

Country Strategy Paper
Yunnan & Guangxi, P.R.China
Extension period: July 2010-June 2013



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



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1. Background and rationale

1.1 IPM Training and Implementation in China

The National IPM Programme

1.1.1 Brief history

FAO has provided pivotal assistance to the China Government to reduce use of pesticides in agriculture for a period of about 20 years now. After proclamation of Integrated Pest Management as a national long-term guiding principle of plant protection in 1976 by the Ministry of Agriculture and a subsequent 10 year period of top-down IPM related extension efforts with little success, China joined the FAO Inter-Country IPM Programme for Rice in 1988. This joint FAO/China effort introduced participatory, farmer-led IPM in rice through discovery-learning. The discovery-learning based Farmer Field School approach was subsequently introduced in several provinces, allowing smallholder rice farmers in 6 provinces to learn about IPM. From 2000 to 2005, China was involved in the EU/FAO Regional Cotton IPM Programme which supported FFS training in 5 major cotton-growing provinces. IPM-FFS programmes are currently piloted and implemented with national¹ and local government funding support nationwide, covering a wide-variety of crop commodities. In general, the FAO/China IPM Programme efforts have introduced and helped sustain participatory, farmer-led IPM in rice, cotton and vegetable crops in many provinces throughout the nation. In total, about 150,000 smallholder farmers have benefitted from participation in season-long IPM-FFS training conducted during the period 1988 to 2010.

The farmer-led IPM-FFS approach has generated much interest, opportunities, and challenges for rural development and pesticide risk reduction in China. Yet, much community education work remains to be done as to reduce on-farm use -and risks associated with distribution and use- of pesticides.

1.1.2 The FAO/China Vegetable IPM and Pesticide Risk Reduction Programme

The FAO-supported IPM-FFS Programme was launched in Yunnan Province (2003) and

¹ Starting from late 2009, the Science, Technology and Education Department of MOA launched a new –and national government funded- initiative for institutionalization of FFS approaches in national and local government extension policies and upscaling of FFS work in 800 counties across the nation. Full implementation of field activities will commence in 2011.

Guangxi Province (2007). Both provinces had previously not been involved in any IPM-FFS activities and thus an FFS training program had to be set up from the beginning. The Programme concentrated its efforts initially on capacity building for IPM FFS training on three types of vegetable crops (tomato, Chinese cabbage and sugar pea) in eight major vegetable growing prefectures in Yunnan Province. Subsequently, additional vegetable crops covered in FFS included lettuce, broccoli, capsicum, pumpkin, squash, cauliflower, garlic, cucumber, potato, watermelon and cherry tomato. FFS training is implemented in 27 counties in 16 prefectures/cities in Yunnan. In Guangxi province the IPM-FFS training programme is now operational in 25 counties in 8 prefectures, covering a variety of different crops, including rice, vegetables and fruit trees.

During the 2003-2010 period, the FAO Regional IPM Programme provided technical assistance to government-supported vegetable IPM training activities in other provinces/municipalities (Sichuan, Shandong, Beijing, Chongqing, Hebei and Shanghai, Guizhou, Jiangxi). Assistance was also provided to other donor-funded projects such as the World Bank-funded Anning Valley Project in Panzhihua and Liangshan, Sichuan province, GTZ-funded “Environmental Strategies of Intensive Agriculture in the North of China” Project, the CIDA-funded “Agriculture and Agri-food” Project in Western China, FAO TCP “Enhancing food security and improving livelihoods in concert with environmental protection for farmers and herders in poverty-stricken ethnic minority areas of Western Sichuan Province”, FAO TCP “ Applied Research on Integrated Pest Management Technology of Actinidia Root-Rot in Leye county, Guangxi” and EU/FAO/China “Model Development and Capacity building for Agro-biodiversity Innovation and System Management in Sichuan, Yunnan and Xinjiang”.

During the 2003-2010 periods, the FAO programme contributed about US\$ 600,000 for supporting training activities in Yunnan and Guangxi Provinces. National and local governments have provided US\$ 316,000 to support local FFS activities.

1.1.3 IPM/Pesticide Risk Reduction Training achievements (2007-June 2010)

Through joint efforts by FAO and government counterparts, the FAO IPM programme in Yunnan and Guangxi made impressive progress during the period 2007- June 2010. The most notably achievement is the emerging and increasing national and local government’s interest in -and commitment to- more participatory & adult-education based farmer training using the FFS approach(*refer to footnote 1*). A summary of major activities and outputs obtained from support provided by Project GCP/RAS/229/SWE are given below:

- Training of trainers:* During 2007-2009, FAO-supported training work included training of a cadre of 32 IPM and PRR trainers as a result of participation in season-long IPM and PRR training courses and training of other 30 IPM facilitators in refresher courses to upgrade knowledge and skills on community education for PRR. As for local government commitment on expanding trainers’ network, some 60 facilitators have also participated in season-long IPM and PRR training courses in Yunnan Province. Most of the IPM-PRR trainers are now actively involved in the conduct of fortified IPM-Pesticide Risk Reduction farmer training.
- Farmers Field Schools:* Some 250 IPM FFSs with fortified PRR curriculum, 50% funded by

local government, were implemented in Yunnan and Guangxi involving 9,000 (48% female) farmers. The concept of a 3-day short community education model on PRR as a prelude to IPM FFS training was introduced and piloted in Yunnan Province.

