pesticide Risk Reduction
- Policy Advocacy on Pesticide Risk Reduction: participation in meeting for drafting the Law
- Feedback on monitoring of Pesticide Use situation to Governmental organizations
- Collaborate with concerned stakeholders to construct the cement tanks for disposal of pesticide containers
- Conduct surveys on impact of pesticides on health and environment: in collaboration with the Ministry of Health, Ministry of Natural Resources and Environment, NGOs, Universities: (baseline research, final reports, etc.)

Appendix 5 Resource Materials:

PANAP. 2007. PANAP Rice Sheets, Volume 1. Pesticide Action Network Asia and the Pacific, Penang. Internet: http://www.panap.net/39.0.html

Uphoff, N.T. 2007. The System of Rice Intensificiation (SRI): an efficient, economical and ecologically friendly way to increase productivity. Pesticide Action Network Asia and the Pacific, Penang. Internet: http://www.panap.net/39.0.html

Watts, M. 2006. Pesticides: Sowing Poison, Growing Hunger, Reaping Sorrow. Pesticide Action Network Asia and the Pacific, Penang. Internet: http://www.panap.net/39.0.html

Watts, M. 2008. Pesticides and Breast Cancer, a Wake Up Call. Pesticide Action Network Asia and the Pacific, Penang. Internet: http://www.panap.net/39.0.html

PANAP, 2003. Past Roots Future of Foods: Ecological Farming Experiences and Innovations in Four Asian Countries. Pesticide Action Network Asia and the Pacific, Penang. Internet: http://www.panap.net/39.0.html

PANAP, 2005. Women's Wisdom: Documentation of Women's Knowledge on Ecological Agriculture in the Philippines, Indonesia and Pakistan. Pesticide Action Network Asia and the Pacific, Penang. Internet: http://www.panap.net/39.0.html

PAN AP's Catalogue of Publications 1 pdf file 22 pages,2.94 mb.