SUSPER

Final summary report of SUSPER (Sustainable Development of Peri-Urban Agriculture in South-East Asia)

Rapport final de SUSPER

Edited by
Paule MOUSTIER

Avec synthèses en français

April 2007

SUSPER

Sustainable Development of Peri-urban Agriculture in South-East Asia Project
(Cambodia, Lao PDR, Vietnam)

© 2007 AVRDC and CIRAD

Moustier P., Final summary report of SUSPER
(Sustainable Development of Peri-Urban Agriculture in South-East Asia). Hanoi, The Gioi edition, 152 p.

For more information contact:

Dr. Paule Moustier
Food Market Researcher
CIRAD-Malica
19 Han Thuyen, Hanoi
Email: paule.moustier@cirad.fr
Website: http://www.cirad.fr - http://www.malica-asia.org - http://www.avrdc.org/susper

Dr. Manuel Palada
Head, Crop & Ecosystem Management Unit
AVRDC-The World Vegetable Center
P.O. Box 42, Shanhua, Tainan, Taiwan 74199
Republic of China
E-mail: mpalada@avrdc.org
Web site: http://www.avrdc.org

SUSPER Main Activities and Results

Paule MOUSTIER, CIRAD.

The regional project on Sustainable Development of Peri-urban Agriculture in Southeast Asia (SUSPER) was conducted from 2002 to 2006 with funding provided by the French Ministry of Foreign Affairs. It was supervised jointly by AVRDC and CIRAD. The purpose of the project was to raise the capacity of the public and private stakeholders involved in making peri-urban agriculture more sustainable and profitable, thus making a greater contribution to food security. Regional cooperation on joint interest for topics related to peri-urban agriculture was also reinforced. The project worked in four Southeast-Asian cities: Hanoi, Ho Chi Minh City, Phnom Penh and Vientiane.

In the project, peri-urban agriculture is defined as agriculture located inside a city (urban or intra-urban agriculture) and in its close periphery (peri-urban agriculture in the strict sense of the term), producing outputs which are consumed in the city and using land that may be used for agricultural as well as non-agricultural uses including construction. This sector mainly covers perishable products (vegetables and meat).

The specific objectives of the project are detailed below:

1) Understand the specific constraints and advantages of peri-urban farmers in relation to the proximity of the urban environment and market

This is the specific objective of Component 1, with two major types of activities: (a) analysis of production systems (in all cities), based on the gathering of secondary data and conducting of quantitative surveys (supervised by AVRDC); and (b) designing of geographical information systems (in Hanoi and Phnom Penh, supervised by CIRAD).

2) Identify and target new market opportunities for vegetable and fish farmers (Component 2, supervised by CIRAD).

This information was obtained by a combination of qualitative and quantitative surveys; stakeholder meetings (attended by farmers, traders, extension agents and consumers); communication with consumers and farmers through various media (television, newspapers, etc.); quick tests for chemical residues on vegetables and in fish; improved communication between relevant administrative bodies and selected farmer groups for quality control and certification.

3) Test and disseminate innovations to bring peri-urban agriculture more in line with the market demand, making it more profitable and sustainable (Component 3)

Three major innovations were tested during the project:

- Off-season tomato production (using grafted tomato and rain shelters) in Hanoi, Phnom Penh and Vientiane (under AVRDC supervision)
- Safe leafy vegetable production under low-tunnel nets in Hanoi, Phnom Penh and Vientiane (under AVRDC supervision)
- Aquaculture in floating cages in Ho Chi Minh City and Phnom Penh (under CIRAD supervision). Frog production was also successfully tested as a diversification option in the two cities

The dissemination of these innovations to farmers was based on existing farmer organisations and the development of communication between farmers, extension agents and researchers.

The main project partners are indicated in Table 1.