- *Training materials development:* Draft Ecological guides for Chinese cabbage, sugar pea and tomato production in Chinese prepared earlier were reviewed by technical consultants and will be published in the first half year of 2011. In addition, TOT logs developed in both Guangxi and Yunnan TOT have served as valuable reference for PRR community education conducted by TOT graduates.
- *Monitoring and Evaluation:* In order to help guide trainers maintain FFS training quality, a FFS Participatory Monitoring and Evaluation (PM&E) system was introduced in TOTs and embedded into FFS reports for self monitoring. External M&E activities were also conducted regularly for safeguarding and improving training quality.
- *Institutionalisation and sustainability:* In China –and Yunnan, Guangxi and Beijing Municipality in particular- local governments have taken a keen interest in FFS approaches to rural extension and are providing support for FFS programmes as part of a local commitment to implement the national government policy of creating a harmonized rural society. Other relevant projects, include the MOA-GEF project, which provides funding for FFS in Shanxi, Shandong and Hubei provinces.

Already part of a set of ten national government promoted extension models in China PR, the Science, Technology and Education Department of MOA recognizes the strengths of the FAO-supported FFS and launched a new initiative aimed at promotion of the FFS model at policy level for institutionalisation and upscaling of the FFS-based extension and farmer education programmes in 800 demonstration counties all over China. With own government funds, each county will reform and build agro-extension system, including development and implementation of a local county FFS programme.

- *Impact assessment:* Impact assessment on IPM-FFS training was carried out in Yunnan with FAO support during the period 2004-2007. A Results Presentation and Policy Recommendation workshop was organised in Yunnan in May 2010. Participants in this workshop, involving policy makers, extension officers, farmers, researchers, learned more about IPM FFS impacts and potential of FFS programmes for rural development. Participants expressed commitments for continued support to Integrated Pest Management and pesticide risk reduction and institutionalisation of FFS in local rural development projects.
- *Advocacy/Promotion:* IPM activities and interview footage has been imbedded into UN publications, such as the FAO-RAP video with success stories from the field and the UN “30 Ways the UN makes a difference in China” publication². Various local TV stations/newspapers have reported the impact of programme activities.

² <http://www.unchina.org>

1.2 Current context and Rationale for Community Education for Pesticide Risk Reduction

1.2.1 Agriculture production, plant protection and pesticide use in China:

China is the largest agricultural country in the world, with a population of 900 million farmers which account for over 70% of the nation's total population. China is also one of the largest producers of agricultural products, such as grain, cotton, oilseed and horticultural crops. Apart from yield-reducing natural disasters such a drought³, over 1,600 species of pests including diseases, insects, weeds and rodents have been recorded to attack crops in China, causing crop damage and reported yield losses by 10-20% annually. China is a major producer and exporter of agro-chemicals itself. Production has increased ten-fold over the last 15 years, with a particularly steep increase starting from 2002 onwards, possibly explained by joint ventures and partnerships with multinationals. Currently, China is the biggest pesticide producer in the world, whose production output reached 2.26 million metric tons of active ingredient in 2009. About 40% (over 1 million tons) of this volume is exported, mostly to countries in South and SE Asia (e.g. for period 2005-9, 16-24 % of total production output was exported to Thailand, Vietnam and Malaysia alone), earning the local industry some US\$ 1.5 billion annually from these exports.

Yunnan province, with some 2.8 million hectares of arable land and located in the mountainous southwest part of China, borders on Myanmar to the south and west and on Vietnam and Laos to the south. The Lancang River (which is called the Mekong River further downstream in the GMS) cuts right across Yunnan from north to south. The annual mean temperature is between 12°C and 20°C, with no distinct seasonal temperature differences. The climate is mostly temperate and sub tropical towards the southern parts of the province. Most of the arable land is on mountainous areas and in river valleys with abundant bio-diversity.

Guangxi Zhuang Autonomous Region (Province), with some 2.6 millions hectares of arable land mostly on plains, is located in southwest China, bordering on Vietnam to the south and west, on the Northern Bay of China sea to the south, and on Yunnan to the west. The annual mean temperature is over 20°C and climate is typical sub-tropical, although temperatures can drop steeply during winter time.

