CHAPTER X

THE PARTICIPATION OF THE POOR IN OFF-SEASON VEGETABLE VALUE CHAINS TO HANOI

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SUMMARY

The study aims at assessing conditions for an increased involvement of the poor in the vegetable value chains driven by supermarkets and other value-adding outlets, and more generally for increased benefits brought by vegetable marketing activities to small-scale farmers in Vietnam. The off-season vegetable production in Moc Chau and Soc Son was chosen as a sector with potential income-generating opportunities for the poor in the supply of supermarkets and quality food shops. The share of different vegetable retail points in employment and quantities distributed was first assessed through a census in two districts of Hanoi. This showed that fresh vegetables are mostly distributed by street vendors (46%) and ordinary market retailers (39%), while safe vegetable shops and stalls represent 7%, ordinary vegetable shops 6% and supermarkets 1%. The supplying chains of retail points, as well as governance mechanisms and distribution of profits, are different according to the attention given by the retail points as regards vegetable safety: street vendors and ordinary market stalls are supplied in Hanoi wholesale markets by a chain of wholesalers, collectors and farmers (without wholesalers in the case of peri-urban, leafy or winter vegetables); safe vegetable shops, stalls and supermarkets are mostly supplied by farmers' groups, which have integrated various functions of production, packaging, labelling, delivery of input and technical training, as well as quality control (although still at an emerging stage). The Moc Chau Vegetable Cooperative is a good example of horizontal and vertical coordination for the supply of "safe vegetables" to Hanoi shops with the intermediation of Van Tri "safe vegetable cooperative." The cooperative has some impact on the poor through the payment of two salaried workers and contractual arrangements with farmers. The cooperative supplies inputs, technical training, and supports risks, which enables poor farmers to shift from staple food growing to vegetable production. In regard to Soc Son, the contractual relationships between safe vegetable groups, supported by the Adda NGO, Bao Ha, a trade company linked with the Plant Protection Department, and supermarkets, is another case of interesting coordination mechanism enabling small-scale farmers to benefit from higher final prices.

OBJECTIVES

The main objective of the study is to assess conditions for an increased involvement of the poor in the vegetable value chains driven by supermarkets and other value-adding outlets, and more generally for increased benefits brought by vegetable marketing activities to poor farmers in Vietnam. One hypothesis to be tested is that the highest benefits for the poor occur when they are able to supply niche products for which they hold comparative advantage in terms of labor availability, location in areas which can specialize in certain commodities or production seasons due to specific conditions of climate, soil or savoir-faire. This ability is itself determined by the development of farmers' organizations and the promotion of specific labels

The justification of the choice of safe vegetables from Moc Chau and Soc Son is indicated below:

- Preliminary studies have shown that

there is a clear segmentation of the market: ordinary vegetable chains, without indication of quality, supply most of the market stalls and represent more than 95% of the total supply. Safe and organic vegetable chains, with some quality labelling, supply supermarkets, safe vegetable shops and safe vegetable market stalls (Moustier and al, 2005).