Table 1- Main SUSPER Partners

	Hanoi	Ho Chi Minh City	Phnom Penh	Vientiane
Local coordinator	Research Institute on Fruits and Vegetables (RIFAV)	University of Agriculture and Forestry (Nong Lam University)	Department of Agro-industry, Ministry of Agriculture, Forestry and Fisheries	Department of Agriculture, Ministry of Agriculture and Forestry
Other partners	Hanoi People's Committee; Ministry of Agriculture and Rural Development; Hanoi Seed Company		NGOs (Srer Khmer, AGRISUD); Bureau of Urban Affairs of Phnom Penh Municipality; Credit Department, Ministry of Rural Development; Agricultural Marketing Office, Department of Planning, Ministry of Agriculture and Forestry and Fisheries	

The main results of the project have are summarised as follows:

The project has definitely increased the capacity of researchers and officers in the Ministries of Agriculture of the three countries in the areas of market analysis, farm economic analysis, geographical information systems, technical innovations and intra-chain dialogue. This was achieved by a number of training sessions (see Table 2), workshops and meetings (see Table 3), and also by the preparation of around 90 reports by joint international and national teams which are outlined in this document.

Table 2- Training Activities in the SUSPER Project

TOPIC	NATURE	PLACE	LENGTH	NUMBER AND NATURE OF PARTICIPANTS	TRAINING MATERIAL
Component 1					
Review of Hanoi agriculture	Visit to AVRDC, support for data analysis and reporting	Tainan	2 months (28/10–01/11/02)	2 Hanoi project associates (1 RIFAV and 1 Hanoi People's Committee, Dept of Agriculture)	
Farm economic analysis	Visit to AVRDC, support for data analysis and reporting	Tainan	2 months (09–10/04)	1 Hanoi project associate (RIFAV)	
Production system analysis	Visit to SUSPER-FAVRI, support for data analysis and reporting	Hanoi, FAVRI	5 days	2 project associates (1 from Laos, 1 from Cambodia)	
Geographical information systems	Visit, training in software	CVTGeo, Hanoi	2 months (06–07/03)	2 Hanoi project associates (1 RIFAV, 1 Department of Agriculture, Hanoi People's Committee)	
	Visit, training in software	AIT, Bangkok	10 days (11–22/08/03)		
			5 days (9–13/05/04)	2 Hanoi project associates (1 RIFAV, 1 Department of Agriculture, Hanoi People's Committee), 2 Phnom Penh project associates (Bureau of Urban Affairs)	

Component 2					
Market analysis	Workshop	Hanoi, RIFAV	6 days (25/02/02–05/03/02)	21 (researchers and officers) with two project associates/city	All presentations to participants
Statistical analysis (SPSS)	Workshop	Hanoi, RIFAV	4 days (28/10–01/11/02)	18 (researchers and officials) with two project associates/city	Handbook
Negotiation tools in animal commodity chains	Workshop	Hanoi, VASI	6 days (28/07–01/08/02)	2 Vientiane project associates, MAF Department of Agriculture	
Consumption analysis	Visit to AVRDC, support for data analysis and reporting	Taiwan-Kaoshiung	4 months (08/08–07/10/04)	2 Hanoi project associates (1 RIFAV, 1 GSO)	
Market information systems	Workshop	Hanoi, FAVRI	5 days (9/05/05–13/05/05)	20 (researchers and officials) with two project associates/city	Proceedings
Market analysis	Visit to SUSPER-FAVRI, support for data analysis and reporting	Hanoi, FAVRI	15 days (9–13/05/04)	5 project associates (2 from Laos, 3 from Cambodia)	
Quick tests of pesticide residues	Workshop, demonstration	Vientiane, Plant Protection Center of MAFF	5 days (08–12/11/04)	10 staff of MAFF	
Component 3					
General vegetable production	Study tour	Taiwan-Kaoshiung	15 days (02–17/10/02)	3 project associates (1 RIFAV Hanoi, 1 Phnom Penh MAFF, 1 Vientiane MAF)	Trip report
Tomato grafting and plant protection	Visits, demonstrations	Taiwan-Kaoshiung	13 days (17/04–30/05/02)	6 project associates (2 RIFAV Hanoi, 2 Phnom Penh MAFF, 2 Vientiane MAF)	Training reports
Tomato production under shelter, tomato grafting	Workshop, demonstration	Hanoi, 4 project sites	4 days (5–9/05/03), 1 day/site	100 farmers (25/site)	Leaflet, CD, television programme
	Demonstration	Hanoi, RIFAV	25/06/03	Extension staff (7) and farmers from 5 districts (25 including 5 heads of cooperatives)	
	Demonstration	Hanoi, Hanoi Seed Company	2 months 01/07–31/08/05)	10 staff of Hanoi Seed Company trained by one researcher from Hanoi Agricultural University (plus one-day training at RIFAV)	
	Workshop, demonstration	Phnom Penh, Dey Eth	10 days (20–30/10/03)	23 farmers	
	2 Workshops	Vientiane		19 trainers 29 farmers	
Low tunnel net leafy vegetable production	Demonstration	Hanoi, RIFAV	25/06/03	Extension staff (7) and farmers from 5 districts (25 including 5 heads of cooperatives)	CD, television programme, leaflet
	Workshop, demonstration	Phnom Penh, Dey Eth	10 days	23 farmers	

