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SOCIO-ECONOMIC STRATEGIES AND RESULTS OF VEGETABLE TRADERS IN PHNOM PENH (CAMBODIA)

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Paule Moustier (CIRAD)
July 2004

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- Research Institute of Fruit and Vegetable (RIFAV), Vietnam



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SUMMARY

The study is part of Component 2 of Susper project on market development, which aims at a better correlation between vegetable supply by local production and the market demand. The main objective of the survey is a better understanding of the strategies of the market agents in terms of sources of supply, relations with suppliers and customers, nature of transport, access to information; and an evaluation of their costs and incomes. A total of 51 traders have been interviewed in three urban markets: Chbar Ampou and Dumkor (which act as wholesale and retail markets) and Oresey (a retail market) in May-June and September 2002. In these markets, the present stakeholders are: retailers (permanent, semi-permanent- who sell half the day and temporary); permanent and temporary wholesalers; collectors; and producers - some selling wholesale, some selling retail. The majority of traders (more than 80%) sell all year-round. The most popular means of transport are motorbikes (45%) and handcarts (14%) which are rented rather than owned. The average quantities traded per day in May-June 2002 are 550 kilos for wholesalers, 64 kilos for retailers, and 400 kilos for collectors. At the two times of the study, tomato, cabbage and Chinese cabbage originated from Vietnam (with some local origin for tomato in September – 14%) while cucumber, yard long bean, lettuce, choysum and water convolvulus originated from Cambodia (mostly Kandal Province). Around half the interviewed traders have developed regular relationships with their suppliers (this applies for imported as well as local products), which means that they are given priority in terms of supply and purchase, at all times of the year. This diminishes the risks of unsold products for suppliers and of lack of supply for purchasers.

Around 70% of the traders listen to the radio and get access to price information through this means but 70% of those state it is not useful for lack of accuracy and timeliness.

Incomes and marketing margins are highly variable among traders. On average, net marketing margins do not exceed 25% of purchase value for all categories of traders. The analysis suggests a positive relation between the amount of income, the quantity traded, and the access to regular suppliers.

The answers on the comparison between local and imported products suggest: differences in aspect (bigger size for imported products); longer availability of imported products; but higher appreciation of taste and alleged safety of local products.

Bad marketing conditions and lack of product availability are difficulties stated by the traders.

From the traders' declarations, the conditions of vegetable distribution could be improved by upgrading marketplaces and making local supply more regular throughout the year.

I OBJECTIVES AND METHODS

A) Context

This study is part of Component 2 “Market development” of AVRDC/CIRAD regional project on peri-urban agriculture. The conduct of the study has benefited from the experience of the Agricultural marketing office of Department of Planning, Statistics and International Cooperation of Cambodian Ministry of Agriculture, Forestry and Fisheries. This office has developed knowledge of traders in Phnom Penh markets through regular collection of price data in collaboration with FAO from 1997 to 1998 (and also with ADB).

B) Objectives

The objectives of the study are as follows:

- To understand the functions of each actor and the relationships between them
- To identify opportunities and constraints of traders, in particular access to information of each actor
- To evaluate the results of the marketing agents in terms of costs and margins
- To compare the different product origins (peri-urban/rural/imports) in terms of price, quality, availability, and organization.

The study comes in addition to another survey on origin of vegetables and organization of the marketing chains carried on a representative sample (worked by Mrs. Chhean Sokhen).

C) Coverage

1. Market Coverage

The study covered the following three main markets, which are the biggest markets of the city in terms of agricultural trade: Chbar Ampou and Dumkor, which are the only two wholesale vegetable markets in Phnom Penh; Oresey market, which is the biggest retail vegetable market with 155 stalls in 2000 which is 23% of the total vegetable stalls (source: trade office in Phnom Penh, 2000) This market has a diversified clientele in terms of purchasing power. The Central market is the second largest retail market (148 vegetable traders). Yet we did not consider it in the sample because its clientele are mostly wealthy ones¹.

2. Commodity Coverage

The study covers eight vegetables: Tomato, Cabbage, Chinese cabbage, Cucumber, and Lettuce, Yard long bean, Choysum and Water convolvulus. The reasons for the choice of these vegetables are as follows:

- Importance in consumption. Cucumber, tomato, cabbage, kangkong and Chinese cabbage are among the seven most consumed vegetables in Cambodia². Among the seven mostly

¹ For more details on Phnom Penh markets, please refer to : Chhean Sokhen, Diep Kanika and Paule Moustier, 2004. Vegetable flows and chains in Phnom Penh. SUSPER project report.

² Abedullah, Srun Sokhom and Umar Farooq. Kingdom of Cambodia. In : Mubarik Ali (ed.), 2002. The vegetable sector in Indochina countries. Taiwan, AVRDC, pp. 31-73.

consumed vegetables, we find also wax gourd and eggplant but we did not consider them because they are not typical of the peri-urban area, they are produced all over the country.

- We considered pakchoi as it is a leafy-vegetable which is common for the poor consumers it is easy to produce, generates quick output (after 40 days) and is cultivated in the three countries of Susper project. Lettuce is also a leafy-vegetable which is frequent in the peri-urban area.

D) Survey team

A total of four local persons were involved in this study: three are from Agricultural Marketing Office (AMO), Department of Planning Statistics International Cooperation (DPSIC), Ministry of Agricultural, Forestry and Fisheries (MAFF) and one from the Ministry of Rural Development (MRD). The list of staff and their main areas of responsibilities are shown in Table 1.

Table 1-Survey Team

Name	Agency	Responsibility
Ms. Chan Sipana	AMO/MAFF	Overall survey organization and report writing
Ms. Pak Sarinny	AMO/MAFF	Data collection; in charge for Chba Ampou Market
Mr. Thong Aun	AMO/MAFF	Data collection; in charge for Oresey Market
Ms. Dep Kanyka	MRD	Data collection, in charge for Dumkor Market

E) Timing and duration for interviews

The traders were interviewed between 9 and 10 o'clock in the morning because at this period the sellers have leisure time to answer the questionnaires. On average it took one and a half hour to get information from one interviewer. So in one day the interviewers were able to complete around 3 questionnaires.

F) Time Schedule

The schedule for the implementation of the survey, which took place in 2002 and 2003, is shown in Table 2. Two rounds of surveys were organized: the first one in May-June 2002, the second one in September 2002, to assess variations in incomes (the same traders were looked for) and also to get more developed data on the comparison between local and imported products, which was difficult to get in May-June as imports and local sources could not be observed at the same time for a given commodity.

Table 2-Schedule for Implementation of the study

Activities	2002										2003
	M	A	M	J	J	A	S	O	N	D	J
1. Survey preparation	1					2					
2. Testing		1									
3. Survey conduct				1			2				
4. Data processing					1	1		2	2		
5. Reporting								1	1	2	2

G) Questionnaire Design

The questionnaire was designed and tested before interviewing the sellers. The questionnaire has four separate parts (see Appendix) : (1) the first part is on the marketing behavior namely: salient feature of the trader, list of marketed products, place of origin of the product, place of purchase, time to get the supply, time to sell the supplies, and means of transport used; (2) the second part is on the trade organization and information: viz. information on regular suppliers, problems with the suppliers, payments made to suppliers and customers, regular customers, problem with customers, cooperation and discussion with other traders, and information about commodity prices; (3) the third part deals with comparisons among different origins; (4) the fourth part is on the economic results.

H) Sampling of Sellers

The main objective of the survey is to get data on delicate information such as relations between traders and incomes; therefore some confidence has to be developed between interviewers and the interviewed. Hence a small sample has been chosen, with some representation of the diversity in terms of functions (production, assembling, wholesale, retail). The number of traders interviewed in May-June 2002 is indicated in Table 3. The same number of traders and the same distribution were obtained in the September survey. The same traders were interviewed as in the first survey, except for producers, collectors and temporary retailers, who we could not find again. In total, 51 traders were interviewed, including 12 wholesalers and 18 retailers who had been interviewed in the previous survey, and 9 new temporary retailers (3/market), 9 new producers (3/market), 9 new collectors (3/market). Among the 51 traders, 36 traders were interviewed on the differences between local imported products, including 10 wholesalers and 26 retailers.

Table 3 - Number of Sellers covered by the survey (May-June 2002)

Market	Type of Market	Number of Traders	Percentage (%)
Chbar Ampou	Wholesale and Retail market	21	41
Oresey	Retail market	9	18
Dumkor	Wholesale and retail market	21	41
Total		51	100

- note – same numbers and distribution in September 2002

Due to the small size of the sample, caution should be taken with the results which are indicative of trends rather than definitive results – especially as regards comparison being made across sub-samples (e.g., retailers, wholesalers and collectors), which may encompass less than 15 actors.

In addition to the survey, some analysis of vegetables was carried out to compare pesticide residues in local versus imported vegetables. The method used will be described in the relevant section.

I) Data Processing and Analysis

All data from the study questionnaires were keyed-in to spreadsheet file and analyzed by using Excel and SPSS Programs.

II MAIN RESULTS

A) Presentation of the markets (see Figure 1)

Figure 1- Location of the selected markets



1. Oresey – a retail market

Oresey market is currently at the corner between street n° 111 and street n°128, in 7 Makara District. This retail market opened in 2000. The market premises are paved and clean. The market is reasonably busy, and sells good quality products and commodities. The vegetable stores inside the market are around 60. Around 80 stores are outside, on the ground floor, making a total of around 140 vegetable stores. Main sources of vegetable supplies for this market are Dumkor, and, in a lesser extent, Chaba Ampou and Phnom Penh farmers.