Rice, vegetables, fruits and horticultural crops are produced in both provinces year-round. The acreages and yields of major crops in Yunnan and Guangxi in 2009 are given in table 1. Rice is the most important food crop in Yunnan and Guangxi. Fruits and vegetables are the most important cash crops for farmers in these two provinces.

³ Currently (Feb. 2010), eight provinces in north China are suffering a major drought since October 2010. If winter temperatures rise and precipitation remains absent or low, then winter/spring crop yields, especially for wheat, will be negatively affected.

Table 1 the acreages and yields of major crops in Yunnan and Guangxi in 2009

Crop	Yunnan		Guangxi	
	Acreage (in thousand ha)	Yield (in million tons)	Acreage (in thousand ha)	Yield (in million tons)
Vegetables	627.86	12.38	977.96	20.63
Fruits	309.40	3.04	917.71	7.75
Rice	1039.83	6.36	2125.00	11.46
Corn	1352.22	5.43	534.60	2.25

In Yunnan and Guangxi, vegetables, fruits and rice are the crops most sprayed with pesticides. On average, farmers sprayed 6-19 times of pesticides per season to control pests in vegetables, with pesticides costs ranging from 78 to 170 US\$/ha. Pesticide spraying frequencies and costs were especially high in sugar pea and tomato because of severe infestations of various foliar diseases and leaf miners and preventive applications for controlling them (Table 2). In fruits, farmers sprayed 8-13 times/season in apple, 5-12 times/season in citrus and 8-10 times/season in pears for controlling pests. Pesticide costs could be as high as 1,071 US\$/ha per season. Farmers' overuse and irrational use of pesticides were widespread in Yunnan and Guangxi, particularly in per-urban intensive commercial fruits and vegetable open-air and greenhouse production. Participatory surveys among some 360 farmers in six major vegetable producing prefectures in Yunnan carried out in 2003 and 2004 revealed that most farmers made decisions on pest management based on the advices of pesticide retailers, which led to overwhelming dependency on pesticides.

Table 2 the spraying frequencies and costs of pesticides in major crops in Yunnan and Guangxi in 2004

Crop	Yunnan		Guangxi	
	Frequency (spray/season)	Yield (in US\$/Ha)	Acreage (spray/season)	Yield (in US\$/ha)
Vegetables	6-19	78-170	6-19	78-170
Fruits	5-13	214-1071	6-16	126-1052
Rice	3-5	34-107	4-8	56-137
Corn	3-5	32-116	2-5	18-123

Note: The Yunnan data are based on the FAO supported PNOA report (2007) and NATESC National Plant Protection Statistics (2005); Guangxi data are based on NATESC National Plant Protection Statistics (2005).

As could be seen from the above analysis, pesticide abuse and overuse is still rampant in Yunnan

and Guangxi Provinces and China as a whole. Farmers are overusing pesticides in desperate attempts to control pest and disease problems, often to no avail! Intensive use of hazardous chemicals by small-holder farmers is causing high incidences of farmer poisoning, serious disruptions of eco-systems and damaging the environment. Residues of pesticides on crop produce also raise concerns for food safety and have become major international trade barriers. To date, about 16 species of major insect pests and mites, 12 species of plant pathogens and 3 kinds of weeds have developed resistance to major pesticides in Yunnan and Guangxi. Overuse of pesticides in rice has led to the outbreaks of brown plant hoppers and associated yield losses in rice in recent years.

The Chinese government unveiled the Bulletin on the First National Census on Pollution Sources in February 2010. The survey calculated the effluents from agriculture for the first time. The report revealed that farmers' fields are a bigger source of water contamination in China than that caused by factory/industry effluents. Alarming, the Bulletin pinpoints that overuse of fertilizers and pesticides have sent agricultural pollution through the roof in recent years.

Hence, the need for continuation, expansion and consolidation of Community Education for Pesticide Risk Reduction is evident and urgent for sound, safe and sustainable agricultural production and marketing in Yunnan and Guangxi and elsewhere in China PR.

1.2.2 Pest and pesticide management policy context

From 1960-1990, pesticides, insecticides in particular, were overused in China PR, predominantly because government programmes subsidized pesticides routinely as much as 85%-100%. Major policy reforms from 1986-1992 reduced these subsidies. From mid-1990s to present, pest and pesticide management related policies have continued to change radically, having great bearing on the policy environment in which the national IPM program has taken place.

