

**Sustainable Development of Peri-Urban Agriculture
In South-East Asia**
(Kingdom of Cambodia, Laos PDR, Vietnam SR)

**OPPORTUNITIES FOR VEGETABLE MARKETING
IN PHNOM PENH FROM PERI-URBAN AREAS**

Paule Moustier (CIRAD), Chhean Sokhen (MRD), Chan Sipana (MAFF)

February 2005

Project FSP N°2000-56 funded by the Ministry of Foreign Affairs of France and operated by:

- Asian Vegetable Research and Development Center (AVRDC)
- Centre de Coopération internationale en Recherche agronomique pour le Développement (CIRAD)
- Department of Agriculture, Ministry of Agriculture and Forestry, Laos PDR
- Department of Agronomy and Agricultural Land Improvement, Ministry of Agriculture, Forestry and Fishery, Kingdom of Cambodia
- Research Institute of Fruits and Vegetables, Vietnam SR
- Department of aquaculture, University of Agriculture and Forestry of Hochiminh city, Vietnam SR

Address: c/o Vien Nghien Cuu Rau Qua (RIFAV), Trau Quy, Gia Lam, Hanoi, Vietnam
Tel: +844 8 768 287 Office email: susper@vnn.vn Website: <http://www.avrdc.org/susper>

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Opportunities for vegetable marketing in Phnom Penh from peri-urban areas

Paule Moustier (CIRAD), Chhean Sokhen (MRD), Chan Sipana (MAFF)

Presentation organized by AVRDC-CIRAD-MAE project on sustainable peri-urban agriculture (SUSPER) at MAFF, 15 February 2005

I Objectives

The main objectives of our work¹ are: (i) to assess the role of peri-urban agriculture in the vegetable supply, in comparison with rural areas and imports; (ii) to appraise the performance of Phnom Penh vegetable supply in terms of competitiveness relative to imports competition, variations in the supply, constraints, opportunities and results of traders (iii) to inform farmers and development agents of possible new market opportunities.

II Method

To reach these objectives, the following activities were undertaken:

A) Review of the available data

An extensive work on food marketing in Phnom Penh had been carried out by two agencies: the NGO Agrisud, in collaboration with Ministry and Rural Development, within the AFD-funded project on peri-urban agriculture; and FAO in collaboration with Ministry of Agriculture, Forestry and Fisheries. They provided a basis for the knowledge of markets and product flows from production to consumption areas. But the available studies did not provide rigorous quantification of the vegetable supply and the comparison between peri-urban, rural areas and imports was lacking. Besides, this information had little been disseminated and debated with farmers, traders and public stakeholders.

B) Regional training

A training on food market analysis was held in Hanoi in April 2002. It presented a method of multi-dimensional analysis of market organization and performance adapted to the specificities of perishable products.

C) Rapid market surveys on vegetable flows and chains

The surveys were conducted on around one out of five traders in the three largest markets selling vegetables: Dumkor and Chaba Ampou (the wholesale markets which supply the city retailers as well as retailers from other provinces, and also operate as retail markets) and Oresey (retail market) – see Map 1. Questions mostly related to origin of supply, function of intermediaries, calendar of supply, quantities sold, selling prices. Eight commodities were selected according to their importance in consumption and possibility to

¹ That is: Component 2 « market development » of AVRDC/CIRAD project on sustainable development of peri-urban agriculture (SUSPER), funded by French Ministry of Foreign Affairs (2002-2005). The presentation is a summary of the results of 2002 up to 2004. The full reports are available on SUSPER website: <http://www.avrdc.org/susper>. In Cambodia the project is coordinated by Mr Phat Leng, head of department of agro-industry of MAFF, and component 2 involves Mrs Chan Sipana, vice-chief of agricultural marketing office of MAFF, and Mrs Chean Sokhen, chief of rural credit bureau of MRD. Please mail at susper@vnn.vn for further information.

be supplied by peri-urban agriculture: tomato, cabbage, choysum, Chinese cabbage, lettuce, cucumber, long green bean, water convolvulus (*trarkoun* in khmer and called kangkong in this paper). We estimated they account for 40% of vegetable consumption². The surveys were conducted at four times of the year to take account of seasonal variations: January, April, July and October; during three years (2002, 2003, 2004³).