2. Dumkor – a wholesale and retail market

Dumkor market is located at Mao Tse Tung Boulevard, in Toul Kork District, and it is both a wholesale and retail market. It is a large and relatively not so well laid-out market. Some parts of vegetable areas can become very congested and dirty. There is no paving or sky cover, and sellers sitting on the open ground. The vegetable stores are around 334. Dumkor market is a very important transit market for Phnom Penh, as it supplies other Phnom Penh markets and many provincial markets such as Kompot, Kampong Chhang, Kampong Cham, Sihanouk Ville, Prey Veng, TaKeo, Kampong Speu, Kandal. The most important sources of vegetables for this market are Vietnam and Kandal province; some vegetables originate from Takeo and Kampong Speu Province.

3. Chaba Ampou – a wholesale and retail market

It is located near the Monivong bridge, along the National Road n°1 in Meean Chey District. It is also a combined wholesale and retail market. The vegetable wholesales in this market are of smaller scale than in Dumkor market. Part of vegetable selling areas of this market has no paving or cover, with most vegetable traders selling on the ground. There are 184 vegetable stores in the market. Main sources of vegetables for this market are Vietnam and Kandal province.

B) Traders' basic characteristics

1. Traders' functions

Out of 51 sellers covered by the study in May-June, 9 (18%) are permanent retailers, 9 (18%) are semi-permanent retailers, 7 (14%) are temporary retailers (8 in the second survey), 6 (12%) are permanent wholesalers, 6 (12%) are semi-permanent retailers, 3 (6%) are producers (selling wholesale), 5 (10%) are collectors (6 in the second survey), 2 (4%) are producers and temporary retailers at the same time (1 in the second survey) and the rest (4 sellers;8%, 3 sellers in the second survey) are producers combined with collectors (selling wholesale) – see Table 4. We give below the definitions of different types of retailers and wholesalers.

- Permanent retailers and wholesalers have a stall in the market and sell from morning to late afternoon (between 6 a.m. and 5 p.m.). Retailers sell directly to consumers, while wholesalers sell to retailers. Wholesalers buy from collectors and/or producers.
- Semi-permanent retailers and wholesalers have a stall in the market and sell only half-day (6 a.m. to 1 p.m.), in the afternoon they go to buy vegetables from wholesale markets to sell the day after. Semi-permanent retailers buy vegetables from wholesalers, while semi-permanent wholesalers buy vegetables from collectors and/or producers.
- Temporary retailers have no stall in the market, they sell on the ground. They sell only during few hours in the morning. They buy their products from wholesalers, retailers or producers. Some are at the same time producers and retailers and sell their own products (in this case we call them producer/retailers).

Table 4-Composition of the study sample by nature of Traders (first survey, May-June 2002)

Nature of traders	Frequency	Percentage	Cumulative Percent
Permanent retailer	9	17.6	17.6
Semi-Permanent retailers	9	17.6	35.3
Temporary retailers	7	13.7	49.0
Permanent wholesalers	6	11.8	60.8
Semi- permanent wholesalers	6	11.8	72.5
Producers	3	5.9	78.4
Collectors	5	9.8	88.2
Producers & Temporary retailers	2	3.9	92.2
Producers & Collectors	4	7.8	100
Total	51	100	

The distribution of the sample in September is very close from the one in May-June 2002 (see Table 5). As the sample was chosen to include a wide representation of the different categories of traders, no conclusion should be drawn on the relative importance of the different types in the market.

Table 5: Composition of the study Sample by Nature of Traders (second survey, September 2002)

Nature of traders	Frequency	Percentage%	Cumulative Percentage
Permanent retailer	9	17.6	17.6
Semi-Permanent retailers	9	17.6	35.3
Temporary retailers	8	15.7	51.0
Permanent wholesalers	6	11.8	62.7
Semi- permanent wholesalers	6	11.8	74.5
Producers	3	5.9	80.4
Collectors	6	11.8	92.2
Producers & Temporary retailers	1	2.0	94.1
Producers & Collectors	3	5.9	100.0
Total	51	100	

2. Nature of vegetables sold

The number of sellers by different type of vegetable is shown in Table 6. Of the commodities covered by the study, choysum is most popular (43% in May-June, 41% in September). The next popular item is yard long bean in May-June (37%), and cucumber in September (33% of sellers). Above half of the vegetable sellers sell other vegetables than the ones covered by the study, i.e., Chinese kale, Cauliflower, green mustard, sweet potato, potato, carrot, taro, Cassava, green pepper, ginger, bean sprouts, egg plant, bitter gourd.

Table 6-Share of traders selling different types of vegetables

Nature of traders	Tomato	Cabbage	Chinese cabbage	Cucumber	Yard long bean	Lettuce	Choysum	Water convolvulus	Other vegetables
Permanent retailer	43%	47%	50%	22%	37%	40%	32%	20%	30%
Semi-Permanent retailer	21%	20%	14%	17%	16%	10%	23%	10%	22%
Temporary retailers	7%	6%	7%	17%	10%	10%	23%	10%	15%
Permanent wholesaler	29%	27%	29%	11%		10%			22%
Semi-permanent wholesaler				11%	10%	10%	14%	10%	4%
Producers				5%			4%	10%	
Collectors				5%	10%	20%	4%	10%	
Producer & retailers								20%	7%
Producer & Collectors				11%	16%			10%	
Total	14	15	14	18	19	10	22	10	27
% of sellers	27%	29%	27%	35%	37%	20%	43%	20%	53%

3. Seasonality of business

The majority of traders (84% in May-June, 90% in September) sell all year-round. The traders that stop temporarily their business are temporary retailers or producers. The following reasons are given:

- Not selling vegetables between June and October because of the shortage of vegetables in the rainy season. When they do not work in the market, traders are involved in agricultural production: fishing, pig or poultry raising; rice cultivation and harvest. This is the case for all traders interviewed in May-June, and for 1 out of 5 in September;
- Not selling vegetables during 5 months, from October to February, because they are busy farming (4 out of 5 answers in September).

4. Means of transport

There are a number of means of transport for transporting vegetables in all conditions and distances (see Table 7). Motorbike is by far the most popular means. It is used for transporting vegetables from farm to market and between two markets. Truck is used for transporting large quantities of vegetables from Vietnam or sometimes from a district (in Kandal province) or around Phnom Penh. The volume of trade, nature of the trader and the road condition play very important role in this regard. Handcart is used inside a market location. Transporting goods by boat is reported by only 4% of sellers; they are producer/retailers of water convolvulus.

Table 7- Main means of transport used by sellers

Means of Transport	Frequency		Percentage (%)	
	May-June	September	May-June	September
Motorbike	23	18	45	35
Motorbike and truck	3		6	
Truck and moto-driven cart	1	2	2	4
Truck	3	2	6	4
Hand cart	7	10	14	20
Truck and handcart		1		2
No transport (on-spot delivery)	9	3	18	6
Moto-driven cart	2		4	
Foot	1	3	2	6
Foot and boat	1		2	
Moto-driven cart and boat	1		2	
Motobike and boat		1		2
Motorbike and moto-driven cart		4		8
Carrying and handcart				
Motorbike and on-spot delivery		1		2
Moto-driven cart get in place		1		2
Moto-driven cart/ Hand cart/get in place		2		4
Motorbike, on-spot delivery and handcart				
Handcart and carrying		3		6
Total	51	51	100	100

Most of the sellers (78% in May-June, 59% in September) hire a means of transport for transportation of their goods. Only 22% in May-June (27% in September) use their own means of transport, this being the case especially for producers/sellers. 14% of traders in September combine hired and owned transport. For moving vegetables from farm to the market, traders usually hire a motorbike; although a few of them use trucks or boats. Between markets, they usually hire motorbike/Motorbike-remorque. For movement entirely inside a market, they usually hire a handcart or use a porter.

5. Quantities sold

The quantities sold per day for the different types of traders are indicated in Table 8:

- Wholesalers sell an average of 850 kilos per day (1320 kilos per day for permanent wholesalers, and 380 kilos for semi-permanent wholesalers per day) – this is the average for May-June and September.

- Collectors sell an average of 320 kilos per day.
- Retailers sell an average of 69 kilos per day, 66 kilos for permanent retailers, while temporary retailers sell 30 kilos per day. The average for semi-permanent retailers is 100 kilos per day, but this high figure is due to the presence in the sample of a retailer selling 450 kilos per day of cabbage and tomato from Vietnam, while the other sell an average of 60 kilos per day.

Table 8 - Quantities sold by category of trader (average for May-June and September)

Nature of trader	Average quantity sold per day (kg/day) in May-June	Average quantity sold per day (kg) in September	Average quantity sold per day (kg) Average September-May-June
Retailers	64	72	69
Permanent retailer	68	65	66
Semi-permanent retailer	84	124	104
Temporary retailer	33	27	30
Wholesalers	550	1157	854
Permanent wholesaler	662	1983	1323
Semi-permanent wholesaler	438	331	384
Producer	145	318	232
Collector	400	224	322
Producer retailer	59	115	87
Producer collector	110	367	239

Average quantities by different type of vegetables sold per day in May-June are shown in Table 9. The highest quantities are observed noted for cucumber (209 kg per day per trader on average, 905 kg per day for wholesalers, 950 kg /day for collectors).