- Vegetable safety is a major tool of sale promotion in supermarkets. Supermarkets in Hanoi are mostly supplied by safe vegetable cooperatives or centers located in peri-urban Hanoi, which can produce a certificate of safe vegetable production (although it has not been updated between 2001 and 2004), with an additional supply from Moc Chau and Dalat for off-season vegetables, or certain temperate vegetables (Loc, 2002; Dini, 2002). The same "leader" cooperatives for supermarket supply, i.e., Van Noi, Duyen Ha and Van Tri, supply safe vegetable shops and stalls in addition to supermarkets.
- Van Tri direct sale from farmers to consumers in market stalls is a successful example of a value-adding chain alternative to the supermarket-driven chain.
- Moc Chau is a mountainous area, where a lot of poor farmers live (16% in Chieng ly and An Thai, the main villages for vegetable production, earning less than 70,000 VND/month), including ethnic minorities. Known for its specialization in tea and corn, Moc Chau has started diversifying agricultural products in 2000, with experiments carried by local and international institutes on fruits (e.g., persimmon and longans), flowers, and vegetables. Moc Chau has a clear comparative advantage in the possibility of supplying off-season vegetables (from April to October) to Hanoi due to its cool climate: the average temperature is 28°C, the highest temperature in summer is 31°C, and lowest, in winter, is 6°C. Agricultural land area is 2000 km² in which land with 1 - 1.5° slope accounts for a large proportion. Moc Chau was supplying 20% of the tomatoes in Hanoi in July 2003, and 13% in August, the rest of the supply originated from China for more than 80% of transactions (Susper market survey data in Moustier, 2004; Hoang Bang An and al, 2003). The main producing areas are: rural districts of Thao Nguyen Town, and An Thai Village of Lo Bo commune, Moc Chau Town, where migrants from Hung Yen and Ha Tay introduced the tradition of growing vegetables. Moc Chau supplies Mr D.'s Van Tri Safe Vegetable Cooperative during the off-season.It also supplies Bao Ha, which provisions some supermarkets, and has developed an innovative system of quality control thanks to the support of the Hanoi Plant Protection Department.
- Soc Son District is the district of Hanoi Province with the highest percentage of poor (4.3%). The vegetable production area in this district is 1000 ha with an estimated output of over 12,000 tons per year. The main vegetables grown are the tomato, green bean, and the cabbage, mostly in Thanh Xuan, Dong Xuan, Viet Long, Bac Son, Mai Dinh, and Xuan Giang. Soc Son district is part of the safe vegetable production plans of Hanoi Province. This area has also received a lot of support from foreign organizations, such as an ADDA project aimed at building vegetable production groups in Thanh Xuan, Xuan Giang, and Dong Xuan. Despite this support, farmers of Soc Son District still face a lot of difficulties in developing winter-vegetable plants, including the lack of irrigation water. Their financial constraints prevent them from making investments in infrastructures for production, e.g., net-house, drilled-well, irrigation system. Moreover, they have little knowledge on cultivation technique, and on market information.

Table 99- Source of vegetable supply of selected shops, stalls and supermarkets in 2002

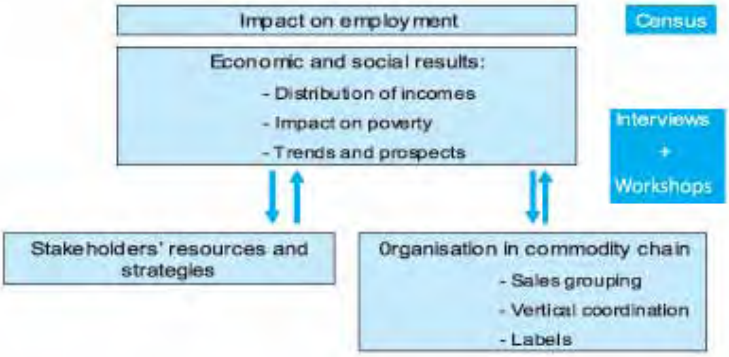
	Periurban safe vegetable suppliers				Rural suppliers	
	Van Noi	Duyen Ha	Van Tri	Technical fruit and vegetable center	Dalat	Moc Chau
Supermarkets	9/11	2/11	1/11	2/11	4/11	2/11
Safe vegetable shops	4/10	4/10		3/10		
Safe vegetable stalls	3/10	3/10	4/10		3/10	4/10

From Nguyen Thi Tan Loc (2002) and Dini (2002)-the number of points of sales interviewed represented more than 80% of supermarkets, safe vegetable shops and stalls selling vegetables

METHOD

The issues investigated in the safe vegetable value chains to answer our objectives relate to: the impact on the employment of the various retail activities, the economic results in the chain, in particular as regards the involvement of the poor, and how these results can be related to stakeholders' resources and strategies, at the individual and collective level (see Figure 29).

Figure 29- Investigated issues



The method of data collection is presented below (see Table 99 on sampling):

1) Evaluating the share of different retail points in employment and supply

We appraised the importance of the different retail points in terms of employment and quantities supplied: shops and safe vegetable market stalls, supermarkets, market retailers, and street vendors, by the following method of census and extrapolation:

- Selecting two districts in Hanoi, Hoan Kiem and Cau Giay
- Enumerating all vegetable vendors in each district and collecting basic information on vegetable categories, selling price, source of vegetables, quantities, and the nature of consumers. The criteria of poverty, such as, the number of hired-laborers, background of vegetable sellers, their living conditions, and income have also been investigated.
- Extrapolating the number of employees and quantities sold in each retail point based on the size of the selected districts relative to urban Hanoi (for street vendors and shops), the share of the selected markets relative to all markets of urban Hanoi in terms of number of traders (for market retailers), and for supermarkets based on the sample characteristics relative to the total number of supermarkets.