D) In-depth interviews on traders' strategies

In-depth interviews were carried out on 51 traders (27 retailers, 12 wholesalers, 9 collectors, 3 producers) in the three same markets, in May and September 2002. The questions related to the traders' appreciation of local versus imported vegetables, the organisation of the market in terms of relationships between suppliers and purchasers and between traders, costs and benefits, constraints and prospects.

E) Stakeholder workshops

A stakeholder workshop was held in Kien Svay in May 2003, it involved 22 traders, 10 farmers, and representatives of district and commune officials as well as Srer Khmer. The results of the market surveys were presented and debated. We also organized working groups to assess the demand for market information, which was followed by a more detailed survey of 20 traders and 10 farmers on the same topic.

III Main results

The main results important for decision-makers at the municipal and national level⁴ are summarized below: (i) the supplying role of urban areas; (ii) the supplying role of peri-urban areas; (iii) the possible gains of markets shares on imports; (iv) the difficulties in the business of traders.

A) The supplying role of urban areas

Urban areas, i.e., areas located inside Phnom Penh municipality, are supplying all the kangkong marketed in Phnom Penh (estimated from our market surveys at 2000 tons per year). This is a vegetable particularly important for the consumption of the poor⁵. Kangkong is especially produced in Dangkor and Mean Chey districts. For kangkong, the marketing chains are short, and 57% of retailers are directly supplied by the farmers, who get more than 50% of the final price. Hence the kangkong growing areas are important from a poverty point of view both for farmers and consumers. But this consideration has also to be balanced by some safety concerns. In Mean Chey district there is a specific production of 35 hectares of water spinach in the wastewater basin (Boeung Tumpon), where 838 families of fishermen are living (according to the statistics of department of statistics in 2001). Some (still unpublished) analysis of water spinach carried out by Susper project shows excess residues of heavy metal in the water spinach. A project of

² From our estimated marketed quantities in the market and Abedullah, Srun Sokom and Umar Farooq, Kingdom of Cambodia. In: Mubarik Ali (ed.), 2002. The vegetable sector in Indochina countries, Taiwan AVRDC, pp. 31-73.

³ In 2002 we started the surveys in April so the data for January is available for 2003 and 2004 only.

⁴ The results of the survey on market flows and chains are presented in the report entitled "vegetable market flows and chains in Phnom Penh" (Chhean Sokhen, Diep Kanika, Paule Moustier, November 2004) while the results of the survey on traders' strategies are presented in "socio-economic strategies and results of vegetable traders in Phnom Penh" (Chan Sipana, Paule Moustier, July 2004). In the presentation we also added not yet published results of 2004 work.

⁵ Agrisud, 2000. Approvisionnement et consommation des ménages en produits alimentaires à Phnom Penh. Agrisud international, Bordeaux, 45 p.

the municipality to treat the waste water and have it reused for agriculture may solve this problem⁶.

According to the statistics of the ministry of agriculture in 2001, the total area cultivated in Phnom Penh municipality is 7500 hectares including 765 hectares of vegetables (465 hectares only in the rainy season).

B) The supplying role of peri-urban areas

Kandal province, and particularly Saang and Kien Svay districts, supply the bulk of leafy vegetables, including choysum and lettuce, as well as cucumber and yard long bean (see

⁶ This was mentioned by Eric Huybrechts, head of the French-funded project on urban planning, in the debate following the presentation.

Map 2). On the whole, Kandal province supplied 5300 tons of these vegetables in 2002 to Phnom Penh markets, 4300 tons in 2003 (from our market surveys). According to the statistics of the ministry of agriculture in 2001, Saang district had 2500 hectares of vegetables, and Kien Svay district 1000 hectares of vegetables.