Table 9– Average quantities sold kg/day by type of vegetables in May-June

Nature of traders	Tomato	Cabbage	Chinese cabbage	Cucumber	Yard long bean	Lettuce	Choysum	Water convolvulus
Permanent retailer	5	7	6	7	13	3	7	6
Semi-Permanent retailer	36	48	9	8	6	2	21	21
Temporary retailers	5	6	4	11	5	6	12	40
Permanent wholesaler	11 5	126	105	325		175		
Semi-permanent wholesaler				905	48	117	176	80
Producers				140			225	70
Collectors				950	40	170	166	340
Producer & retailers				3				45
Producer & Collectors				67	64			115
Average	43	47	33	209	28	81	64	78

Average quantities by different type of vegetables sold per day in September are shown in. The highest is noted for cucumber (87 kg per day, on average, 377 kg per day for permanent wholesalers sold, 267 kg per day or producers)

Table 10 – Average quantities sold kg/day by type of vegetables in September

Nature of trader	Tomato	Cabbage	Chinese cabbage	Cucumber	Yard long bean	Lettuce	Choysum	Water convolvulus
Permanent retailer	6	6	5	3	1	2	3	
Semi-Permanent retailer	11	6	3	32	3	2	8	7
Temporary retailers		6		4	1		5	6
Permanent wholesaler	310	306	160	377	25	15		
Semi- permanent wholesaler	72			90	17	50	71	
Producers				267		33		18
Collectors	20			17		18	188	
Producer & retailers								115
Producer & Collectors				150		67	150	
Average	50	39	20	87	8	16	43	6

In May-June, the quantities sold by permanent wholesalers are more important than in September for cucumber (905 kg/day for semi-permanent wholesalers in May-June, 90 kg/day in September, while the quantities sold by permanent wholesalers are approximately the same), kangkong (78 kg/day on average in May-June, 6 kg/day in September), lettuce (175 kg/day by permanent wholesalers in May-June, 15 kg/day in September) and choysum (176 kg/day by semi-permanent wholesalers in May-June, 71 kg/day in September). These vegetables are produced locally and their production is reduced in the middle of the rainy season (September) relative to the beginning of the rainy season (May-June). On the other hand, tomato, cabbage and Chinese cabbage, which are mostly imported, are traded in bigger quantities by wholesalers in September than in May-June (which may indicate a shift of consumption of consumers from local to imported ones vegetables when local vegetables decrease in quantity) : 115kg/day of tomato in May-June, 310kg/day in September; 126kg/day of cabbage in May-June; 306kg/day in September; 105kg/day of Chinese cabbage in May-June, 160kg/day in September.

C) Supply strategies

1. Origin of vegetables

Table 11 and Table 12 indicate the origin of vegetables at the time of survey.

Table 11 – Nature and origin of the traded vegetables in May-June

Vegetable	% of traders selling the vegetable	Origin (in %)		
		Vietnam	Kandal	Phnom Penh
Tomato	28	100		
Cabbage	30	100		
Chinese Cabbage	28	100		
Cucumber	35		100	
Yard long bean	37		100	
Lettuce	20		100	
Choysum	43		100	
Water convolvulus	20		30	70

Table 12 - Nature and origin of the traded vegetables in September

Vegetable	% of traders selling the vegetable	Origin (in %)				
		Vietnam	Kandal	Kg.Speu	Kg.Cham	Phnom Penh
Tomato	27	86		14		
Cabbage	27	100				
Chinese Cabbage	24	100				
Cucumber	33		65	23	12	
Yard long bean	24			100		
Lettuce	24			100		
Choysum	41			100		
Water convolvulus	14					100

The biggest vegetable flows are from Kandal province and from Vietnam. Vegetable flows may change according to the season and the size of the vegetable harvest in Cambodia. We see that between May-June and September, the percentage of tomato imports from Vietnam decrease a little (from 100 to 86%) in favour of Kompongspeu. The sources of cucumber diversify in September, with some supply from Kompongpeu and Kompongcham. September is the rainy season in Kompongpeu and Kompongcham and some farmers grow tomato or cucumber near their houses. In September, all the water convolvulus originates from Phnom Penh, while some originated from Kandal in May-June. For the study period, the source of three vegetables (tomato, cabbage, and Chinese cabbage) is Vietnam, while Kandal is the main source for the other vegetables except for water convolvulus which mostly originate from Phnom Penh.³

In May-June 50 traders (98%) declared that they don't change their sources of supply during the year, while in September, 46 traders (90%) declared not changing their sources of supply during the year. One retailer said that she changed the source of cucumber from Kandal province to Vietnam according to its local availability. Two permanent retailers said that they changed the source of tomato, cabbage, Chinese cabbage, from Vietnam to Kandal between January and March. One permanent retailer declared she changed the source of tomato from Kandal to Kompongpeu. Two permanent wholesalers indicated that they changed the source of Chinese cabbage and cabbage from Vietnam to Kandal, and the source of cucumber from Kompongpeu to Takeo.

³ For information on vegetable origin gathered from a representative sample of traders, see the report by Sokhem and Moustier, in the same paper series.

2. Purchase versus own production

The sellers involved in production are very few (Table 13): four producers selling wholesale, 2 producers selling retail in May-June (1 in September), and four collectors (3 in September) selling both their own production and purchased production.

Table 13 – Number of sellers selling own production in May-June and September

Nature of traders	Number of traders						Percentage (%)					
	Own production		Purchased production		Own + purchased production		Own production		Purchased production		Own + purchased production	
	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep
Permanent retailer			9	9					100	100		
Semi-Permanent retailer			9	9					100	100		
Temporary retailers			7	8					100	100		
Producer & retailers	2	1					100	100				
Total retailers	2	1	25	26			7	4	93	96		
Permanent wholesaler			6	6					100	100		
Semi-permanent wholesaler	1		5	6			17		83	100		
Total wholesalers	1		11	12			8		92	100		
Producers	3	3					100	100				
Collectors (including producer-collectors)			5	6	4	3			60	60	40	40
Total	7	4	40	44	4	3	14	8	78	86	8	6

3. Nature of suppliers⁴

The nature of suppliers for the different intermediaries is indicated below)

- All collectors are supplied by producers
- Wholesalers are supplied by producers (59% in May-June, 42% in September), by collectors (33%), by both producers and collectors (8% in May-June, 25% in September)
- Retailers are supplied by producers (35%), by wholesalers (35%), by producers, collectors and wholesalers (26% in May-June, 19% in September), from producers and collectors (4% in May-June, 7% in September).

⁴ For information on marketing chains gathered from a representative sample of traders, see the report by Sokhen and Moustier, in the same paper series.

Table 14 -Type of suppliers in May-June and September 2002

	Number										Percentage										Wholesaler	
	Collector		Producer		Prod./ Col.		Prod/Coll/ Whol.		Wholesaler		Collector		Producer		Producer/ Collector		Prod./coll/ whol./		Wholesaler			Wholesaler
	May-June	Aug	May-June	Aug	May-June	Aug	May-June	Aug	May-June	Aug	May-June	Aug	May-June	Aug	May-June	Aug	May-June	Aug	May-June	Aug		September
Permanent retailer			1			1	6	5	2	3			11			11	67	56	22	33	33	
Semi-Permanent retailer			4	4		1			5	4			44	44		12			56	44	44	
Temporary retailers	1		2	6	1		1		2	2	14		29	75	14		14		29	25	25	
Producer & retailers			2							1			100									
Retailers	1		9	10	1	2	7	5	9	10	4		33	37	4	7	26	19	33	37		
Permanent wholesaler	4	3	1		1	3					67	50	17		17	50						
Semi-permanent wholesaler		1	6	5								17	100	83								
Wholesalers	4	4	7	5	1	3					33	33	59	42	8	25						
Producers			3	3									100	100								
Collectors (including producer-collectors)			9	9									100	100								
Producer & retailers			2							1			100							100	100	
Total	5	4	28	27	2	5	7	5	9	10	98	78	55	53	20	98	14	98	18	20	20	

Purchase place

Collectors mostly buy on-farm (100% in May-June, 56% in September) or in Dumkor market (11% in September) – see Table 15. Wholesalers buy from Chaba Ampou and Dumkor markets in similar percentages (but a higher percentage of permanent wholesalers buy from Dumkor market, where sources of supply are more diversified than in Chaba Ampou). A small percentage of wholesalers buy on-farm (8% in May-June, 25% in September). Retailers mostly buy in Dumkor market (41% in May-June, 44% in September), Chba Ampou market (26% in May-June, 30% in September) or on-farm (33% in May-June, 26% in September).

Table 15 - Place of Purchase in May-June and September

Nature of traders	Number of traders								Percentage (%)							
	Chaba Ampou		Dumkor		On farm		Own		Chaba Ampou		Dumkor		On farm		Own	
	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep	May-June	Sep
Permanent retailer	3	3	6	6					33	33	67	67				
Semi-Permanent retailer	3	3	2	3	4	3			33	33	22	33	45	33		
Temporary retailers	1	2	3	3	3	3			14	24	43	38	43	38		
Producer & retailers					2	1							100	100		
Total retailer	7	8	11	12	9	7			26	30	41	44	33	26		
Permanent wholesaler	2	2	4	4					33	33	67	67				
Semi- permanent wholesaler	3	3	2		1	3			50	50	33		17	50		
Total wholesalers	5	5	6	4	1	3			42	42	50	33	8	25		
Producers						3	3							100	100	
Collectors(including producer-collectors)				1	9	5		3				11	100	56		33
Total	12	13	17	17	19	18	3	3	24	25	33	33	37	35	6	6

D - Relations between vendors and suppliers

1. Nature of relationship between vendor and supplier

Out of 51 traders, 41% have regular suppliers in May-June (and 59% in September) – see Table 16. Most of wholesalers have regular suppliers (67% in May-June, 100% in September), while half the retailers have regular suppliers in the two months of surveys, the percentage of regular suppliers being logically the highest for permanent retailers, then semi-permanent retailers relative to temporary retailers, more than 60% of these have no regular suppliers.