2) Investigating vegetable chains from Moc Chau and Soc Son to Hanoi, including safe and ordinary vegetables

The census has been a basis for defining all vegetable vendors for which vegetables have origin from Moc Chau and Soc Son in order to trace back to the commodity chains of these areas. For each channel, we carried out the survey of all the actors, from production to retailing, in order to define the relationships between suppliers and purchasers, exchange of information on quality and quantities, nature of commitments and incentives, cost and benefit distribution, and competition within market channels. The sufficient and necessary conditions to participate in each stage of the marketing chains, including supermarkets and shops, were also investigated.

3) Evaluate the ability of small-scale farmers to participate in different market channels

We have chosen two villages in Moc Chau (Chien Ly and An Thai) and one village in Soc Son, which have the largest volume of vegetables supplied to Hanoi. Before approaching farming households, we made a survey of five vegetable collectors from every village to learn more about the households who sell vegetables to them. Through these collectors, we selected 16 vegetable farmers representative of each village by drawing lots. Then the topics mentioned in step 2 were explored through in-depth interviews, with a special focus on constraints and prospects as regards marketing.

Horizontal and vertical coordination along the commodity chains with poor and non-poor	2 villages of Moc Chau, 1 village of Soc Son : 5 Collectors/village 16 farmers per village chosen randomly from a list given by collectors 2 wholesalers/village of Moc Chau 20 retailers in Hanoi	In-depth interviews	All actors: Relationships with suppliers, including exchange of information, commitments between purchasers and buyers, conditions of payment, quality control (Vertical coordination) Farmers : Production specifications and procedures, as regards conditions for membership, organisation of collective marketing, input supply and services, quality control (Horizontal coordination)
Costs, prices and profits along the commodity chains with poor and non-poor			Quantities sold, all costs of production or marketing; waste, profits, prices
Constraints, opportunities and prospects for increased profits for the poor			Problems in access to factors of production (land, labour, capital), markets, information, for entering the different value chains Prospects of diversification or development Conditions of choice of different suppliers/buyers

Table 100 - Summary of data collection method

MAIN RESULTS

I. ROLE OF DIFFERENT RETAIL OUTLETS IN EMPLOYMENT AND SUPPLY

The diversity of vegetable outlets

The census of the different vegetable retail points shows the diversity of types of sales with varying product quality, vegetable type , selling mode, and the nature of the seller and buyer. This diversity is adapted to the varying living standards of Hanoi residents. Sale points promoting vegetable quality include safe vegetable shops and stalls, plus supermarkets, which mostly target the middle-income and high income people (civil servants, businessmen, and retired people). Street vendors mostly target low income customers (unskilled laborers, students from other provinces, etc.), paying more attention to low price than quality. Fixed market retailers targets to all categories of customers.

Safe vegetable shops and stalls

1. The situation in 2002

In 2002, 10 safe vegetable market stalls and 12 shops had been enumerated in Hanoi (Loc, 2002 and Dini, 2002) – mostly in Dong Da (7/12), Hai Ba Trung (4/12), and between 1 and 2 in the other districts. They either belong to state companies (9/22) – but with a reduced support from the state – or to private actors (7/22). Nearly all safe vegetables and stalls (18/22) have certificates from the department of trade on vegetable safety, but these are not updated. Only a small number (3/22) have fridges. The average quantity sold per day is 162 kg (minimum: 62, maximum: 622), and the number of varieties sold is an average of 16. The vegetables are prepared in bunches or packaged under plastic in the case of the tomato.

2. Safe vegetable Market stalls in 2004

In 2004, we enumerated 16 safe vegetable market stalls in the two districts of Hoan Kiem and Cau Giay (8 in Hoan Kiem, 1 in Cau Giay), while in 2002, 2 stalls had been enumerated in Hoan Kiem, and 1 stall had been enumerated in Cau Giay.