The principal regulation of pesticide management in China is titled "Regulation on Pesticide Administration" issued in 1997 by the State Council. Local provincial governments, including those in Yunnan and Guangxi, also established relevant regulations to implement this national Regulation at provincial level. MOA and former Ministry of Chemical Industry established and issued the "Implementation Procedure Regulation on Pesticide Administration" respectively in 1999 and 1998. MOA and State Administration for Industry and Commerce (SAIC) jointly issued "Pesticide Advertisement Inspection Measures" in 1995. MOA and Ministry of Health (MOH) issued "Guideline on Pesticide safe Use" to specify and implement the national "Regulation on Pesticide Administration". China ratified the Rotterdam Convention (PIC) in 2005. The Customs Office started to supervise PIC listed pesticide products for import and export in an effort to effectively curb the illegal acts of producing, import and export of international banned and restricted pesticides. The Standing Committee of the National People's Congress issued a Law on Agricultural Product's Quality and Safety on April 29, 2006, including clauses on rational pesticide use and agricultural product quality and safety.

To ensure safe vegetable production and public health, action has been taken by the Chinese Government to ban the use of highly toxic pesticides (e.g. Methamidophos, Parathion,

Parathion-methyl, Monocrotophos and Phosphamidon) by 1st January 2007. This was an important and bold legislative step to take given these organo-phosphates represented some 60% of the total domestic pesticide market. This was followed by a production ban, effective from 2008. Recent developments of national plant protection policies include the adoption of IPM and promotion of IPM as “public service” and “green crop protection”.

The Chinese Ministry of Agriculture proclaimed 2008 as the Year of Pesticide Registration Management and issued six new regulations to enhance pesticide management. In particular, these new regulations aimed at regulating pesticide names, label requirements and registration procedures. At various levels the Chinese government has taken concrete actions so that stakeholders like government officials, pesticide dealers, farmers, and manufacturers are aware of -and abide to- these new regulations. The Chinese Ministry of Agriculture defined the year 2009 as Pesticide Market Monitoring and Management year so as to build a better national pesticide monitoring and management framework to enforce the new regulations. As a result of effective policy and enforcement, China has phased out production and local use of all pesticides containing persistent organic pollutants (POPs) by May 17, 2009 as required by the Stockholm Convention. China has made great progress towards achieving agricultural products and production quality and safety.

In Yunnan and Guangxi, the plant protection stations (PPSs), established at county, prefecture and provincial levels, are responsible for the enforcement of the relevant regulations on pest and pesticide management. Both provincial legislations have promulgated the crop pest monitoring and management regulations, which mandated that the PPS be responsible for major crop pest monitoring and forecasting, pesticide inspection, and providing advice to farmers on pest and pesticide management.

1.2.3 Prior and ongoing Pesticide Risk Reduction efforts

Pesticide risk reduction is a high priority on the agenda of the Chinese government. Approved by the State Council, the Ministry of Agriculture launched the “Pesticide Pollution-Free Food Action Plan” for period 2001-2005. This plan outlined the set up of a national food quality and safety system. The Highly Toxic Pesticides Alternatives Project was implemented by MOA in 2005-2010. Project purpose was to identify alternatives for highly toxic pesticide in accordance with the latest innovations in pesticide policy development.

In recent years, the Ministry of Agriculture (MOA) has made great efforts on reducing potential pesticide risks in the three main areas: Pesticide Registration (MOA Decrees No. 194, 199, 274, 322 & 494), National Standards for Pesticide Safety Applications and Pesticide Residue Monitoring.

Although the provincial Departments of Agriculture (DOA) have made great efforts in complying with the national regulations and standards on reducing potential pesticide risks, the implementation of those national regulations and standards and extension of alternative technologies are problematic because of having to deal with such huge numbers of smallholder farmers with limited education.

The Chinese government believes that Integrated Pest Management (IPM) is one of the best solutions to pesticide problems in crops. IPM requires farmers to become ‘ecology-literate’ and to

make better use of integrated pest control including the use of variety resistance, cultural and mechanical control, biological control and, -if needed and as a last resort- chemical control according to their location-specific field conditions. Pesticide risks are substantially reduced as a result of farmers applying IPM and the corresponding reduction in pesticide application and exposure events.

The FAO supported -and National and Provincial Government implemented- IPM and PRR programmes in Yunnan and Guangxi have resulted into impressive achievements in the implementation of IPM. FFS farmers have reduced 30-50% pesticide sprays and, in particular, use of highly toxic pesticides. FFS farmers have gained 10-20% higher net returns as a result of new knowledge and skills acquired through participation in season-long IPM- FFS.

1.2.4 Current opportunities, challenges and priorities for project extension period (2010-2013)

Even though good progress has been made with regards to plant protection and reducing potential risks associated with pesticide use during the last decade, there remain serious challenges in facing the required new developments of sustainable agriculture, especially for the sustainable pest management in China. Firstly, continuous decline in agricultural lands due to the rapid economical development requires effective pest control to maintain and increase high yield output per unit area. Secondly, intensified cultivation and associated higher use of agro-chemicals (both fertilizers and pesticides) induce alterations in the pest population dynamics, often resulting into pest outbreaks, such as BPH, rice leaf roller and white fly. Thirdly, increased use of pesticides in agriculture in recent years (300 thousand tons in the year 2010) due to emergence of resistance to frequently used pesticides and increased planting areas carries the risk of higher residues in food. Increased use of pesticides also negatively affects competitiveness in domestic markets and expansion of exports while having to abide to WTO regulations and strict food safety regulations in importing countries.