The reason for a higher percentage of regular suppliers in September as compared with May-June is that September is a time when vegetables are difficult to find so it is important to have reliable suppliers at that time.

Table 16 -Type of suppliers in May-June and September 2002

Nature of traders	Number of traders						Percentage (%)					
	Producer		Regular suppliers		Non regular suppliers		Producer		Regular suppliers		Non regular suppliers	
	May-June	September	May-June	September	May-June	September	May-June	September	May-June	September	May-June	September
Permanent retailer			6	6	3	3			67	67	33	33
Semi-Permanent retailer			3	4	6	5			38	44	62	56
Temporary retailers			2	3	5	5			29	38	71	62
Total retailer			11	13	14	13			46	50	54	50
Permanent wholesaler			5	6	1				83	100	17	
Semi-permanent wholesaler			3	6	3				50	100	50	
Total wholesaler			8	12	4				67	100	33	
Producers	5	3				1	100	75				25
Collectors			2	5	7	4			22	56	78	44
Total	5	3	21	30	25	18	10	6	41	59	49	35

Among the 21 traders with regular suppliers interviewed in May-June, 18 of them said that they have known their suppliers for several years. They also declare that they have to buy from them at all times of the year, and reciprocally suppliers have to sell to their vendor at all time of the year. Two collectors declare that they give some inputs and credit to their suppliers – who are farmers - (1 collector in May-June gave some input as seeds and fertilizer to suppliers, 1 collector in September gave some credit to the suppliers) and make agreement with their supplier so that the supplier promises to sell the product to his regular collector. In the agreement they have to decide on the quantity that the collector needs the date of harvest (more or less 2 or 3 days) and the place of harvest (generally the farm). The value of the inputs supplied corresponds to the quantity harvested by the collector (who may also harvest and pay an additional quantity according to his needs). For quality it is difficult to decide in advance because it depends on the climatic conditions. The farm-gate price is also decided in advance, as it is little variable within one year. One of these two collectors declared that the supplier and she belong to the same village. These regular relationships between vendors and suppliers are developed in order to minimize the risks of unsold products. They are observed for local as well as imported products, but much less frequently for traders selling only local products than for traders selling local and imported products (see Table 17, Table 18)

Table 17 -Type of suppliers for local and Vietnamese products in May-June 2002

Type of suppliers	Number of traders			Total
	Local products	Vietnamese products	Local & Vietnamese products	
Regular suppliers	7	6	8	21
Non regular suppliers	23		2	25
Total	30	6	10	46

- note – the 3 other traders in the sample are producers selling their own product -

Table 18 -Type of suppliers for local and Vietnamese products in September 2002

Type of suppliers	Number of traders			Total
	Local products	Vietnamese products	Local & Vietnamese products	
Regular suppliers	19	4	7	30
Non regular suppliers	14	1	3	18
Total	33	5	10	48

- note – the 3 other traders in the sample are producers selling their own product –

Average quantities per day by different type of suppliers are shown in Table 19 and Table 20. Quantities with regular suppliers are generally higher than quantities with non-regular suppliers. This is explained by the security of supply and lower risk of losses that provides regular relationships.

Table 19 – Average quantities with respect to nature of suppliers (in May –June)

	Suppliers	
	Not regular (kg)	Regular (kg)
Retailers	49	96
Wholesalers	286	682
Collector		
All categories	125	373

Table 20 – Average quantities with respect to nature of suppliers (in September)

	Suppliers	
	Not regular (kg)	Regular (kg)
Retailers	86	56
Wholesalers		1192
Collector	125	268
All categories	97	470

2. Nature of payment

Retailers usually pay their suppliers immediately (92% in May-June, 69% in September), while the situation is more varied for the rest of the actors (see Table 21). In May-June, immediate payments are more frequent than in September. This can be explained by Cambodian people believing that business should be dealt in hand after Khmer New Year, otherwise they might meet unluckiness. Later in the year suppliers trust more their customers and this enables delayed payment (without any interest rate).

Table 21 - Nature of payment

Nature of traders	Number of traders paid						Percentage (%)					
	Immediately		After the sale		Own product		Immediately		After the sale		Own product	
	May-June	September	May-June	September	May-June	September	May-June	September	May-June	September	May-June	September
Permanent retailer	9	8		1			100	88		12		
Semi-Permanent retailer	8	6	1	3			73	67	27	33		
Temporary retailers	6	4	1	4			86	50	14	50		
Total retailer	23	18	2	8			92	69	8	31		
Permanent wholesaler	3	4	3	2			50	67	50	33		
Semi-permanent wholesaler	5	2	1	4			83	33	17	67		
Total wholesaler	8	6	4	6			67	50	33	50		
Producers					5	4					100	100
Collectors	9	4		5			100	44		56		
Total	40	28	6	19	5	4	78	55	12	37	10	8

3. Problems between vendors and suppliers

All the traders except one in May-June declare they never experience problems with their suppliers. The trader expressing problems, a semi-permanent wholesaler in Dumkor market, refers to her supplier not offering the product to her because other traders propose higher prices. In September there are 4 traders having problems with their suppliers, including two permanent wholesalers in Chaba Ampou. One expresses problems due to her supplier wanting to increase the price of product, and the other one refers to her supplier offering less than what she needs. The semi-permanent and the temporary retailer who have problems with their suppliers refer to suppliers not giving the price they had previously agreed upon. All the quoted cases occur with regular suppliers.

E) Access to price information

A lot of traders (68%) get price information from the radio (see Table 22), yet even if they listen to the radio 67% of traders say it is not very useful (see Table 23), because they think broadcasted price is different from reality or sometimes comes too late. 27% of traders get some price information from newspapers.

The agricultural marketing office of the ministry of agriculture, forestry and fisheries is in charge of price dissemination on the radio (Cambodia National Radio and FM96 radio in Battambang province), thanks to the support of ADB. Wholesale and retail prices are collected for more than 80 commodities, in 12 provinces (Phnom Penh, Banthey Meanchey, Battambang, Sihanouk Vill, Kampong Cham, Kampong Chhang, Prey Veng, Kandal, Siem Reap, Kampot, Takeo, and Svay Rieng provinces). In Phnom Penh, prices are collected in 3 markets (Dumkor, chaba Ampou, Oresey), in rice stores, in the fish distribution center at KM11/9, and in a slaughter house (at KM7). The information is collected twice times per week (Monday and Thursday) and disseminated through daily radio services, the duration of which is 5 minutes. Time of dissemination is usually at 6:05 pm every day.

It would be good to assess the time variation of prices to see if twice a week is a sufficient frequency of collection to get reliable prices.

Table 22 – Source of price information

Information	Number	Percentage
Radio	35	68%
Newspapers and radio	11	21%
Newspapers	3	6%
No information	2	4%
Total	51	

Table 23 – Perception of price information

	Number of traders	Percentage
Declared as useful	16	33.3%
Declared as not useful	32	66.7%

F) Traders' financial results

1. Marketing costs

Transport costs

Transportation cost from farm to market was reported in terms of riel/bags or basket; normally one basket weighs between 180 and 200 kg.

Average transport costs are indicated in Table 24 for each type of traders:

Table 24 - Average transports cost per day by average May-June and September

Nature of traders	Market		
	Chba Ampou (riel)	Oresey (riel)	Dumkor (riel)
Permanent retailer	584	4,833	2,417
Semi-Permanent retailer	500	3,500	1,500
Temporary retailers	500	3,250	
<i>Total retailers (except producer-retailers)</i>	<i>528</i>	<i>3,861</i>	<i>1,959</i>
Permanent wholesaler	6,334		
Semi- permanent wholesaler	650		12,334
<i>Total wholesalers</i>	<i>3492</i>		<i>12,334</i>
Producers	2,250		5,584
Collectors	7,250		5,584
Producer & retailers	2,000		
Producer & Collectors			7,042
<i>Total Producers</i>	<i>2,125</i>		<i>6,313</i>
<i>Total Collectors</i>	<i>7250</i>		<i>5,584</i>

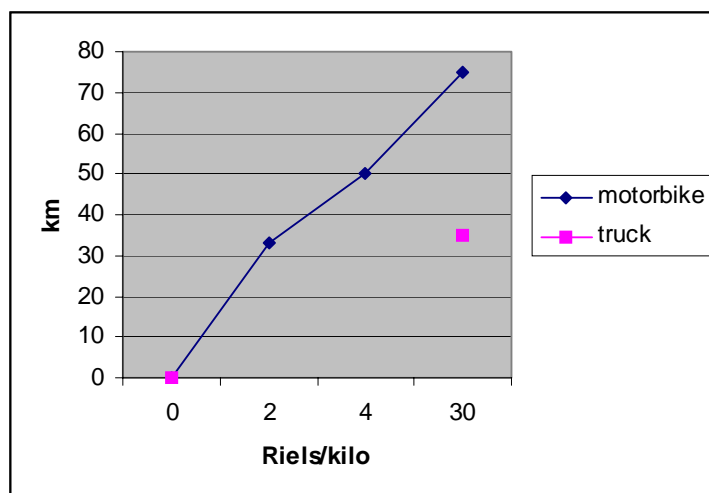
- Among retailers, retailers at Oresey market have the highest transport costs (by motorbike or by moto-driven cart) because they usually take their products from Dumkor market (2 km from Oresey market). They sometimes needed to go to Dumkor market two or three times per day to renew their products as they don't want to store too many vegetables while customers demand the freshest vegetables. Retailers in Dumkor and Chaba Ampou only need to get vegetables from the wholesale area to the retail area by hand cart.
- In Dumkor market, permanent wholesalers don't have to pay for transport because they are delivered on the spot, while in Chaba Ambou some wholesalers transport products from Dumkor market.