C) The possible gains of markets shares on imports

Three vegetables are especially subject to imports from Vietnam: tomato (90% is imported in July and October); cabbage (95% imported in July and October); Chinese cabbage (100% imported all year round). When these vegetables are not imported, they originate from Kandal, Kampong Speu and Kampong Cham. For the eight surveyed vegetables, out of 90 tons traded every day, 35 tons are imported, 45 tons are local. We estimated the imports of the surveyed vegetables to amount to 8400 tons in 2002, 12 000 tons in 2003; and 9 300 tons in 2004. In addition to tomato, cabbage and Chinese cabbage, which were investigated in our study, onion, potato and carrots are also imported from Vietnam.

The vegetables imported from Vietnam originate from Dalat area, Lam Dong province, a mountainous area highly suitable for vegetables, which supplies also vegetables to Ho Chi Minh City and Hanoi (the production amounted to 300 000 tons in 2002 according to IFPRI).

Vietnamese imports come mostly as the result of deficits in local production and it is conspicuous that when local production is more available, which is the case in January, then imports from Vietnam decrease (see Figure 1). The pattern of prices follows the seasonality of availability of local production, the prices being commonly 50 to 100% higher in the rainy season compared with the dry season. The difficulties in growing tomato, cabbage and water cabbage result from heavy rainfall and high temperatures in the rainy season (from May to October, with floods mostly from August to October) and also to water deficits in the dry season (especially from February to May). There are yet some technical solutions for increasing production of these vegetables, in terms of adapted varieties, use of non flooded nurseries, which have been tested by Agrisud; and also the production of grafted tomato on tomato eggplant in the rainy season has been successfully tested on-station in Day Eth within Susper project.

Chains of local and imported tomato, Chinese and cabbage are organised in a same way, with wholesalers (based in Dumkor and Chaba Ampou markets) playing a crucial role: more than 90% of retailers get their supply from wholesalers. While some wholesalers are specialised in Vietnamese vegetables only, the same wholesalers may sell products from Vietnam and Cambodia according to their respective availability. Wholesalers are supplied by collectors, with whom they have regular relationships; collectors of Vietnam vegetables go to the Cambodian border or directly to Dalat area by truck.

The following characteristics are preferred in the imported tomato, cabbage and Chinese cabbage: the aspect (bigger size for imported products, more regular shape), as well as the longer availability. On the other hand, the local products are more appreciated in terms of taste, reputation of safety, and longer shelf-life. As regards the prices, they are similar when considering the same quality of product (the Cambodian products are commonly 10 to 50% cheaper than the Vietnamese products when their appearance is not as attractive as the Vietnamese ones).

To appraise if the reputation of safety is in line with reality, we conducted pesticide residue analysis on imported and local vegetables, collecting without prior notice five samples per local vegetable in Kien Svay district (tomato, Chinese cabbage, green

mustard), and five samples of imported vegetables (cabbage, tomato, Chinese cabbage). These samples were tested in Hanoi Research Institute on Fruits and Vegetables by quick tests developed in Taiwan. Excess pesticide residues were found in imported cabbage, local Chinese cabbage, local green mustard. This suggests that there are safety risks on imported as well as on local vegetables. These analyses have to be replicated on a larger sample – involving also samples from vegetables grown with IPM techniques with the support of FAO and Srer Khmer, using the equipment that has been supplied recently from Susper project to the department of agro-industry.

D) The difficulties in the business of traders

Traders take low margins on average: less than 25% of the purchase value. The incomes are narrowly connected to the quantities traded, the lowest incomes are obtained by retailers (18 000 Riels/day), who sell on average 70 kilos of vegetables per day, and the highest by permanent wholesalers (132 000 Riels/day- who face also the highest fluctuations in the business), who sell on average 1,3 tons of vegetables per day. Motorbikes are used in half the transactions to transport products from collection point to resale point, the rest being trucks, mini-buses, carts. The constraints mostly declared by traders are the lack of availability of vegetable supply, and the limited space for marketing, especially for wholesale which takes place in a muddy and dirty environment.