Equally important, Global warming in itself will probably come with a mix of positive and negative factors influencing pest outbreaks. Unforeseen emergencies of “new” invasive diseases and pests have been relatively common in recent years. Hence training curriculum content will have to be continuously updated as to deal with newly emerging invasive pest and disease problems as to avoid farmers using pesticides indiscriminately. On the other hand, it is also argued that natural enemies might well benefit the most of global warming and thus, with rising temperatures, the benefits of ecosystem services, if well conserved and utilized, could be more profound in years/decades to come. This also has implication on China policy debate for adjusting rice pest management policies in particular.

Trans-boundary plant pests are a constraint to food security due to their impacts on food availability, food access, food safety and food stability. Prevention needs a regional mechanism and platform for strengthening cooperation of countries in the same geographic region to exchange information and ensure better monitoring and control of trans-boundary plant pests and diseases. The recent incursions of rice black streaked dwarf virus disease in southern China and northern Vietnam illustrate the need for intensive regional collaboration.

To date –and as outlined above-, ample evidence exists from many local trials for many crops, of both national and international programs in China, confirming that IPM-FFS can decrease pesticide risks without lowering crop yields. Idem ditto, IPM-FFSs contribute to improved farmers' income and health and protection of the environment. At national level, the cost savings for farmers from reduced pesticide use alone can be enormous. It is clear that the need for IPM-FFS is crucial for sound and sustainable agricultural production and improving farmer livelihoods in China. As to meet more strict food safety regulations and facilitate export of agricultural produce, the need for expansion of such IPM-FFS based farmer training into more crops and reaching larger communities of farmers is thus more urgent now than ever before.

Challenges remain on how to institutionalize and develop national policy in support of FFS programmes for integrating into ongoing or future national plant protection programmes as well as networks of various stakeholders with their substantial roles relating to reduction of pesticide risks, IPM, farmer educations and extension staff trainings for sustainable development beyond FAO project itself.

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

2.1 Objectives and logical frame work

The immediate objective is Strengthened capacity to innovate and scale up Integrated Pest Management (IPM) and pesticide risk reduction training in Yunnan and Guangxi Provinces and elsewhere in China PR. Adapted outputs and activities in relations to the objective are contained in the logical framework in Appendix I.

2.2 Priorities and implementation strategy

The pesticide risk reduction programme will be implemented in Yunnan and Guangxi provinces, which both are part of the Greater Mekong Sub-region. In both Yunnan and Guangxi provinces, the Provincial General Stations of Plant Protection will be responsible for the coordination of the programme activities in their province. Plant Protection Stations at township, county and prefecture levels will be responsible for implementation of the community education activities. NATESC in Beijing will have an overall coordination and quality/standard setting support role. The pesticide risk reduction training will still be focused on rice, fruit and vegetable farmers, which are known to heavily rely on pesticides for pest control. Participants from other provinces (e.g. Hainan province) will be invited to attend training events in Yunnan and Guangxi to disseminate the impact of the project.

Both Yunnan and Guangxi have been involved in the phase I of “Towards a Non-Toxic Environment in South East Asia” programme. Hence, the programme will be implemented based on the previous training capacity building achievements of FAO vegetable IPM programme and PRR programme with a focus on in-province expansion and consolidation of pesticide risk reduction. Emphasis will be given on: 1. strengthening national and local IPM programme capacity for farmer IPM training through TOT, RTOT, exchange visits and experience sharing workshops. 2. Selecting some demonstration pilots from FFSs and developing community education models for pesticide risk

reduction. 3. Summarizing the major outcome of the PRR programme and publishing the relevant document/manual/wall-map about IPM training and pesticide risk reduction. 4. Strengthening the experience sharing between the relevant provinces and involving the other provinces which implement FFS as part of their provincial agricultural extension programmes.

The programme will support farmers' action research and learning activities particularly geared at pesticide risk reduction and alternative pest control techniques to minimize use of chemical pesticides by FFS graduates. Coordination and cooperation with local, national, regional and international institutions, both GO and NGO, will be enhanced to provide technical and implementation support. Local groups and networks of smallholder farmers will be created and enhanced so that they can undertake continuing action in support of ecologically-based agriculture production and distribute the relevant information and knowledge neighbor communities.

2.3 Monitoring and Evaluation and Impact Assessment

A need has been identified to strengthen M&E systems for training quality control, especially for demonstration pilot models' quality control. The Beijing-based pest control division of NATESC, in its capacity as national agency for technical support and standard setting for plant protection, will be responsible for the management and monitoring of the programme implementation in both provinces. The pest control division of NATESC will also organize and supervise the relevant provincial and prefectural PPS to do M&E work. Three specialists, Mr. Zhong Tianrun, Mr. Yang Puyun and Mr. Shan Xunan from NATESC will be responsible for the implementation.