Some examples of transport fares are presented in Table 25 and Figure 2.

Table 25 – Some examples of transport fares

Vehicle	From	To	Distance (Km)	Commodity	Unit	Kg	Cost, Riel	Cost, R/kg	Trsp.cost R/kg-km
Truck	Kandal (Saang)	Dumkor	30	Vegetable	Basket	200	7000	35	1.2
Motorbike	Kandal (Saang)	Dumkor	30	Vegetable	Basket	200	15000	75	3
Motorbike	Dumkor	Chaba-Ampou	4	Vegetable	Basket, or plastic bag	60	3000	50	13
Motorbike	Dumkor	Oresey	2	Vegetable	Basket, or plastic bag	60	2000	33	17

Figure 2 - Transport fares by kilo and by km around Phnom Penh



Rental costs

Average rental costs are indicated in Table 26 for each type of traders: The rental cost depends on the location and nature of the point of sale. The rental cost of retailers is the lowest at Dumkor market because retailers of this market mostly sell on the ground or on small wooden stalls. The rental cost of wholesalers are higher for Dumkor than Chaba Ampou market because Chaba Ampou is the biggest wholesale market, and the demand for stores is higher there than in Chaba Ampou.

Table 26 - Average rental cost per day (average of May-June and September)

Nature of traders	Market		
	Chba Ampou (riel)	Oresey (riel)	Dumkor (riel)
Permanent retailer	2,925	3,133	1,000
Semi-Permanent retailer	2,500	2,334	1,000
Temporary retailers	1,000	1,917	500
<i>Retailers (except producer-retailers)</i>	2,142	2,461	833
Permanent wholesaler	3,450		19,584
Semi- permanent wholesaler	1,800		3,367
<i>Wholesalers</i>	2,625		11,475
Producers	1,300		
Collectors	1,625		1,000
Producer & retailers			
Producer & Collectors			1,000

Taxes

Taxes are collected on a daily basis. They range from 200 to 600 riels per day (see Table 27), depending on the market, type of stall, amounts traded, and the temporary versus permanent nature of business.

Table 27 -Average taxes cost per day by average May-June and September

Nature of traders	Market		
	Chba Ampou (riel)	Oresey (riel)	Dumkor (riel)
Permanent retailer	325	300	500
Semi-Permanent retailer	467	366	489
Temporary retailers	200	283	375
Permanent wholesaler	467		500
Semi- permanent wholesaler	467		563
Producers	500		
Collectors	333		500
Producer & retailers	300		
Producer & Collectors			
	382	316	488

Total marketing costs

Total marketing costs, including transport, storage cost, taxes, rental, and other associated costs e.g. handling costs, are indicated in Table 28. These costs are logically the highest for permanent versus temporary traders. Orusey market displays the highest marketing costs because of transport costs from wholesale to retail market, and also because of high rental cost. In Dumkor market, the marketing costs are lower for retailers than in Chaba Ampou because they get their supply on the spot, but on the other hand marketing costs are higher for wholesalers because of higher rental costs.

Table 28 -Average marketing cost per day by average May-June and September (1US\$=4,000Riel)

Nature of traders	Market		
	Chba Ampou (riel)	Oresey (riel)	Dumkor (riel)
Permanent retailer	4,117	10,050	2,267
Semi-Permanent retailer	3,667	8,300	2,834
Temporary retailers	825	6,800	567
<i>Total Retailer (except producer-retailers)</i>	2,869	8,383	1,889
Permanent wholesaler	9,762		21,435
Semi- permanent wholesaler	3,984		22,584
<i>Total wholesaler</i>	6,873		22,095
Producers	7,017		
Collectors	12,184		9,334
Producer & retailers	2,552		
Producer & Collectors			9,813
<i>Total Producers</i>	4,785		
<i>Total collectors</i>	12,184		9,574

2. Income from vegetable sales by types of traders

To take account of the fact that not all the quantities purchased are sold on the day of the interview we used the following formula to calculate traders' incomes:

Net marketing margin (or income) = [resale value (or revenue)] – [purchase value of quantity sold plus quantity lost] minus [total costs outside purchase value]

Purchase value of quantity sold plus quantity lost = (quantity sold plus quantity lost) x price of quantity sold and lost = (quantity sold plus quantity lost) x price of purchased quantity

Price of purchased quantity = purchase value of quantity purchased)/quantity purchased]

Net marketing margin (or income) = [resale value] minus [(quantity sold+ quantity lost) x (purchase value of quantity purchased)/quantity purchased] minus [total costs]

The average incomes for the different categories of traders are indicated in Table 29. Traders' incomes are highest for permanent wholesalers (132,000 riels per day), followed by collectors (84,000 riels per day), producers (72,000 riels per day) and finally retailers (18,000 riels per day). The average income for retailers is higher for permanent and semi-retailers (around 25,000 riels per day), than for temporary retailers (6,000 riels per day). Permanent wholesalers, who get the highest incomes, sell the largest quantities (530 kg/day, compared with 270 kg/day for retailers, and 250 kg/day for collectors).

In September producers and collectors earn more income than in May-June, because local vegetables are rare during this period and the resale price is high. For retailers and wholesalers, incomes vary little between May-June and September.

Table 29 – Average income by category of traders

Nature of traders	Income (riels/day) in May-June	Income (riels/day) in September	Income (riels/day) Average May-June-September
Permanent retailer	32,248	17,189	24,719
Semi-Permanent retailer	25,480	23,649	24,565
Temporary retailers	7,219	4,745	5,982
<i>Retailers</i>	<i>21,649</i>	<i>15,194</i>	<i>18,422</i>
Permanent wholesaler	134,067	129,865	131,966
Semi- permanent wholesaler	31,068	31,975	31,522
<i>Wholesalers</i>	<i>82,568</i>	<i>80,920</i>	<i>81,744</i>
<i>Producers</i>	<i>55,441</i>	<i>88,337</i>	<i>71,889</i>
<i>Collectors</i>	<i>28,651</i>	<i>139,194</i>	<i>83,923</i>

3. Income by types of traders and types of vegetables

We calculated the incomes generated by each type of vegetables (see Table 30, Table 31, Figure 3). As regards retailers, the highest incomes relate to water convolvulus, especially for temporary retailers, which may relate to the ease of access to this vegetable, as production area are nearby, and the fact that this vegetable is quite popular among consumers. Cucumber is the vegetable yielding highest incomes for wholesalers (around 52,000 riel per day in May-June and September), producers and collectors in September when this vegetable is rare locally (400,000 riels per day for producers, 340,000 riels per day for collectors). Cucumber is the vegetable which is sold in highest quantity by wholesalers (325 kg/day for permanent wholesalers, 905 kg/day for semi-permanent wholesalers in May-June; 377 kg per day for permanent wholesalers in September; 950 kg/day for collectors in May-June; 267 kg/day by producers in September, and 150 kg/day by producer-collectors). Choysum yields also high incomes for producers (180,000 riels/day) and collectors in September (193 000 riels per day). On the whole, imported

vegetables, e.g., tomato, cabbage and Chinese cabbage, yield lower incomes than local vegetables (cucumber, yard long bean, lettuce, choysum and water convolvulus).

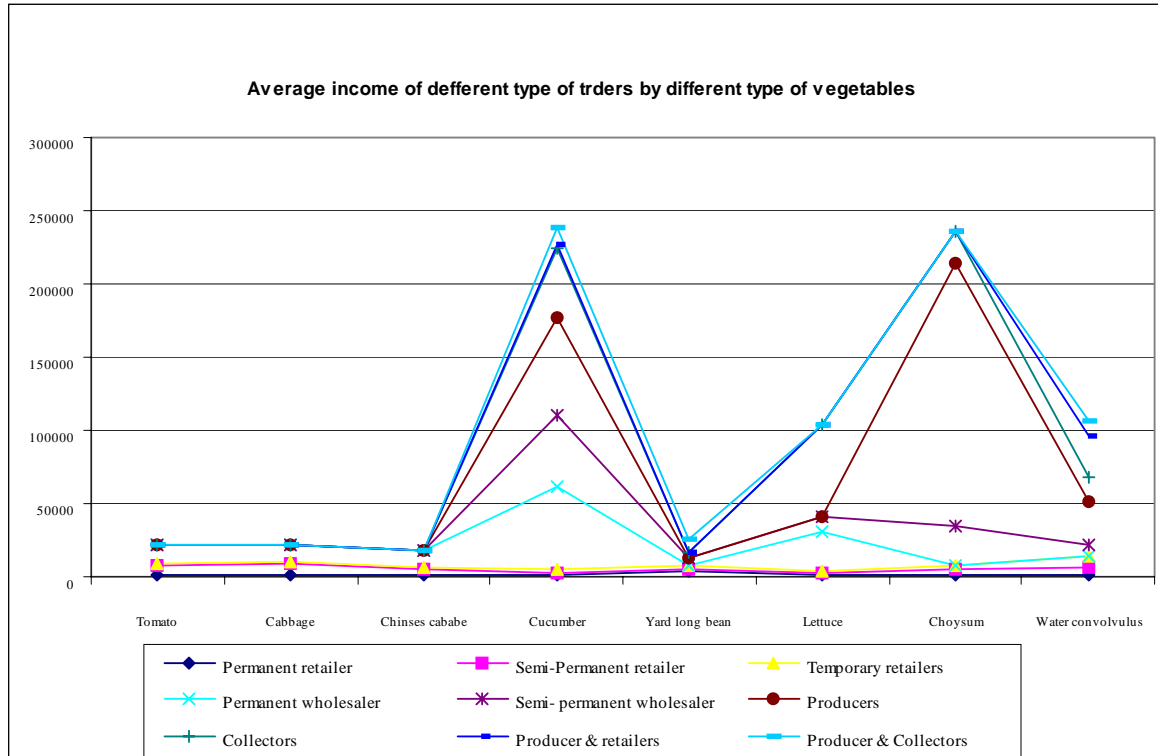
Table 30 - Average income generated by different types of vegetables in May-June