Table 101- List of safe vegetable market stalls in Hoan Kien and Cau Giay

No.	Names of Stalls	Address	Area of Stall (m^2)	Volume traded (kg/day)	Number of vegetables
1	Safe Vegetable Stall – Van Noi	Buoi Market	2	60	18
2	Safe Vegetable Stall - No. 5	Nghia Tan Market	4	120	30
3	Safe Vegetable Stall - No. 8	Nghia Tan Market	4		30
4	Safe Vegetable Stall - No. 10	Nghia Tan Market	4	200	30
5	Safe Vegetable Stall	Nghia Tan Market	4		30
6	Safe Vegetable Stall	Nghia Tan Market	4	150	30
7	Safe Vegetable Stall	Nghia Tan Market	4	110	30
8	Safe Vegetable Stall	Nghia Tan Market	4		30
9	Safe Vegetable Stall of Thanh Tri Production Coo perative	19/ 12 Market	3 - 4	100	15 - 20
10	Safe Vegetable Stall of Van Tri Production C ooperative	19/ 12 Market	3 - 4		15 - 20
11	Safe Vegetable Stall	Hang Da Market	3 - 4	70	15 - 20
12	Safe Vegetable Stall	Hang Da Market	3 - 4		15 - 20
13	Safe Vegetable Stall – HN Food Co.	Dong Xuan - Bac Qua Market	3 - 4	100	15 - 20
14	Safe Vegetable Stall - Dong Anh	Hang Be Market	3 - 4		15 - 20
15	Safe Vegetable Stall - Dong Anh	Hang Be Market	3 - 4		15 - 20
16	Safe Vegetab le Stall - Dong Anh	Hang Be Market	3 - 4	120	15 - 20

Source: Survey data of DSA-VASI in 2004

Each safe vegetable market stall has an area of 2 - 4 m^2, a signboard with its name, address of production unit, (for example: Van Tri Safe Vegetable Production Cooperative), or name and address of selling unit, (for example: Hanoi Food Company). Vegetables are displayed on shelves or placed in plastic baskets. Sixty percent of stalls have their products packed in plastic bags, with the name of the selling unit, name, address, and phone number of production unit, type of product, selling price for 50% of stalls, and date of harvest for 40% of them. Details on the production process are not displayed.

In summer, vegetable stalls operate in the morning from 6 to 12 and in the afternoon from 2.30 to 7 pm. In winter, they usually open 30 minutes later in the morning and close an hour earlier in the afternoon. However, some stalls of Van Tri Safe Vegetable Production Cooperative open only in the morning.

There is one shopkeeper for each stall. Sometimes, the number of sellers is two. In total, 18 people work in the 16 shops. Family members work 30 days per month.

Using 9 sellers' declarations we estimated that the average level of vegetabes sold per day is at 120 kg (minimum = 60 kg, and maximum = 200 kg). Between winter and summer, the diversity of vegetables decreases by 50%.

From the sellers's declarations, consumers of these stalls are mostly those who have high and stable incomes such as, state officers, retired people, and businessmen. They buy from a half to 2 kg of vegetables at a time. In general, consumers keep shopping at the same stall after it has been recommended to them by friends or after trying to shop there several times. Before becoming regular purchasers, consumers ask questions to sellers related to product quality, selling price, and appearance. Having regular customers enables the seller to estimate vegetable volume for the following day or the following week so they can make orders.

The investment, costs and profits of safe vegetable stalls are indicated in Table 102.

Criteria	Value
Operation capital (VND/month) (1)	500 000
* Cost (VND/month)	10 306 000
1 - Cost for buying vegetables	9 000 000
2 - Package + plastic bags	150 000
3 - Water and Electricity	36 000
4 - Hygiene fee	30 000
5 - Parking fee	30 000
6 - Store rent	600 000
7 - Tax	60 000
8 - Petrol	300000
9 - Motorbike repairing fee	100 000
Selling volume of vegetable (kg/ month)	3 600
Purchase price	2500
Difference between buying and selling prices (VND/kg)	600
Total revenue (VND/ month)	11 160 000
Income (VND/month)	854 000
Income per day (VND)	29 000

Table 102- Cost and average income of a market safe vegetable stall in Hoan Kiem and Cau Giay Districts (average, 4 sellers)

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P

(1) defined as capital necessary to engage in one transaction (mostly cost for buying vegetables)

Market stalls do not have big operation capital. The cost of rent accounts for 46% of total cost. The amount of investment required to open a safe vegetable market stall is indicated in Table 103.