E) Results of the stakeholders' workshop

The stakeholder's workshop in Kien Svay helped in changing the farmers' perception on the role of Vietnamese imports: while they commonly think that Vietnamese imports prevent them from growing vegetables at the profit, the figures showing yearly variations in imports suggest that if farmers are successful in producing more regularly than Vietnamese imports will decrease.

The farmers expressed their need for information on the supply calendars of the market, daily prices, use of pesticides, as most of the labels are in foreign languages. The preferred mean of dissemination of market and technical information is the radio.

IV Recommendations and follow-up

Some of the following recommendations will be implemented in 2005, the last year of the Susper project. The other will need other sources of funding to be implemented, based on the expertise developed in Susper project, which associates staff from the Cambodian government (MAFF, MRD, Phnom Penh municipality) and staff from NGOs (Srer Khmer, Agricam).

A) Urban planning

1. Protection of agricultural land

In Phnom Penh municipality: Dangkor and Mean Chay districts; and in Kandal Province: Saang and Kien Svay districts should be protected from urban sprawling due to their role in the supply of fresh perishable vegetables; if urban encroachment cannot be avoided, farmers' displacement in other areas suitable for vegetable production in a radius of 30 kilometers from city center should be adequately supported.

The issue of integration of agriculture in urban planning will be the object of a meeting of the monitoring committee of urban agriculture set as a joint collaboration between

SUSPER and MAE-funded project on urban planning⁷, on the occasion of the trip to Cambodia of Mr Frederic Borne, SUSPER GIS expert.

2. Protection against safety risks of kangkong grown in wastewater

The results of heavy metal analysis should be presented and debated in the monitoring committee on urban agriculture and lead to adequate measures including the information of consumers.

3. Upgrading Dumkor and Chba Ampou markets

A project for the upgrading of Dankor and Chba Ampou should be designed to upgrade the wholesale area (at least make concrete soil) and provide for protection from rainfall. The feasibility of a vegetable wholesale market with more space available for marketing and transport access, not further than some kilometers from main retail markets, and within financial capacity of the traders, should be appraised.

B) Agricultural extension

1. Develop tomato, cabbage and Chinese cabbage production

There is some margin of manoeuvre for local production to substitute for imports if the water availability is improved during the dry season and if innovations are promoted to grow tomato, cabbage and Chinese cabbage in the rainy season. In Susper project in 2005, the technical material available in Agricam, Dey Eth station and Srer Khmer will be used for technical guidelines and serve as the basis for the training of 40 farmers training in Kien Svay and Saang districts. Grafted tomato will be tested on farm in the rainy season in these two districts.

2. Train farmers on appropriate pesticide use

The IPM training carried out by Srer Khmer with the support of FAO should be given additional funding to be renewed.

C) Marketing and quality control

1. Further appraise competitiveness of Vietnamese chains

The disaggregation of prices and costs as well as the comparison of vegetable quality should be carried out, to learn possible lessons on what makes Vietnamese production and marketing so successful. This will be done in 2005 for tomato in Susper project.

2. Improve availability of market information for farmers

The present provision of market information by MAFF on the radio is irregular. It should be made at fixed times and involve comments for farmers to understand price trends. It should also involve periodic newsletters to be disseminated in farmers' groups. We will improve the methodology of MAFF vegetable MIS collection and dissemination in 2005, and have a regional workshop in Hanoi in May 2005 on market information and conciliation systems.