Nature of traders	Average income by type of Vegetables (riel)							
	Tomato	Cabbage	Chinese cabbage	Cucumber	Yard long bean	Lettuce	Choysum	Water convolvulus
Permanent retailer	970	1,615	1,610	975	3,873	1,128	1,817	1,800
Semi-Permanent retailer	6,264	7,670	3,353	1,776	1,653	932	3,249	4,735
Temporary retailers	1,216	1,516	916	2,262	1,697	2,271	2,642	7,763
Retailers	2,817	3,600	1,960	1,671	2,408	1,444	2,569	4,766
Permanent wholesaler	13,116	11,218	12,351	56,165		26,178		
Semi-permanent wholesaler				48,865	5,715	11,096	26,573	8,000
Wholesaler	13,116	11,218	12,351	52,515	5,715	18,637	26,573	8,000
Producers				34,403			179,985	28,459
Collectors				30,110	6,390	62,209	22,266	13,662

Table 31 - Average income generated by different types of vegetables in September

Nature of traders	Average income by type of Vegetables (riel)							
	Tomato	Cabbage	Chinese cabbage	Cucumber	Yard long bean	Lettuce	Choysum	Water convolvulus
Permanent retailer	2,003	1,482	1,570	1,608	713	1,628	1,478	
Semi-Permanent retailer	12,944	4,203	4,828	9,167	1,797	1,138	3,938	2,820
Temporary retailers		9,962		5,311	3,889		3,028	10,193
Retailer	7,474	5,216	3,199	5,362	2133	1383	2515	6,507
Permanent wholesaler	60,404	29,998	30,042	49,847	14,998	13,422		
Semi-permanent wholesaler	58,652			53,996	14,974	49,921	47,108	
Wholesaler	59,528	29,998	30,042	51,921	14,986	31,671	47,108	
Producers				399,988		59,940		18,423
Collectors	35,589			337,477	22,455	63,165	193,386	

Figure 3 - Average income by types of traders and by types of vegetables



4. Income relative to business experience

The two tables below suggests the usual feature that experienced sellers earn more, as they are able to attract more and more customers (Table 32, Table 33). Yet several additional factors explain the differences in income, including location, chrism, quantity and type of vegetables.

Table 32 - Income per day for different experience in business in May-June

	Nature of traders		
	< 3 years	>=3 -< 5 years	> 5years
Permanent retailer		30,033	32,638
Semi-Permanent retailer	4,875		28,055
Temporary retailers	6,559	3,175	10,561
Permanent wholesaler		141,889	130,157
Semi- permanent wholesaler	9,000	17,614	39,949
Producers			55,441
Collectors		19,925	35,035

Table 33 - Income per day for different experience in business in September

	Nature of traders		
	< 3 years	>=3 -< 5 years	> 5years
Permanent retailer		7,800	18,363
Semi-Permanent retailer		18,850	25,021
Temporary retailers	1,350	5,167	6,587
Permanent wholesaler			129,865
Semi- permanent wholesaler			31,975
Producers		390,000	28,637
Collectors	324,500	30,500	120,040

4. Income in relation with quantities

The data suggests that the more the quantities sold by traders, the higher the incomes (Table 34): retailers selling more than the average traded by retailers (that is 70 kg/day in May-June, 75 kg in September), get more than 5 times the income of retailers selling less than 70 kg/day in May-June – the difference is three times in September. As for wholesalers, the one selling more than 550 kg/day (the average for wholesalers) get more than twice more the ones selling less than 550 kg/day in May-June, and the ones selling more than 2000 kg/day sell more than 5 times the income of the ones selling less than 75 kg/day in September.

Table 34 – Income in relation with quantities traded

May-June 2002	Less than 70 kg/day	More than 70 kg/day
Retailers	8,660 riels/day	52,251 riels/day
	Less than 550 kg/day	More than 550 kg/day
Wholesalers	42,064 riels/day	90,575 riels/day
September 2002	Less than 75 kg/day	More than 75 kg/day
Retailers	12,040 riels/day	33,586 riels/day
	Less than 2000 kg/day	More than 2000 kg/day
Wholesalers	29,136 riels/day	153,418 riels/day

5. Marketing margins

Marketing margin rates have been calculated as the percentage of revenue relative to the purchase value (see Table 35 and Table 36). In the net marketing margins, the marketing costs are deduced from the calculation of revenue.

The average net marketing margin is 22% for retailers in May-June (31% in September, 25% on average), 16% for wholesalers in May-June (13% in September, 15% on average) and 25%

for collectors in May-June (20% in September). On the whole these figures are quite low when compared with other contexts⁵.

Table 35 – Gross and net marketing margin rates for vegetables in May-June

- the margin is considered relative to the purchase price -

	Gross margin rate	Net margin rate
Retailers	32%	22%
Wholesalers	20%	16%
Collectors	32%	25%

Table 36 – Gross and net marketing margin rates for vegetables in September

	Gross margin rate	Net margin rate
Retailers	42%	31%
Wholesalers	20%	13%
Collectors	50%	20%

The margins are highly variable within one category of traders as shown in Table 37, Table 38, Table 39, and Table 40

Table 37 – Minimum and maximum values of net marketing margin rate in May-June

	Minimum	Maximum
Retailers	4%	73%
Wholesalers	8%	41%
Collectors	6%	61%

Table 38 – Minimum and maximum values of gross marketing margin rate in May-June

	Minimum	Maximum
Retailers	10%	90%
Wholesalers	11%	44%
Collectors	13%	79%

Table 39 – Minimum and maximum values of net marketing margin rate in September

	Minimum	Maximum
Retailers	6%	86%
Wholesalers	4%	42%
Collectors	8%	98%

⁵ For instance, in the United States, the price spread marketing margin was around 300% for lettuce and 600% for potato in 2000 (www.ers.usda.gov/briefing; food marketing and price spreads). The marketing margins for vegetables in France are more than 100% (Jean-Claude Montigaud, INRA, personal communication). In some countries of Africa, marketing margins on vegetables lay between 50 and 100% (Paule Moustier, 1995, On performance of urban vegetable supply in African Countries. In : Montigaud J.C., Albisu L.M., Avermaete U., Ekelund L., Meijaard D., De Kleijn E., *XII International symposium on horticultural economics : Economics, marketing and management*. Wageningen, Pays-Bas, ISHS, n. 340, p. 307-313, 8 réf., 2 tabl. Symposium on Horticultural Economics. 12, 1992/09/07-11, Montpellier, France. *Acta Horticulturae*)

Table 40 – Minimum and maximum values of gross marketing margin rate in September

	Minimum	Maximum
Retailers	10%	109%
Wholesalers	15%	50%
Collectors	17%	120%

Table 41 shows the deconstruction of marketing costs and margins as function of the total revenue (i.e. the resale value); it also represents the percentage of costs and margins in the final price; for retailers, wholesalers and collectors, the net margin is less than 20% of the final revenue (or price), while the different marketing costs (apart from purchase costs) are less than 4%. As for losses, they amount to less than 4% of the quantities purchased: 2.7% on average (3.4% for retailers, 2.2% for wholesalers, and 2.8% for collectors)

Table 41 – Deconstruction of costs, margins and revenues for retailers, wholesalers and collectors (all values in riels/day) in May-June 2002.