Total (VND)	14 780 000
Cash for buying vegetables (VND)	500 000
Monthly stall rent (VND)	600 000
Means of trader (VND) - Moto - Telephone	14 000 000 13 000 000 1 000 000
Consumables (VND) - Moto equipment - Plastic baskets - Other	280 000 100 000 120 000 60 000

Table 103 - Investment required to open a safe vegetable market stall

Source : Survey data of DSA-VASI in 2004, MALICA/MMWB4P; average, 4 sellers in Hoan Kiem and Cau Giay districts

3. Safe vegetable stores

In 2002, 10 stores had been enumerated in Hanoi, but none in Hoan Kiem and Cau Giay (Loc, 2002). In 2004, we enumerated 2 shops in Hoan Kiem and 1 shop in Cau Giay (see Table 104). The main reason for the small number of shops is that rent is very high (600,000 to 1,500,000 VND per month). The enumerated safe vegetable stores have an area of 3 - 4 m2 each, a signboard including name, address of production unit, (for example: Van Tri Safe Vegetable Production Cooperative). Vegetables here are displayed on shelves, tables or placed in plastic baskets.

Working time of these stores, diversity of vegetables and their presentation are the same as in safe vegetable stalls in markets.

Table 104- List of enumerated safe vegetable stores

No.	Name of selling place	Address	Area of selling place (m^2)	Volume (kg/ day)	Number of vegetables
1	Safe Vegetable Store – Van Noi	Nguyen Khang Street	3	70	22
2	Safe Vegetable Store - HN Food Co.	Han Thuyen Street	3 - 4	90	15 - 20
3	Store of Thon Dam Safe Vegetable Production - Consumption Cooperative – Van Tri	Nghia Tan Street	3	80	25

Source: Survey Data of DSA-VASI in 2004, MALICA/MMWB4P

There is one seller for each store, working 30 days per month. They can make an average profit of 500 VND on every kg of vegetables they sell, so on average, their daily income is 19, 000 VND per day, considering a sale of 75 kg per day.

Most consumers of these stores are state officers, retired people, and businessmen. They usually buy from a half to 1.5 kg of vegetables at a time. Each store has 20 to 30 regular customers and 50 to 80 irregular ones per day.

Compared with safe vegetable stores in markets, the rent cost of stores on the street is normally higher (it accounts for 65% of total cost). The estimated costs and benefits are indicated in Table 105.

Table 105- Cost and average income of a safe vegetable stores (average, 3 shops Hoan Kiem + Cau Giay, plus 5 Van Tri shops)

Criteria	Value
Operation capital (VND/month)	500 000
* Cost (VND/month)	8 428 000
1 - Cost for buying vegetable	7 200 000
2 - Package + plastic bags	100 000
3 - Water -Electricity	36 000
4 - Hygiene fee	30 000
5 - Depreciation	17 000
6 - Store rent	800 000
7 - Tax	45 000
8 - Petrol	150 000
9 - Motorbike repairing fee	50 000
Selling volume of vegetable (kg/month)	2 400
Difference between buying and selling prices (VND/kg)	750
Total revenue (VND/ month)	9 000 000
Income (VND/ month)	572 000
Income per day (VND)	19 000

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P

Total (VND)	15 600 000
Cash for buying vegetables (VND)	500 000
Store rent (VND)	800 000
Means of trader (VND) - Moto - Te lephone	14 000 000 13 000 000 1 000 000
Consumables (VND) - Moto equipment - Plastic baskets - Other	300 000 100 000 140 000 60 000

Table 106 - Amount necessary to invest in a safe vegetable shop

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P, average, 4 vendors in Hoan Kiem and Cau Giay

Supermarkets

In 2002, out of a total of 32 supermarkets, 14, i.e. 43%, were selling vegetables (Loc, 2002). In June 2004, 55 supermarkets have been enumerated by the Hanoi Department of Trade (24 according to official definition), 60% (33) of which sell food. In October 2004, we enumerated 23 supermarkets selling fresh vegetables and fruits (i.e., around 42% of supermarkets in Hanoi). Investigating 14 supermarkets selling vegetables leads to the following typology (Loc, 2005):

- the leaders, Metro and Big C, sell respectively an average of 550 (for Metro) and 1100 kg/day (for Big C)
- the medium and large vegetable-selling supermarkets sell 80 to 325 kg of vegetables per day: Intimex Hoan Kiem (325 kg/day), Seyu (285 kg/day) and Fivimart (125 kg/day)
- the small vegetable-selling supermarkets, selling between 25 and 80 kg of vegetables per day