			(20–30/10/03)		
	Fieldtrip	Phnom Penh, Dey Eth	1 day (01/06)	57 farmers	
Tilapia intensive production in nylon cages	Workshop, demonstration	Ho Chi Minh City, Da Phuoc and Phong Phu communes	2 days (06 and 16/07/04)	42 farmers (06/07/04, Da Phuoc) and 45 farmers (26/07/04, Binh Chanh)	Leaflet
Tilapia and frog production	Study tour	Ho Chi Minh City	5 days (15–19/11/04)	10 Phnom Penh farmers and 10 Phnom Penh officers from Fisheries Department	Manual on frog production
Frog production	Workshop	Ho Chi Minh City, Phuoc Vinh An district	1 day (09/06/05)	55 farmers	

Table 3- List of Workshops and Meetings Organized by SUSPER (apart from training workshops)

STEERING COMMITTEE MEETINGS					
Location	Date	Number of participants			
Hanoi	03–04/10/01	22			
Phnom Penh	16-22/01/03	39			
Vientiane	15–17/12/04				
Other meetings on project results					
Meeting on vegetable market opportunities in Phnom Penh					
Phnom Penh, MAFF	15/02/05	27 including 13 from MAFF, 3 from municipalities, 5 from NGOs, 5 from French Cooperation, 1 from university			
Final seminar					
Hanoi, RIFAV (plus one day field trip in HCMC)	27–29/06/06	57 including 8 from Cambodia, 2 from Laos, 3 from Taiwan, 2 from France and 42 from Vietnam (37 from Hanoi, 5 from Ho Chi Minh city). The seminar was attended by the head of the Vietnam Academy of Agricultural Science. Participants also included 3 journalists and four heads of vegetable cooperatives.			
Intra-chain stakeholders' workshops (presentation and discussion on vegetable marketing opportunities)					
Location	Date	Number of producers	Number of traders	Number of extension agents and inputs dealers, and others	Total
Hanoi					
Market seasonality					
RIFAV, with participants from the 4 project sites (focus on seasonality)	18/04/03	7 (1 co-op director and 1 producer / project site invited)	2 wholesalers (1 Den Lu, 1 Long Bien)	7 extension agents or inputs sellers, from the various sites 27 officers and research agents	43
Dong Du	18/06/03	20		3 researchers	23
Vo Cuong	16/06/03	18	2 (collectors)	2 inputs sellers, 3 researchers	25
Tien Duong	06/06/03	21		3 researchers	24
Tien Phong	29/05/03	16	4	3 researchers	23
Quality					
RIFAV	17/06/03	6 co-op directors	4 collectors, 3 retailers	2 representatives of consumer association 3 journalists 3 officers 10 researchers	31
Dong Du	10/10/03	68 including 2	1 collector, 2	11 research and	82

		co-op directors	retailers	extension agents	
Phnom Penh					
Kien Svay	29/05/03	11	22 (6 collectors, 6 wholesalers, 10 retailers)	3	40
Vientiane					
Department of Plant Protection	08/11/02	3	6	6	15