- Here the percentage of net margin is considered relative to the final price -

			% of final price
Retailers	Purchase value	76967	78%
	Rental cost	1192	1%
	Taxes	304	0%
	Transport costs	2060	2%
	Storage costs	120	0%
	Other costs	1268	1%
	<i>Net margin</i>	17384	18%
	Revenue	99295	
Wholesalers	Purchase value	432521	86%
	Rental cost	4642	1%
	Taxes	483	0%
	Transport costs	3050	1%
	Storage costs	83	0%
	Other costs	4308	1%
	<i>Net margin</i>	55221	11%
	Revenue	500308	
Collectors	Purchase value	189440	80%
	Rental cost	500	0%
	Taxes	400	0%
	Transport costs	8900	4%
	Storage costs	600	0%
	Other costs	2860	1%
	<i>Net margin</i>	35241	15%
	Revenue	237941	

Table 42 – Deconstruction of costs, margins and revenues for retailers, wholesalers and collectors (all values in riels/day) in September 2002

			% of final price
Retailers	Purchase value	69,924	54%
	Rental cost	2,318	2%
	Taxes	242	0%
	Transport costs	1,520	1%
	Storage costs	96	0%
	Other costs	1,220	1%
	<i>Net margin</i>	<i>53,030</i>	<i>41%</i>
	Revenue	89,774	
Wholesalers	Purchase value	988,563	91%
	Rental cost	7,361	1%
	Taxes	313	0%
	Transport costs	5,792	1%
	Storage costs	83	0%
	Other costs	9,275	1%
	<i>Net margin</i>	<i>80,919</i>	<i>7%</i>
	Revenue	1,092,306	
Collectors	Purchase value	108,667	75%
	Rental cost	500	0%
	Taxes	250	0%
	Transport costs	2833	2%
	Storage costs	0	0%
	Other costs	4,800	3%
	<i>Net margin</i>	<i>28,721</i>	<i>20%</i>
	Revenue	145,771	

6. Price deconstruction by commodity

The deconstruction of prices between wholesale and retail stages is presented in Table 43 for tomato, water convolvulus and cucumber. These data should be used with caution, as they were gathered on a small sample (around 4 wholesalers and 9 retailers for each product and survey), but we believe they are quite reliable as the differences of prices among traders are small (less than 20%). The data show low marketing margins for all products, from 9 to 30% for wholesalers, and from 15 to 40% for retailers. The highest margins (40%) are obtained by retailers on water convolvulus in September, which they buy directly from producers, but in small quantities (27 kilos per day on average). The purchase of tomato from Kandal seems to yield higher margins for wholesalers (30%) than tomato from Vietnam (10%). The collection of tomato from Kampongspu yield high margins (59%) for collectors.

Table 43 – Price deconstruction of tomato, water convolvulus and cucumber**Deconstruction of tomato price (origin : Vietnam), May-June 2002**

Sample : 4 wholesalers, 10 retailers

Purchase price (wholesalers)	1025		70%
Wholesalers' costs	65		4%
Wholesalers' margin	100	10%	7%
Purchase price (retailers)	1190		
Retailers' costs	21		1%
Retailers' margin	195	16%	13%
Retail price	1406		

Deconstruction of tomato price (origin : Kandal), May-June 2002

Purchase price (wholesalers)	700		64%
Wholesalers' costs	183		12%
Wholesalers' margin	217	31%	15%
Purchase price (retailers)	1100		

Deconstruction of tomato price (origin : Vietnam), September 2002

Sample : 4 wholesalers, 9 retailers

Purchase price (wholesalers)	1033		70%
Wholesalers' costs	36		2%
Wholesalers' margin	91	9%	6%
Purchase price (retailers)	1160		
Retailers' costs	77		5%
Retailers' margin	232	20%	16%
Retail price	1469		

Deconstruction of tomato price (origin : Kampongseu), September 2002

Sample : 1 collector

Purchase price (collector)	450		60%
Collectors' costs	36		5%
Collectors' margin	264	59%	35%
Resale price (collector)	750		

Sample : 1 wholesaler

Purchase price (wholesalers)	350		70%
Wholesalers' costs	98		20%
Wholesalers' margin	52	15%	10%
Resale price (wholesalers)	500		

Deconstruction of cucumber price (origin : Kandal), May-June 2002

Sample : 4 wholesalers, 9 retailers

Purchase price (wholesalers)	460		53%
Wholesalers' costs	12		1%
Wholesalers' margin	98	21%	11%
Purchase price (retailers)	570		
Retailers' costs	101		12%
Retailers' margin	198	35%	23%
Retail price	869		

Deconstruction of cucumber price (origin : Kandal), September 2002

Sample : 4 wholesalers, 9 retailers

Purchase price (wholesalers)	475		57%
Wholesalers' costs	52		6%
Wholesalers' margin	73	15%	9%
Purchase price (retailers)	600		
Retailers' costs	127		15%
Retailers' margin	101	17%	12%
Retail price	828		

Deconstruction of water convolvulus price (origin : Phnom Penh), May-June 2002

Sample : 1 wholesaler, 3 retailers, 2 collectors

Purchase price (wholesalers)	400		54%
Wholesalers' costs	26		4%
Wholesalers' margin	74	19%	10%
Purchase price (retailers)	500		
Retailers' costs	102		14%
Retailers' margin	140	28%	19%
Retail price	742		

Deconstruction of water convolvulus price (origin : Phnom Penh), September 2002

Sample : 4 retailers

Purchase price (retailers)	254		59%
Retailers' costs	76		18%
Retailers' margin	101	40%	23%
Retail price	431		

G) Business difficulties

Out of 51 traders, 8 (15%) declare they do not have difficulties in the conduct of their business. 15 traders (29%) declare their business yields low profit and that it is difficult to make a living out of it. 12 traders (24%) complain about the bad conditions of market places : small space, bad smell. Five traders (10%) declare that the main difficulty is the shortage of vegetables during the rainy season. The other problems mentioned include: distance between market and the house (4 answers); tiring business because it starts early morning (3 answers); difficulty to attract consumers inside the market as some sellers trade outside (two answers).

H) Comparison between vegetable origins**1. Traders' perceptions of differences according to origin**

Questions on the differences between local and imported vegetables were posed for the vegetables that may originate from Vietnam or Cambodia i.e. tomato, cabbage, Chinese cabbage. 36 traders were interviewed in September 2003, including 16 traders selling only imported products whatever the time of the year (7 semi-permanent retailers, 6 permanent wholesalers, and 3 permanent retailers), while 20 traders combine the sale of local and imported products (7 semi-permanent retailers, 4 permanent wholesalers, and 9 permanent retailers.) All the data given below relate to perceptions by traders, which may be different from reality, in particular what relates to safety of products. Yet we believe the information on traders' perceptions is always important to get as it will determine their behavior in terms of purchase of imported versus local products; besides it can be changed by supply of market information by public agencies, in addition to interventions on vegetable production.

The following origin is given by traders for the imported products: Dalat, Prey Nokor and Dunlorb (at the Cambodia-Vietnam border).

Table 44 – Origin of imported vegetables as declared by Cambodian traders

Traders	Tomato			Cabbage			Chinese cabbage		
	Dalat	Prey nokor	Dunlorb	Dalat	Prey nokor	Dunlorb	Dalat	Prey nokor	Dunlorb
Number of traders	9	4	5	19	4	6	8	4	4

The differences between imported and local products, as perceived by traders, are indicated below.

- 1) *Difference in size and weight:* Imported vegetables are declared to be bigger than local vegetables; imported cabbage is heavier than the local one. One trader said the average size of local cabbage is 13 cm, while the imported cabbage is 20 cm. The imported tomato is declared as more spheric than the local ones; they have less seeds. These differences may be related to different varieties.
- 2) *Difference in color:* Imported tomatoes are redder than local tomatoes, while imported cabbages are whiter than local ones (for the same degree of ripeness). Restaurants like to buy the imported tomato because of their red – decorative – color. Once again, this may be due to differences in varieties.
- 3) *Difference in shelf life:* The length of conservation of imported cabbage and tomato is declared by traders to be longer than local ones: 5 to 6 days instead of 3 days. Local tomato lasts 2 to 3 days, while imported tomatoes last 4 to 6 days. There are different possible explanations: (1) different varieties; (2) different transport conditions (3) different storage. According to some traders, Vietnamese producers or collectors This would use a chemical product that they put inside the cabbage (and that is withdrawn by the Cambodian retailers), and that increases the cabbage shelf life.
- 4) *Difference in taste:* Local vegetables are declared to taste better than imported vegetables. The leaves of local cabbages are said to be very sweet, soft, and fresh, while imported cabbage is kept a long time between production and retail sale. Local tomato is tastier than imported tomato.
- 5) *Difference in safety risks:* Local vegetables are perceived as not using chemicals, while imported vegetables do. The 14 traders of imported cabbage declared chemical products were used; while only 4 traders out of 14 traders of local cabbage declare local cabbage is produced with chemicals. The 10 traders of imported tomato declare they are produced with chemicals, while the figure is only 2 out of 8 traders of local tomato. This perception is related to traders' observation of longer shelf life and less tastier products which according to them are related to the use of chemical products.
- 6) *Difference in availability:* Imported vegetables are available all year round while local vegetables are only available a few months after the flooding season (January to May-June).
- 7) *Difference in prices:* Local vegetables are a little cheaper than imported vegetables when available at the same moment. The average price of local cabbage was 771 riel/kg in March 2003 while the average price of imported cabbage was 871 riel/kilo that is a difference of 100 riel/kilo (around 10%). The average price of local tomato is 1200 riel/kilo, and the price for imported tomato is 1000 riel/kilo (difference of 20%). This price data has been calculated by taking around 3 traders per commodity and origin, and should be collected on a bigger sample.

2. Results of pesticide analysis

In order to confront traders' perceptions of vegetable safety with the actual level of pesticide residues, some analysis was carried out on local and imported vegetables. The following method was used for vegetable sample collection.

On Saturday, May-June the first, at 5 p.m., we went to Dumkor market to collect 5 imported tomatoes, 5 external leaves of imported cabbage, and 5 external leaves of imported Chinese cabbage, from five different stores. It was not possible to take the first external leaf of cabbage and Chinese cabbage, as the traders had already taken out some external leaves. On the same day we collected vegetables in Dey Eth village, Dey Eth commune, Kiensvay District, Kandal province, Cambodia. We collected the first external leaf of Chinese cabbage, the first external leaf of green mustard, and also some tomatoes (5 samples of each product). We could not collect local cabbage, as it was not the season of cabbage production in Cambodia. The samples were analyzed several days after in Hanoi RIFAV laboratory, by a quick test used in Taiwan. This test enables to identify excessive pesticide residues, for two pesticide categories (carbamate and organophosphate).