The quantity traded by the 14 supermarkets investigated by Tan Loc (Loc 2005) and Ho Thanh Son is 2,662 kg/day; by extrapolating to include the 9 small supermarkets that were not investigated (with an average of 42 kg/day for small supermarkets), we are left with the estimation of 3.2 t/day of vegetables traded in Hanoi supermarkets (see Table 107 and Table 108)

Name	District	Quantities sold per day	Number of vegetables
Metro Cash & Carry	Tu Liem	400 - 700	60 - 70
Big C	Cau Giay	1.000	30 - 50
Intimex Bo Ho	Hoan Kiem	300 - 350	30
Intimex Hao Nam	Ba Dinh	70 – 90	25
Intimex Lac Trung	Hoan Kiem	50 - 70	18
Fivimart	Hoan Kiem	100 - 150	18
Fivimart Tran Vu	Ba Dinh	35 - 50	20
Fivimart 3	Hoan Kiem	30 – 40	15
Seiyu	Dong Da	250 - 320	35
Marko I	Ba Dinh	40-50	12
Marko II	Dong Da	40 - 50	12
Citimart	Hoan Kiem	40 - 45	15
Minimart	Hoan Kiem	15 – 30	7
Quan Nhan Supermarket	Cau Giay	50	15

Table 107 - Characteristics of 14 supermarkets selling vegetables

Source: Loc's interviews and Ho Thanh Son survey in Hoan Kiem and Cau Giay.

Table 108 - Estimated vegetable quantities sold by supermarkets, early 2005 (kg/day)

	Sample		Total	
	Number	Quantities	Number	Quantities
Metro and Big C	2	1550	2	1550
Medium and big supermarkets (2 Intimex, 1 Fivimart, Seyu)	4	815	4	815
Small supermarkets	8	347	17	737
Total	14	2712		3102

Source: Survey by Nguyen Thi Tan Loc, RIFAV, and Ho Thanh Son, VASI, MALICA/MMWB4P

The area for vegetables varies between 1 and 30 m² (out of a total of 200 to 1,000 m², i.e., around 0.5% of the sale area). Supermarkets sell between 10 to 30 types of vegetables. In 2002, 12 out of 13 had fridges in the selling area, but only 3 out of 13 had a storage area to keep vegetables before sale. Eight out of 13 supermarkets had certificates for safe vegetable trade (Loc, 2002). For 10 supermarkets out of 13, vegetables are packaged in plastic bags, with name, address, and phone number of production unit, type of product, selling price, and date of harvest.

According to the enumeration done in Cau Giay and Hoan Kiem district in 2004, there is one supermarket in Cau Giay District and five in Hoan Kiem District selling vegetables. Vegetables are displayed on shelves or placed in plastic baskets.

Apart from Big C and Metro, vegetable sellers in supermarkets are not specialized. There is one person in charge of vegetables, fruits, and other fresh food such as fish and meat in supermarkets. They work in shifts and earn a monthly salary as all other sellers in the supermarket. They are not provided with any special training on vegetable sales. We estimate employment generated by vegetable sales in supermarkets as follows:

- in regard to Big C, the fruit and vegetable section employs a total of seven people, with fruits being represented 5 times more in quantities than vegetables; so we estimated that 3 persons were working for the vegetable section, and the same number was taken for Metro
- in regard to medium and big supermarkets, we generalized the example of Intimex and Bo Ho with one full-time employee for the fresh product section, 10 people working 1 hour for vegetable preparation and other tasks, so it makes an equivalent of 1.5 employeed for the vegetable section (so 6 employees for vegetable sales in the 4 small and medium supermarkets); while in the small supermarkets, we had a maximum of one person employed for the fresh food section, which makes 0.25 persons (so a total of 4 employees in the 17 small supermarkets.)
- we are left with a total of 16 direct employees for vegetable sales in supermarkets (with interval of error of around 30%); as for indirect employment, it is around 94% relative to direct employment according to C1 data (the total number of employees in supermarkets is 3716, while the number working in stores is 1917), which makes around 31 total employees.

Consumers shopping at supermarkets are mostly those who have high and stable incomes, such as, state officers, foreigners working in Vietnam, import-export traders, and some retired people.