Regional cooperation was enhanced in the following areas:

- Market analysis: This was achieved through the three regional training workshops in Hanoi (one on market analysis, one on statistical analysis, one on market information systems—see Table 2), where experience in vegetable and fish market development was exchanged among the three countries; in particular, the knowledge of regional vegetable trade between Vietnam-Cambodia was enhanced by the participation of teams from the two countries;
- Tests of chemical residues: The expertise of FAVRI on quick test pesticide analysis was transferred in Vientiane. Tests on heavy metal content were performed in the Nong Lam University for fish produced around Ho Chi Minh City, as well as water convolvulus produced in Phnom Penh;
- Aquaculture: Skills in nylon net cage use and frog production were transferred from Ho Chi Minh City to Phnom Penh.

Peri-urban agriculture was characterised in the three countries, with a special focus on vegetable and fish production systems. The surveys confirmed that peri-urban agriculture displays specific features relative to rural agriculture, such as farms that are located near the city centre;,small land size; diversified sources of income in the household (although agriculture provides the main source of income); generalised use of chemical inputs; but at the same time access to various sources of training on IPM. The main constraints mentioned by farmers relate to marketing problems and (as regards vegetables) flooding in the rainy season (plus water shortages in the dry season as regards Phnom Penh). The prevalence of marketing problems may appear surprising given the proximity of urban markets. But it is quite typical of perishable and seasonal products.

Marketing problems have been dealt with by a thorough analysis of the market opportunities still untapped by peri-urban farmers. This was based on various consumer and trader surveys. Two major strategies have been identified for vegetable farmers to gain higher market shares: the provision of off-season vegetables and the provision of vegetables that can be identified as safe by consumers. As regards to off-season vegetables, market surveys have shown that in the three countries prices may be twice as high in the period extending from May to November relative to other months of the year for tomatoes as well as for some types of cabbage. During these periods, vegetables are imported from neighbouring countries (China for Vietnam, Thailand for Laos, Vietnam for Cambodia). Imports subside as soon as local production increases. As regards to the demand for safe vegetables, farmers who are able to label their vegetables as safe and develop direct marketing with consumers or specific buyers, e.g., school cafeterias, are able to earn higher incomes and expand their business. Yet this long-term ability is jeopardised by the lack of consumer trust in the present system of certification and low traceability in the vegetable chains. In Laos and Cambodia, vegetable safety is also a key criterion in the choice of vegetables by traders, as they declare that local products are preferred by consumers who assume they are safer than imported products (which is indeed suggested by quick tests of pesticide residues conducted by RIFAV). Yet in Laos and Cambodia traceability and labelling of vegetables are lacking, while these features could be a way for farmers to better promote their products.

As regards to fish, consumers in Ho Chi Minh City are still mostly unaware of the safety risks pertaining to fish grown in polluted water, while the analyses conducted by Nong Lam University showed an excess of heavy metals (especially arsenic) in fish grown in water polluted by adjacent factories (but not in another village where water is also polluted but where the factories are located

further away). Among fish supplied by peri-urban areas, red tilapia is the species with the highest market potential.

The information on vegetable market opportunities was presented to a panel of farmers, traders, consumers, researchers and extension agents during various stakeholder workshops held in the three countries. These stakeholder workshops also provided an opportunity to assess the needs for regular market information on the part of farmers, who expressed their demand for daily price information disseminated either by the way of television (in Hanoi) or by radio (in Phnom Penh and Vientiane).

In the area of the production and market assessment, technical and institutional solutions were tested and evaluated for peri-urban agriculture to fit better with market demand and thereby generate higher income for farmers. The findings regarding the produce market supply channels made it possible to guide the selection of production zones for the other project components, given their importance and continuity in supplying the city, their location far from sources of pollution, and also their being taken into consideration by the departments of agriculture of the city or province in terms of development plans. These findings also make available quantified data on the role of peri-urban zones in terms of supplying city dwellers with fresh produce, especially leafy vegetables and some species of fish. These findings are of particular interest to persons in charge of urban planning in Hanoi and Phnom Penh.