The analysis shows an excess of pesticide residues for the following products (see Table 45 and Table 46):

- imported cabbage
- local Chinese cabbage (for carbamate)
- local green mustard (for organophosphate)

No excess residues were identified for local or imported tomato (but these are more subject to excess in fungicides than in pesticides), nor in imported Chinese cabbage.

These analyses should be replicated on a larger sample, and in the case of imported vegetables, the first external leaves should be looked for (by interviewing traders in the early morning). The analyses suggest that there are no significant differences between pesticide residues in local versus imported vegetables, and that Cambodian farmers should reduce the quantities of pesticide they use if they want to have a more sustainable reputation for safe products by traders.

Table 45 – Results of pesticide analysis for imported vegetables

Vegetables	% inhibition of AChE (1)	
	Carbamate	Organophosphate
Tomato	20.15	22.5
Cabbage	26.7	28.32
Chinese cabbage	18.95	22.34

(1) a percentage higher than 25% indicates excess in pesticide residue

Table 46 – Results of pesticide analysis for local vegetables

Vegetables	% inhibition of AChE	
	Carbamate	Organophosphate
Tomatoes	17.5	18.9
Chinese Cabbage	27.5	17.5
Green mustard	16.5	32.67

(1) a percentage higher than 25% indicates excess in pesticide residue

I) Conclusions

About market organisation

Phnom Penh markets are supplied by producers, collectors, wholesalers and retailers for local products, and by wholesalers and retailers for imported products – the same wholesalers and retailers may sell local or imported products according to their respective availability. While retailers in Dumkor and Chaba Ampou markets have direct access to supply as they are located in markets combining wholesale and retail activities, retailers of Orussey market have to move to the wholesale markets to get their supply. On the whole, the quantities transacted by each intermediary are quite small – the highest, for wholesalers are around 500 kilos per day. Transportation mostly takes place by motorbike.

About conditions for increased benefits in the market

Traders' financial results show that income mostly depends on quantities sold; stakeholders with higher incomes sell higher quantities, with low or average net margin rate. Incomes not depend much on origin of product, type of product, and years in business. Income depend a little on relation with suppliers

Hence it is important to increase scale and regularity of supply to enhance income generation for traders. We need the economic data from the studies of production systems (component 1 of Susper project) to be able to deconstruct costs, prices and incomes between the different stakeholders of the commodity chains, and assess the equity in the distribution of incomes along the chain.

About access to market information:

Information on prices is available from radio but not very useful as prices are different from reality and come too late. It is recommended to better appraise traders' needs for market information, and to assess whether there is a demand for more reliable delivery of market information to them.

About competitiveness of the commodity system:

This survey has generated the following hypotheses about competitiveness of local vegetable commodity chains relative to imported ones: local commodity chains are less competitive than imported ones in terms of product availability (mostly due to climatic factors), but they are more competitive in terms of freshness, taste, and alleged reputation of safety. This last characteristic is based more on perception than reality as the conducted analysis has shown excessive pesticide residue in local as well as in imported vegetables. The analysis of incomes suggests that traders earn more with the marketing of local products than with imported products, hence if the quantities of local products are increased, this will benefit farmers as well as traders.

These hypotheses should be tested by analyzing a full commodity chain, from producers to consumers, for a given commodity, e.g., tomato or cabbage, and comparing prices, quantity, quality (in particular, relative to use of varieties and chemical products), at the different levels of the marketing chains. This in-depth commodity chain analysis would also enable to know the balance of incomes between producers and traders.

Appendix

INTERVIEWING GUIDE ON TRADERS' STRATEGIES

Name of market :Date : .../...../..... Identification number

I. Marketing behaviour

Nature of trader : 1 – Permanent Retailer 4 – Permanent Wholesaler 7 – Collector
 2 – Semi-permanent Retailer 5 – Semi-permanent Wholesaler 8 – Producer/Retailer
 3 – Temporary Retailer 6 – Producer 9 – Producer/Collector

List the different products traded by order of importance (*to be observed at the end of interview*)

1-.....2-.....3-.....4-.....
 5-.....6-.....7-.....8-.....
 9-.....10-.....11-.....12-.....

Fill the following table

	Place of production	Own production? Yes - no	Place of purchase			Nature of suppliers (1) Producer (5) C/W (2) Collector (6) P/C/W (3) Wholesaler (7) P/C (4) P/W (8) Own
			On-farm	Market (name of market)	Other	
Tomato						
Cabbage						
Chinese cabbage						
Cucumber						
Yard long bean						
Lettuce						
Choysum						
Water convolvulus						
Other vegetables (if different)						
Changes during the year (state when)						

❖ At what time do you get your supply? From _____ To _____
 ❖ At what time do you sell? From _____ To _____

❖ Do you sell all the months of the year? Yes No
 If no, at what months do you stop selling?
 Why?
 What do you do the months when you do not sell?

❖ Do you sell everyday? Yes No

❖ For the ones transporting the product to the market, state the means of transport used :

1 – Motorbike 3 – Handcart 5 – Motorbike-remork 7- Boat
 2 – Truck 4 – Delivery on-spot 6 – Carrying 8 – Carrying/Boat
 9 – Motorbike-remork/Boat 10- Truck/motorbike-remork 11- Truck/motorbike
 1-Owned 2- Rented Both

II. Organisation and information

❖ Do you have regular suppliers? Yes No

If yes :

How many?

For local products

For imported products

For what percentage of the supply (of local or imported products)?

What is the nature of your relationship with them:

- 1 - They are relatives of mine
- 2- We belong to the same village or district
- 3 -I have known them for several years
- 4 - I give them inputs (seeds, fertilisers..)
- 5 - I give them credit
- 6 - I have to buy from them at all times of the year
- 7 - They have to sell to me at all times of the year

❖ Did you already have problems with your suppliers? Yes No

If yes, what type of problems?

❖ Are the suppliers paid :

1 - cash immediately

2 - After the sale

3 – Part cash, part after the sale

❖ For producers, collectors and wholesalers only :

Do you have regular customers? Yes No

If yes :

How many customers?

For what percentage of the supply (of local or imported products)?

What is the nature of your relationship with them :

- 1 - They are relatives of mine
- 2 - We belong to the same village or district
- 3 - I have been knowing them for several years
- 4 - I give them inputs (seeds, fertilisers..)
- 5 - I give them credit
- 6 - I have to buy from them at all times of the year
- 7 - They have to sell to me at all times of the year

❖ Did you already have problems with your customers? Yes No

If yes, what type of problems?

❖ Are the customers paid :

1 - cash immediately

2 - after the sale

3 – part immediately, part after sale

❖ Do you have cooperation/discussions with other traders :

- 1 - About purchase prices
- 2 - About resale prices
- 3 - To share transport
- 4 – To share storage
- 5 - To pool money

❖ Do you get some information about vegetable prices : Yes No

If yes

1- In the newspaper

2- On the radio

3- On TV

If you get information, is it useful for you?

If not useful for you, why?

III. Comparison between different origins

A – For traders selling imported products only

- 1 – Why don't you sell products from Cambodia?
 1- Supply is not regular
 2 – I have to buy from my suppliers of Vietnam products
 3 – Price is higher
 4 – I get credit from my suppliers
 2 – When are they available?

B - For traders selling local and imported products

What are the differences between local and imported products (give examples for cabbage, tomato, cucumber, Chinese cabbage) :

Name of vegetable :	Local	Imported from _____
Aspect (size, cleanness, colour)		
Length of conservation (freshness)		
Use of chemicals (type of chemicals)		
Taste		
Price (give examples for the same period)		
Quantities available		
Other		

Name of vegetable :	Local	Imported from _____
Aspect (size, cleanness, colour)		
Length of conservation (freshness)		
Use of chemicals (type of chemicals)		
Taste		
Price (give examples for the same period)		
Quantities available		
Other		

V. Economic results (monitoring of accounts)

During the last week for the four mostly traded vegetables, and for the total :

		Veg1	Veg2	Veg3	Veg4	All vegetables
Quantities purchased/day	Min					
	Max					
Quantities resold/day	Min					
	Max					
Quantities lost (thrown away) per day	Min					
	Max					
Purchase price	Min					(purchase value per day) P
	Max					
Resale price	Min					(resale value per day) R
	Max					
Nr of days of sale	Min					
	Max					
Transport costs/day = TC						
Storage costs/day = SC						
Taxes/day = tC						
Rental/day = RC						
Other costs = OC(specify)						

$$\text{Income per day} = (R-P) - (TC+SC+tC+RC+OC)$$

- If the data is very variable, this monitoring should be conducted every two months or every month, for the previous week of business-

- ❖ Does your business allow you to provide for the basic needs of your household? Yes No
If no, what the other sources of income in the household?
- ❖ Have you ever lost entirely your capital? Yes No
If yes, how often did this happen since the beginning of your business?
- ❖ Number of years since start of business (vegetable trade) :

VI. Conclusion

- ❖ What are the main difficulties you face in the conduct of your business (by order of importance)?
- ❖ What are your recommendations for Cambodian producers to improve the supply of the market?

VII. OTHER INFORMATION AND COMMENTS :