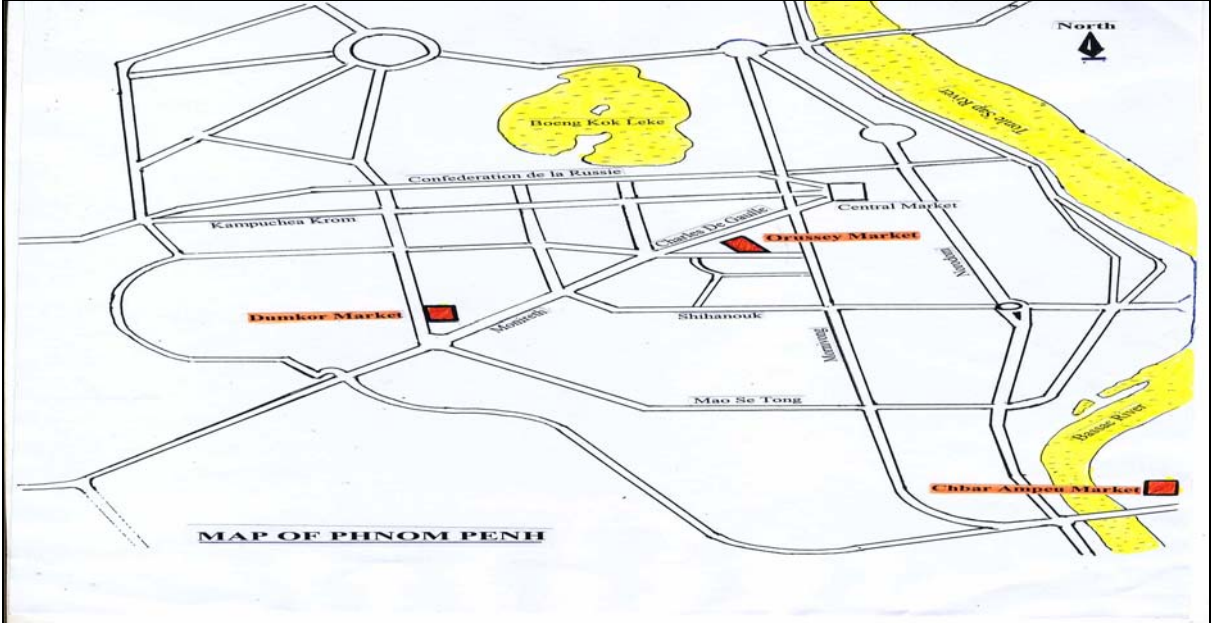
3. Promote control of labeling of safe vegetables

The control of pesticide residues in conventional, IPM and organic vegetables should be carried out and combined with communication to traders and consumers through

⁷ It involves representatives of departments of agriculture, agro-industry, trade and health of Phnom Penh municipality.

adequate labeling. A pilot experience will be carried out with a Kien Svay farmers' group with Srer Khmer in 2005.