Data on supermarket margins will be given in the value chain section. According to data from the Department of Trade quoted in Tan Loc (2005), the turnover of supermarkets is increasing. For example, the Seiyu Supermarket in Hanoi saw its daily turnover triple from 1996 (700,000 VND) to the end of 2002 (2,000,000 VND). Yet the economic efficiency of the supermarkets is still not a general phenomenon, a fact which poses a problem for investors. As they represent a new method of commerce, certain supermarkets are still not profitable. Thus, of the 70 supermarkets in Hanoi and Ho Chi Minh City, 14 were in the deficit in 2001, 14 were breaking even, and 15 had a profit (more than 500 million VND for ten of them).

Ordinary vegetable market vendors

In Hoan Kiem and Cau Giay, there are 248 vegetable stalls, especcially numerous in Nghia Tan, Hang Be, and 19/12 markets (Table 109).

Each vegetable stall in the market has an area of 2 - 4 m2, some vendors have signboards including their name and address of the store.

	Name of market	Number of vegetable stalls	Total nr of traders (1)	Area of stall (m^2)	Selling volume (kg/ day)	Number of vegetables (type)
1	Nghĩa Tân Market - Cầu Giấy	43	352	3 - 4	100 - 150	30 - 40
2	Trung Hòa Market - Cầu Giấy	21	150	2 - 3	80 - 100	25 - 30
3	Xanh Market - Cầu Giấy	18	200	2 - 4	70 - 90	20 - 30
4	Bưởi Market - Cầu Giấy	17	339	3 - 4	80 - 100	25 - 30
5	Open Market E Hospital - Cầu Giấy	13	30	2 - 3	60 - 90	20 - 25
6	Cầu Giấy Market - Cầu Giấy	9	167	4	80 - 100	25 - 30
7	Hồ Nhất Market - Trung Kính	9	90	3 - 4	70 - 80	20 - 25
8	19/12 Market	37	284	2 - 4	80 - 120	10 - 30
9	Hàng Da Market	18	648	2 - 4	80	10 - 30
10	Cửa Nam Market	3	56	3 - 4	70 - 100	20 - 30
11	Đồng Xuân - Bắc Qua Market	14	1950	2 - 4	90	10 - 30
12	Hàng Bè Market	46	300	2 - 4	60 - 120	10 - 30
	Total	248	4566			
	Total without Đồng Xuân	234	2616 (2)			

Table 109 - Number of ordinary market vegetable stalls

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P

(1) according to data of the Department of Trade in 2004

(2) i.e. 17% of total number of retail traders in urban Hanoi without Dong Xuan (15,249 traders, while the total number of traders including Dong Xuan is 17,199), according to the data of the Department of Trade in 2004, for the urban districts, i.e., Ba Dinh, Tay Ho, Hoan Kiem, Hai Ba Trung, Dong Da, Thanh Xuan, and one part of Gia Lam (35% of the area) and Thanh Tri Districts (41% of the area), which have turned into Long Bien and Hoang Mai Districts in 2004. So we added the number of retailers in the old urban districts (16,113) , plus 35% of the number of retailers in Gia Lam District (2058), plus 41% of retailers of Thanh Tri District (892), which makes 1,086. For the markets with missing data on traders, we used the average number of traders/m^2 and halved it (these markets being not fully in use). The number of traders in the old urban districts (16,113) is calculated by taking all traders of markets of type 3 (9,310), all traders of markets of type 2 (3,202), the traders of markets of type 1, except Long Bien, Dich Vong, one half of Nga Tu So and one half of Mo, who are considered as wholesalers (2,785), and adding the extrapolated number of traders for the two type 3 markets where only the area is available using the average number of traders/m^2 and halved (which gives 816 traders). We take out Dong Xuan from the extrapolation as it is a specific market where the food section is much reduced relative to the non food market. Extrapolating the number of vegetable retailers to the old urban market area (without Dong Xuan) leaves us with a figure of 1,364 vegetable retailers, and a total of 1,378 retailers by adding the enumevation of Dong Xuan vegetable retailers. The enumerated 248 vegetable retailers make up 18% of the total vegetable retailers in the urban portion of Hanoi.

When considering the urban districts defined before 2004, the number of traders in the surveyed markets, except Dong Xuan (2,616), represent 18% of the total number of traders (14,191, i.e. 16,141, the number of traders in the old urban districts, minus 1,950, the number of traders in Dong Xuan); the extrapolation gives 1,267 vegetable retailers, hence a total of 1,280 vegetable retailers for the old urban districts when adding Dong Xuan.