A participatory quality monitoring and evaluation system will be set up in Yunnan and Guangxi provinces. The system will focus on assisting the FFS facilitators to do critical self performance evaluation and to ensure quality control of training activities.

Regular field travels will be conducted by the FAO and NATESC staff to provide management and monitoring support for programme implementation. Consultants will be identified and recruited to provide technical backup in case of specific requirements for new innovative research & training development activities, with particular emphasis on curriculum development for pesticide risk reduction.

At the final stage of the programme, an impact study (focus on surveying the number, type and methods of chemical pesticides and non-chemical alternatives used, the change of using and storing pesticide and other target in some fixed community). A result presentation workshop will be carried out in order to monitor and evaluate the effect of these community education demonstration pilot models on pesticide risk reduction.

2.4 Local Partnerships

Government counterparts at all levels will be pro-active in seeking functional partnerships with research organizations (e.g. local universities and agricultural sciences institutes). The more emphasis will be focused on the collaborations with local NGOs (e.g. local Women's Unions, PEAC) and community organization to strengthen community education for PRR. Some appropriate private sector agricultural products selling enterprises and supermarkets can be involved in the relevant activities. NATESC may strengthen experiences and information sharing through activities, such as farmer exchange workshops, attending the relevant joint meetings and workshops and publishing the relevant materials jointly. Collaborations will also be explored in convergence areas to take collective actions to achieve added value on community mobilization and development with focus on pesticide risk reduction.

2.5 Coordination and Management

The overall coordination and management of the Programme will be the China National IPM Programme, under the NATESC in the Ministry of Agriculture. Currently, one staff member of NATESC (Mr. Zhong Tianrun) serves part-time as the National IPM Coordinator. Two more staff members will be engaged in programme management and administration. Additional members may also be recruited to provide additional support if necessary.

Three staff at each provincial PPS level will be selected and involved in the coordination of programme activities. As needed, national experts/consultants will be recruited to assist NATESC/ PPS staff of Guangxi and Yunnan to develop the programme. Additional staff at prefecture, county and township level will be assigned to assist in the field-level programme implementation.

2.6 Indicative training budget

The total budget allocation from GCP/RAS/229/SWE for supporting training activities in China is US\$ 200,000 for the period July 2010-June 2013. NATESC is committed to provide a counterpart contribution of US\$ 50,000 for conducting Farmer Field Schools and short pesticide risk reduction courses and publication of training materials (such as booklet, wall map, literature and other publications) (US\$3,000) for utilization elsewhere in China. NATESC will work with the local governments to provide additional local counterpart funds for field training in 2011 and 2012. The proposed US\$ budget allocation will be used as follows:

July 2010 to June 2011: FFS evaluation and experiences sharing workshop: 7,000 US\$. 1 TOT in Guangxi: 15,000 US\$. Training material development: 6,000 US\$. 80 FFS in Yunnan and Guangxi: 40,000 US\$. 2 developing demonstration pilot models, 1 each in Yunnan and Guangxi: 4,000 US\$. Coordination, M&E & management support: 12,000 US\$.

July 2011 to June 2012: 1 TOT in Yunnan and 1 RTOT in Guangxi: 30,000 US\$. Training material development: 4,000 US\$. 60 FFS in Yunnan and Guangxi: 30,000 US\$. 2 developing demonstration pilot models, 1 each in Yunnan and Guangxi: 3,000 US\$.

Coordination, M&E & management support: 20,000 US\$.

July 2012 to June 2013: 1 TOT in Guangxi and 1 RTOT in Yunnan: 30,000 US\$. Training material development: 4,000 US\$. 40 FFS in Yunnan and Guangxi: 20,000 US\$. 2 developing demonstration pilot models, 1 each in Yunnan and Guangxi: 4,000 US\$. Impact studying and result presentation workshop for demonstration pilot models in Guangxi: 7,000 US\$. Coordination, M&E & management support: 20,000 US\$.