Map 1– Location of selected markets



Source: Map prepared by Chan Sipana

Map 2-Flows of vegetables from Kandal Province to Phnom Penh

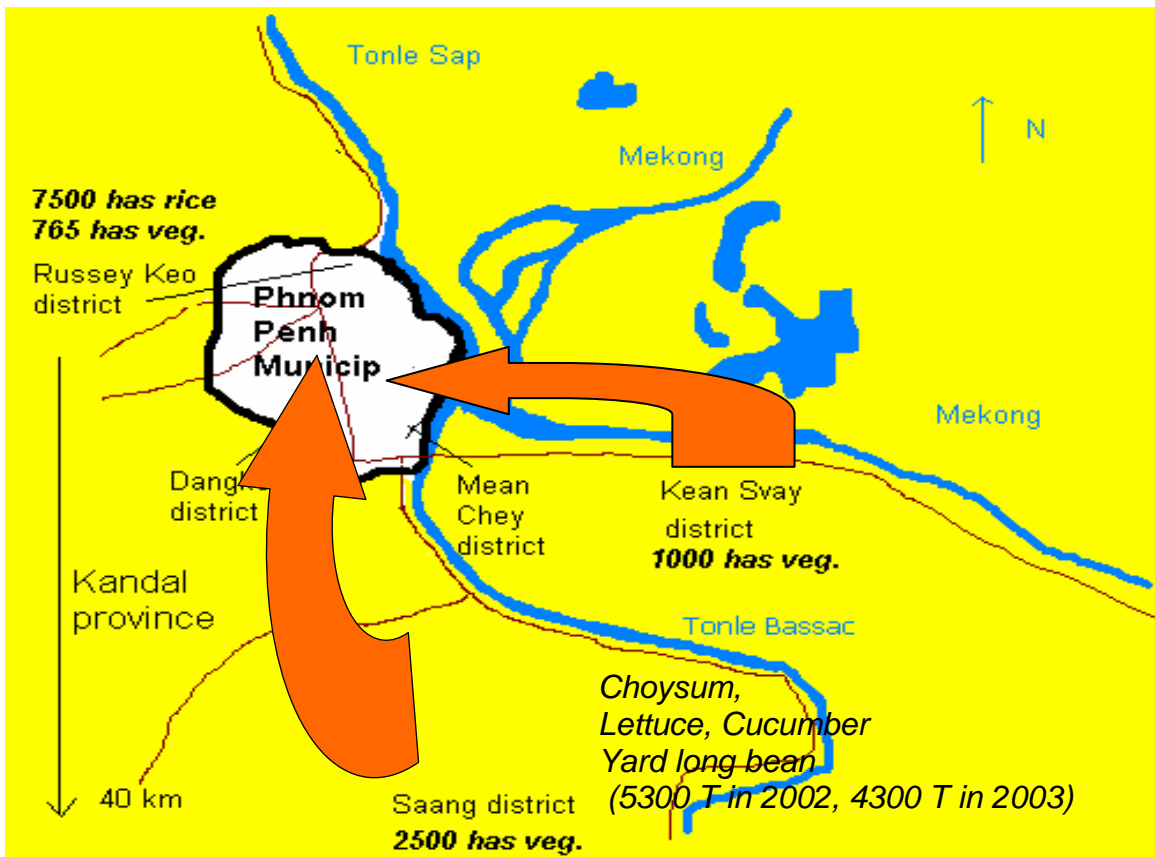
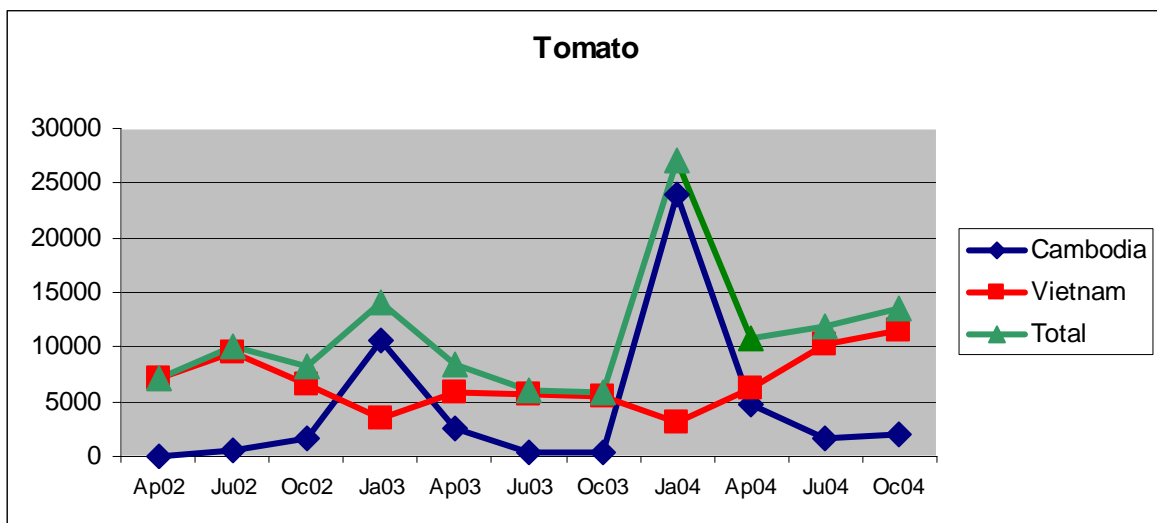