The most successful technical solutions tested are listed below:

- Off-season tomato production through grafting in Hanoi. Tomato plants grafted on eggplant rootstocks were resistant to bacterial wilt and suffered less damage from floods. This enables transplanting of tomatoes in August and harvesting from October to December when prices were twice as high as in the dry season and when the tomato supply was partly imported from China.

Picture 1 - Practical training on grafting tomato in RIFAV (@ H. de Bon)

Tomato seedlings have been provided to farmers by RIFAV or by the Hanoi Seed Company, a semi-private company. The staff of Hanoi Seed Company were successfully trained by SUSPER Project to produce grafted tomato seedlings. The sale price varied from 200 to 500 VND (0.01 to 0.05 USD) per seedling depending on the quantities purchased.

- Aquaculture in floating nylon cages in Ho Chi Minh City and Phnom Penh.

Pictures 2 - (Traditional wooden cage) 2 and 3 (nylon cages) - @ Boun-Tieng Ly

As regards to institutional solutions, the most successful ones were:

- Market information and consultation systems (MICS) on vegetable market seasonality in Hanoi, Vientiane and Phnom Penh
- Labelling and certification of safe vegetables in Hanoi, Dong Du Cooperative

Picture 4 - Tomatoes and guava packaged and labelled with cooperative contact

@ P. Moustier

Picture 5 - The shop of Dong Du cooperative in Gia Lam market

Some indicators of impact are presented in Table 4 (see also Table 5 the summary of project achievements). The number of direct beneficiaries is still small, but the project tested successful technical and institutional solutions that can now be used as models and disseminated by relevant extension bodies.

The following activities have proven difficult to implement, with little or moderate success:

1) Tomato production under plastic shelters
The major constraint was that the plastic shelters are damaged by heavy storms.

2) Off-season tomato production in Laos and Cambodia
Although experiments on-station have yielded promising results and training programs were organised for farmers, monitoring of work with farmers in the field suffered delays and logistical

problems, including the difficulty in identifying seed companies with which to collaborate in supplying farmers with grafted seedlings.

3) *Market information systems in Laos and Cambodia*

Activities did not move ahead as planned due to implementation delays in the field. In particular, market bulletins were prepared but were not disseminated to farmers.

4) *Geographical information systems*

The work was insufficiently linked with urban planners in Hanoi. There are various reasons for this, including difficulties in getting the Hanoi People's Committee interested in the topic (despite the involvement of staff from the Department of Agriculture of the Hanoi People's Committee in the project). On the other hand, in Phnom Penh, the training on GIS and the transfer of SUSPER expertise on peri-urban agriculture have contributed to the design of the city master plan. It is also noteworthy that SEARUSYN, a project funded by the European Union on the specific topic of integration of agriculture in urban planning in Hanoi, achieved some interesting results, with improved dialogue between the authorities of Gia Lam district, Dong Du commune, and the Hanoi People's Committee on the integration of agriculture in urban planning (http://www.searusyn.org).

5) *Farmer organisations*

Component 2 activities on market development included some work on farmer organisations, i.e. setting up market information and consultation systems, support to farmers' organisations for joint marketing, labelling and certification in Dong Du, Hanoi. Initially, it was planned that the project would help farmers to join in groups to benefit from joint extension and input services relative to the technical innovations. Yet the experiments and the demonstration of the efficiency of the innovations took longer than planned so that the actual time available for the extension work with farmers was limited to the last year of the project. Other projects involved in extension, including the DIALOGS project in Vietnam (funded by the European Union and coordinated by GRET), had their own limitations in terms of human resources which prevented the cooperative arrangements initially contemplated. Fortunately, the positive linkages of the SUSPER project with the Hanoi Seed Company in Vietnam and the Srer Khmer NGO in Cambodia, along with the actual existence of farmers' groups prior to the project, facilitated the dissemination of innovations. In Vietnam, cooperatives still perform a role of interface between farmers and extension services. In some of them farmers are organised into "safe vegetable groups" where they receive IPM training given by NGOs, such as ADDA and where contacts with customers are organised by the group leaders or heads of cooperatives. In Cambodia, similar groups have been organised by Srer Khmer.