Table 3 Indicative budget for supporting training activities in China (Including budget allocation from FAO-GCP/RAS/229/SWE and NATESC counterpart contribution)

Year	Activities	Indic. budget (US\$) FAO/NATESC
July 2010 to June 2011	1 TOT in Yunnan	15,000
	1 TOT in Guangxi	15,000
	30 each short PRR community education courses in Yunnan and Guangxi	14,000
	FFS evaluation and experiences sharing workshop in Beijing	10,000
	Training material development	2,000
	50 FFS in Yunnan and Guangxi	15,000/25,000
	1 each developing demonstration pilot models in Yunnan and Guangxi	4,000
	Coordination, M&E & management support	12,000
		87,000/25,000
July 2011 to June 2012	2 RTOT, 1 each in Guangxi and Yunnan	20,000
	Training material development	2,000
	40 FFS in Yunnan and Guangxi	15,000/17,000
	1 each developing demonstration pilot models in Yunnan and Guangxi	4,000
	Coordination, M&E & management support	12,000
		53,000/17,000

Year	Activities	Indic. budget (US\$) FAO/NATESC
July 2012 to June 2013	2 RTOTs, I each in Guangxi and Yunnan	20,000
	Training material development	4,000
	30 FFS in Yunnan and Guangxi	10,000/14,000
	1 each developing demonstration pilot modes in Yunnan and Guangxi	4,000
	Impact studying and result presentation workshop for demonstration pilot models in Guangxi	10,000
	Coordination, M&E & Management Support	12,000
		60,000/14000
Total		2000,000/56,000

Appendix 1: Tentative Logframe

Immediate Objectives:				
Strengthened capacity to innovate and scale up Integrated Pest Management (IPM) and pesticide risk reduction training in Yunnan and Guangxi Provinces and elsewhere in China PR.				
	Outputs	(Indicative) Activities	Indicators	Sources of Verification
1.1	Functional networks of programme partners established as to ensure implementation of more relevant and effective training programmes, with focus on pesticide risk reduction	<ul style="list-style-type: none"> - Conduct situation analysis on pesticide risk in routine work and use statistics database in Plant Protection extension system from central level to Township level to identify programme intervention needs. - Planning meetings at national and provincial levels - Develop a three-year work plan on programme intervention needs, integrating monitoring and evaluation activities - Formulation of country strategy paper outlining pesticide risk reduction implementation strategies - Establish functional linkages with research institutions, private enterprises, traders and agricultural suppliers, non government organizations 	<ul style="list-style-type: none"> - Agreed 3-year Country Strategy Paper, including workplans and budgets for the extended period (2010-2013) - Availability and use of updated Country Strategy Paper to guide programme development - Regular communication/meetings/networking activities among a diversified set of project partners (e.g. Regional Meetings, annual national and provincial summary and planning meetings etc. 	<ul style="list-style-type: none"> - Meeting notes - Monitoring visits to field activities - Reports on joint collaborative activities
1.2	Curriculum and training materials developed for pesticide risk reduction fortified FFS, TOT and Refresher Training	<ul style="list-style-type: none"> - Participation of key Chinese IPM trainers/counterparts in Regional Curriculum Development workshop for Pesticide Risk Reduction - Review current curricula and develop for field training on pesticide risk reduction, food safety, marketing etc. - Develop and publish training materials (ecological 	<ul style="list-style-type: none"> - Continuously fortified pesticide risk reduction curricula is developed and used by facilitators and farmers - IPM and PRR training materials(ecological guides, training exercises manuals, leaflets, posters) produced and distributed to local 	<ul style="list-style-type: none"> - Documentation on PRR-fortified training curricula - Monitoring visits to field activities - Activity report and

Immediate Objectives:				
Strengthened capacity to innovate and scale up Integrated Pest Management (IPM) and pesticide risk reduction training in Yunnan and Guangxi Provinces and elsewhere in China PR.				
	Outputs	(Indicative) Activities	Indicators	Sources of Verification
		<ul style="list-style-type: none"> guides, training exercises guides, leaflets, posters) relating to pesticide risk reduction, food safety, marketing - Organize exchange visits among facilitators from Yunnan and Guangxi to visit the other provinces which conduct FFS - Organise FFS experiences sharing workshop in Beijing 	<ul style="list-style-type: none"> trainers and farmers - The relevant training experience sharing activities, such as FFS evaluation and experiences sharing workshop, Cross-province exchange visits etc. - The new and innovative community training models on IPM and PRR in Guangxi and Yunnan province 	<ul style="list-style-type: none"> progress report
1.3	A sufficient and fortified facilitator team for IPM and PRR training and community action in Guangxi and Yunnan	<ul style="list-style-type: none"> - Conduct TOT on IPM and pesticide risk reduction in Yunnan and Guangxi respectively - Conduct Refresher courses on pesticide risk reduction in Yunnan and Guangxi ,covering risk mitigation strategies for dealing with new pest resulting from climate change and food safety 	<ul style="list-style-type: none"> - Some 60 additional qualified IPM and PRR trainers, 30 each in Guangxi and Yunnan actively involved in implementation of farmer education activities - Some 60 facilitators,30 each in Guangxi and Yunnan participate in RTOT - Surveys showing that technical and methodological knowledge and skills of trainers are enhanced, with particular emphasis on pesticide risk reduction training, - The facilitators update capacity to conduct and innovate IPM and PRR community training 	<ul style="list-style-type: none"> - Activity and progress report - Monitoring visits to field activities