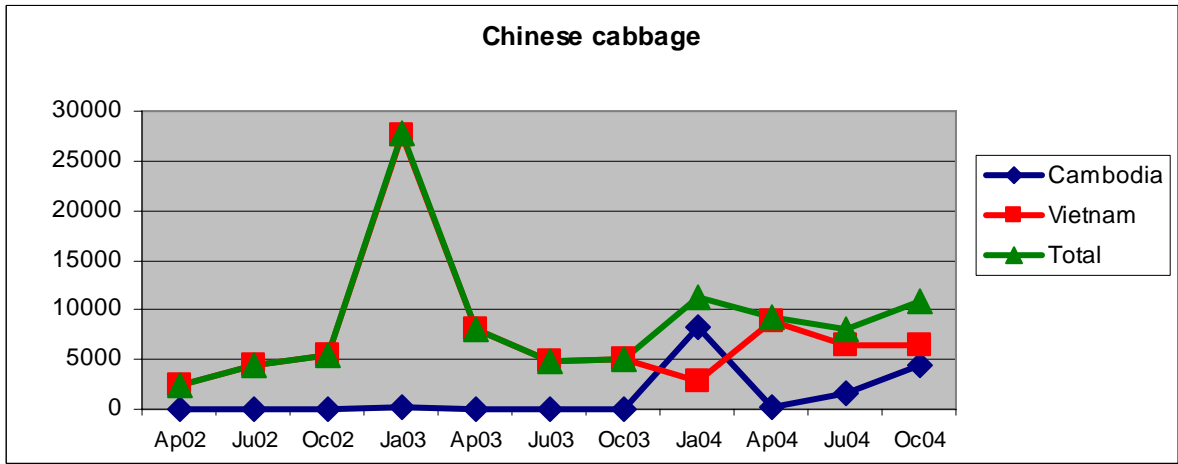
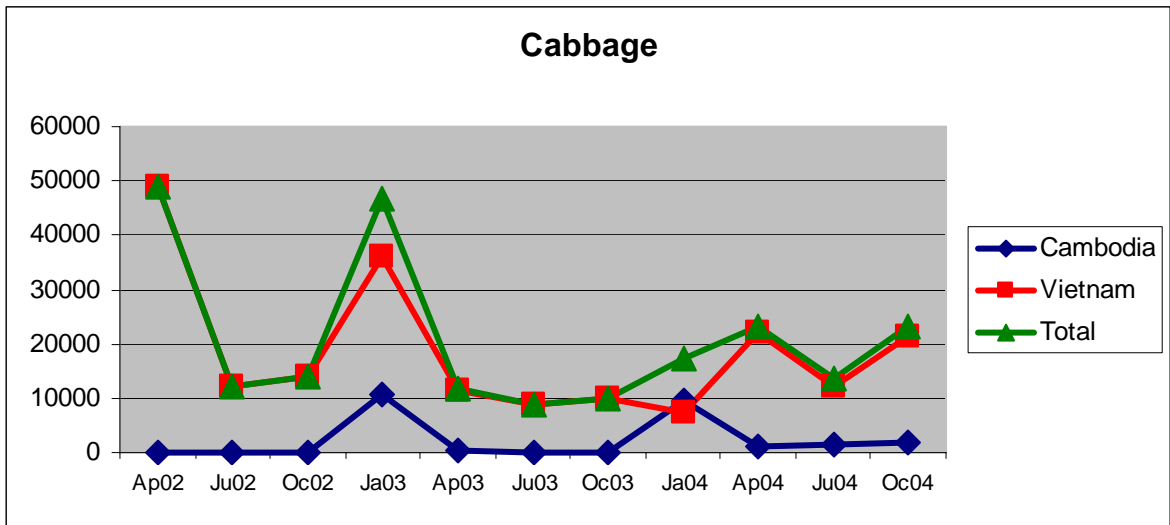


Figure 1 -Supply variations for local and imported vegetables (quantities traded in the three selected markets, kilos/day)





Source: SUSPER market surveys