Some follow-up actions are presented below:

- In Vietnam, ICARD will continue the daily price information system (with support from the ADB);

- Produce labeling, control and certification continued in 2006 and contacts were promoted between farmers' groups and buyers, especially in Hoai Duc district, Ha Tay province, supported by Ha Tay Province and MALICA (Markets and Agriculture Linkages for Cities in Asia), a consortium between CIRAD, VAAS [Vietnam Academy of Agriculture Science] and IPSARD [Institute on Policy and Strategies on Agriculture and Rural Development]), in cooperation with the ADB/DFID project "Making Markets Work Better for the Poor". Similar work will be undertaken in rural areas of Vietnam and Laos in the context of a project supported by IFAD, "linking rural farmers with supermarkets and other quality chains".

AVRDC through its regional center in Thailand (ARC – Asian Regional Center) has obtained funding from IFAD supporting the project titled "Safe and Off-Season Vegetable Production in Ha Tinh and Tra Vinh Provinces of Vietnam". The focus of the project is on development of more efficient markets

for the poor in these two districts. It aims to contribute to sustainable improvement of income of poor people from rural areas of Vietnam by developing and testing innovative opportunities in safer and off-season vegetable production than can be replicated and up-scaled by the government. This project will capitalize on the results and achievements of the SUSPER Project in Vietnam.

In all three countries, the emphasis that the project placed on transferring research and intervention methods through workshops and publications is something that will ensure the sustainability of most of the undertakings, although funding must be found in order to increase the scale.

The rest of the document gathers the summaries of the main reports written and disseminated during the project. They are generally available on the project website (http://www.avrdc.org/susper) and in printed form in FAVRI or CIRAD, Hanoi, as well as AVRDC headquarters.

Table 4- Impact Indicators of the SUSPER Project's Main Development Activities

	Number of users	Increase in output	Increase in income	Other indicators of success	Sustainability of action
Tomato grafting (see Ha, 2006, infra, 3.1.6)[1]	Hanoi, Tien Duong: 20; Vinh Phuc, Tien Phong: 1 Hanoi, 21 contact farmers of Hanoi Seed Company (Tay Ho, Gia Lam, Long Bien, Soc Son, Tu Liem districts) Total sales by RIFAV of grafted seedlings in 2005:12,000[2] and 2006: 10,000 (equivalent to 3,600 m²), including 3,000 in Tien Duong Total sales/gifts by HSC in 2005: 50,000 Total sales/gifts by HSC in 2006: 10,000 (including 3,000 in Tien Duong)	Tien Duong: 18.6 t/ha compared to 14.1 t/ha (31% increase) for 7 farmers or 0t/ha for 6 farmers	Tien Duong: $50 compared to 0 or $17 for the summer tomato cycle, average area of 368 m^2 (x3) $1,150/ha compared to 0 or $687/ha	12/20 farmers interviewed in Tien Duong want to continue The three Tien Duong farmers and cooperative head present at SUSPER final seminar praised the benefits of the technology. Sales of seedlings by RIFAV in various provinces (Hanoi, Hatay, Bac Giang, Bac Ninh, Hai Phong)	Technology transferred to Hanoi Seed Company which sells the seedlings to farmers But economic and technical monitoring by farmers would be useful
Leafy vegetables under low tunnel nets (Hanoi: see Ha, 2006, infra, 3.1.7[3])	Hanoi: 3 in Tien Duong, Vinh Phuc: 1 in Tien Phong Evaluation of leafy vegetables under net also for 26 Hanoi farmers in Van Noi	12.3 t/ha compared to 9.4 t/ha (no net, low pesticide use) or 11t/ha (no net, high pesticide use)	$32 compar ed to $19 for one cycle of leafy vegetables, average of 280 m^2 (70% more)	Nets still in use in 2007	High cost of shelters ($1,440/ha, or $43 for 300 m² - for 8 crop cycles; note: $117 for 300 m² for Van Noi shelters combining net and plastic shelters) should be supported by credit system
(Phnom Penh: see Centmill,	Phnom Penh: 18 farmers (Kien Svay and	8 to 25% increase	10 (Chinese kale) to		Lower costs when low net tunnel is

[1] The comparison is between 20 farmers using grafted tomato and 11 farmers using non grafted tomato in Tien duong commune (Dong Anh district).