Immediate Objectives:				
Strengthened capacity to innovate and scale up Integrated Pest Management (IPM) and pesticide risk reduction training in Yunnan and Guangxi Provinces and elsewhere in China PR.				
	Outputs	(Indicative) Activities	Indicators	Sources of Verification
			- Farmers express satisfaction over trainers' capacities	
1.4	Strengthened knowledge and skills among 5,400 Yunnan and Guangxi farmers to sustainably manage crops with reduced risks of pesticide poisoning	<ul style="list-style-type: none"> - Conduct 180 (50%FAO/50%GOC funded) IPM/PRR-FFS on vegetables, fruits and rice - Conduct 60 short PRR farmer training courses - Organize relevant community IPM follow up activities on pesticide risk reduction and experimenting with novel options for pest management 	<ul style="list-style-type: none"> - Surveys indicating at least 40% reduced use of extremely and highly hazardous pesticides - Increased use of softer agro-chemicals and novel options for pest management among 90% of IPM FFS graduates - Trained farmers gained 15% increased profits from production through improved yields, prices and/or reduced cost - Action plan formulated and implemented by the communities - Regular follow up by IPM trainers on community action plan implementation 	<ul style="list-style-type: none"> - Monitoring visits to field activities - Activity report and Progress report - FFS report
1.5	Strengthened internal monitoring and evaluation system for training quality control	<ul style="list-style-type: none"> - Consolidation and implementation of participatory monitoring and evaluation system for IPM FFS programme - Training on monitoring and evaluation system in (R)TOTs 	- Information on activity implementation is continuously available and used for strengthening quality of field training	- FFS Quality standards available and distributed
1.6	Local government provide policy and	- Select FFS to develop model Pesticide Risk Reduction	- Case studies available and utilized to strengthen	- Case studies reports

Immediate Objectives:				
Strengthened capacity to innovate and scale up Integrated Pest Management (IPM) and pesticide risk reduction training in Yunnan and Guangxi Provinces and elsewhere in China PR.				
	Outputs	(Indicative) Activities	Indicators	Sources of Verification
	funding support for IPM and pesticide risk reduction	<p>communities for up scaling by governments in Yunnan, Guangxi and elsewhere in China.</p> <ul style="list-style-type: none"> - Design and conduct of impact assessment studies among these demonstration pilots - Conduct impact study result presentation and policy recommendation workshop for demonstration pilot models - Develop and determinate promotional materials for popularizing the impacts and achievements of IPM-FFS on pesticide risk reductions through TV, newspaper, radio broadcasts, science and technology fairs 	<p>training interventions and policy recommendation</p> <ul style="list-style-type: none"> - 2-3 successful and sustainable community education models for pesticide risk reduction developed and documented - News/video clips/ leaflets/posters developed on IPM/PRR and disseminated - Surveys showing that the awareness of the impact of IPM-FFS on pesticide risk reduction is raised among the farming communities, general public and policy makers - Policy makers better aware of the potential impact of IPM-FFS on pesticide risk reductions - Government policies and action plans formulated in support of IPM/PRR-FFS - Government budget support obtained for upscaling of IPM-FFS programmes 	<ul style="list-style-type: none"> - Activities and progress reports - Impact Assessment report published showing: -A reduction of WHO Class I pesticides by 40% among FFS trained farmers, IPM/FFS trained farmers reduced pesticide applications with at least 50%, at least 90% of trained farmers increase use of alternative pest management approaches, including soft products, trained farmers gained 15% increased profits from vegetable production through improved yields, prices and/or reduced cost

Immediate Objectives:				
Strengthened capacity to innovate and scale up Integrated Pest Management (IPM) and pesticide risk reduction training in Yunnan and Guangxi Provinces and elsewhere in China PR.				
	Outputs	(Indicative) Activities	Indicators	Sources of Verification
				<ul style="list-style-type: none"> - News/video clips/ leaflets/posters developed - Monitoring visits to field activities - Government plans and policies

Output	Activities	2010			2011									2012									2013																
		7	8	9	1	1	1	1	2	3	4	5	6	7	8	9	1	1	1	1	2	3	4	5	6	7	8	9	1	1	12	1	2	3	4	5	6		
	Organise FFS experiences sharing workshop in Beijing															X	X	X	X	X																			
1.3	Conduct TOT and refresher training of trainers course on pesticide risk reduction in Yunnan and Guangxi							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.4	Conduct 180 (50%FAO/50%GOC funded) IPM and PRR FFS on vegetables, fruits and rice				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Conduct 60 3-dayPRR community training in Yunnan and Guangxi							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Organize relevant community IPM and PRR follow up activities and experimenting with novel options for pest management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.5	Consolidation and implementation of participatory monitoring and evaluation system for IPM FFS programme	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