[2] In 2005 SUSPER covered 400 VND out of 500 VND of the cost of seedlings, so the farmer only paid 100 VND, while in 2006 farmers had to pay 350 VND for seedlings sold by RIFAV and 500 VND for seedlings sold by the Hanoi Seed Company.

[3] The comparison is between 30 farmers in Hanoi using low tunnel nets and 9 farmers not using low tunnel nets (3 in Ha Tay, 3 in Vinh Phuc, 3 in Hanoi).

2005, infra, 3.1.8)	Saang districts)	according to species and season	120 $ (spring onion) for 300 m^2 compared to negative returns		used. No pesticide spray without cover is even more profitable and should be promoted
Nylon net cages for tilapia (see Hung and al, infra, 3.2.2)	Increase from 8 to 92 tilapia producers around HCMC	Production multiplied by 18.2 (from 600 to 10,930 tons) between 2002 and 2006	Total net income of new farmers: 1.24 million dollars (i.e. 13,000 $/farmer)	Dissemination in peri-urban areas as well as Mekong Delta	Local material, cheaper to build than former cages. Spreading by imitation Yet environmental risks need to be monitored

Vegetable MICS Hanoi (see An and al, infra, 2.11)	100,000 vegetable farmers[4]	Mentioned for 80% of users (through higher prices) but not quantified	The three Tien Duong farmers and cooperative head attending SUSPER final seminar claimed the benefits of the market information.	Low-cost system (based on contact traders): $6,500 10 vegetables Now system is managed by MARD-ICARD.
Vegetable MICS Phnom Penh (workshop held on 29/05/03) (see An and al, infra, 2.11)	11 farmers, Kien Svay 22 traders		Workshop evaluation: All participants found market information and interactions with traders useful	
Labelling/certification Dong Du Hanoi (see Moustier, infra, summary C2)	70 farmers	By 30% for cooperative stores (around 1,000 $ increase per year)	Contract in 2003 with herb exporter ($3,000 return)	Shared cost for certification: 60% by municipality, 20% by cooperative, 25% by SUSPER

[4] This was by considering a total of around 150,000 vegetable farmers in Hanoi municipality and the surrounding province, based on the total cultivated vegetable area (7,570 hectares – see Phuong Anh and al, 2004) and the average vegetable area (500 m^2 per farm – see introduction to Component 1, infra). The impact survey of MICS showed that 75 percent of vegetable farmers listen to vegetable prices on television, both on project sites and outside project sites (An and Moustier, 2006, infra).

Table 5- Summary of the Main SUSPER Achievements in Relation to Expectations

Planned activity	Achievement
Production system and geographical analysis	Done in the 4 cities Focused on vegetables or fish GIS in Hanoi and PP Partial economic evaluation
Market opportunities identification and monitoring	Done in the 4 cities Permanent monitoring in Hanoi
Test of innovations	Done in the 4 cities
Dissemination of innovations to farmers	Done at varying levels according to cities
Promotion of stakeholders' organisations and services	Mostly for marketing in Hanoi, PP and Vientiane Promotion of private seedling supply in Hanoi
Capacity building	➢ Done in the 4 cities for our partner institutes (research institutes, university, Ministry of Agriculture, Srer Khmer NGO in Cambodia): training, workshops ➢ Training of farmers ➢ Link with urban planners through collaboration with other projects (SEARUSYN/Wageningen and Hanoi Agricultural University; French-funded urban planning project in Phnom Penh
Regional cooperation	Main areas: ➢ Aquaculture (Southern Vietnam and Cambodia) ➢ Market information systems (3 countries) ➢ Pesticide residue analysis (Northern Vietnam, Cambodia, Laos) Exchange of information on the other topics through regional trainings and workshops, exchange of documents