In summer, vegetable stalls open in the 7p.m. in the afternoon. In winter, they usually open 30 minutes later than in the morning and close an hour earlier in the afternoon. The vegetables are diverse in these markets. In the main season, there are approximately 30 categories of vegetables, and in the other periods the vegetable number ranges between 15 to 30. Vegetables sold in ordinary market stalls are not packed in advance, do not have label or prices on display, except some stalls, located close to the safe vegetable stalls which display prices for some categories of vegetables. There is commonly one professional seller for each ordinary vegetable stall (with possible rotations between two relatives). They are mostly newly-married or retired women living in the urban districts, who open a vegetable stall to earn a living.

The maximum quantity traded daily by stall is 60 kg, the maximum 150 kg, and the average 100 kg (from the declarations of 20 traders).

This latter data is close to the figure of 110 kg on average for urban traders displayed by Gia and et al. (2004) – but Gia's survey gives a mini

mum of 10 kg/day and a maximum of 4200 kg/day; besides, it indicates that the average quantities traded in peri-urban areas are lower (40 kg/day).

Customers are diverse including civil servants, and businessmen. They buy from 1 to 2 kg of vegetables at a time.

Surprisingly, although the selling prices of ordinary vegetables sold next to safe vegetable shops are quite similar, customers do not usually question about the product quality. On the other hand, these vegetable stores often have a stable number of customers though they do not have regular ones. According to the sellers, shoppers keep buying vegetables in their stores due to the fact that there are more vegetable categories and their vegetables generally look fresher, greener and more beautiful than in the safe vegetable stalls.

Economic results are given in Table 110. The result of an average income of 20,000 VND/day is similar to the result given by Gia and et al. (2004). The operation capital and monthly cost of an ordinary vegetable stall is lower than the safe vegetable stall and stores.

Table 110- Cost and average income of ordinary market vegetable retailers in Hoan Kiem and Cau Giay districts

Criteria	Value
Operation capital (VND/month)	**400 000**
Cost (VND/month)	7 690 000
1 - Cost for buying vegetable	6 900 000
2 - Plastic bags	100 000
3 - Water - Electricity	36 000
4 - Hygiene fee	30 000
5 - Parking fee	60 000
6 - Store rent	300 000
7 - Tax	45 000
8 - Petrol	120 000
9 - Motorbike repairing fee	100 000
Selling volume (kg/ month)	3 000
Difference between buying and selling prices (VND/kg)	470
Revenue (VND/ month)	8 310 000
Income *(VND/month)*	**620 000**
Income per day (VND)	**20 000**

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P

The capital necessary to open an ordinary vegetable market stall is indicated in Table 111.

Table 111 - Investment required to open an ordinary vegetable market stall

Total (VND)	11 650 000
Cash for buying vegetables (VND)	400 000
Stall rent (VND)	3 00 000
Means of trader (VND)	11 000 000
- Moto	11 000 000
Consumables (VND)	250 000
- Moto equipment	100 000
- Plastic baskets	100 000
- Other	50 000

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P; average, 8 sellers in Hoan Kiem and Cau Giay Districts

Ordinary vegetable shops

These shops have the same characteristics than market vendors in terms of opening time, type of seller, and store layout. However, vegetable shops have a smaller size (2 –3 m2), fewer categories of vegetables (18 to 30), and a smaller volume of vegetable sales per day (60 to 100 kg). The location and size of enumerated ordinary vegetable shops is indicated in Table 112.

No.	Store address	Number	Store area (m^2)	Volume sold (kg/ day)	Number of vegetables
1	Co Nhue – Cau Giay Street	12	2 - 3	60 - 80	20 - 30
2	NG. Khang – Cau Giay Street	7	2 - 5	60 - 90	22 - 30
3	Buoi – Cau Giay Street	2	3	60 - 100	18 - 25
4	Phan Chu Trinh Alley	1	3 - 4		15 - 20
5	Han Thuyen Street	5	3 - 4		20 - 30
	Total	27			

Table 112 - Number of ordinary vegetable shops

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P

Store owners are normally Hanoi citizens who live nearby. They are usually female retired workers of factories (22%), or farmers (78%), living in adjacent areas, who lost some agricultural land because of urbanization. Selling vegetables brings quite stable income to these families though their living standard is low when compared with the other households in the area.

Customers buying vegetables are very diverse, e.g., unskilled laborers, students, retired people, businessmen, and civil servants. The number of customers is not stable, many customers buy on an occasional basis, according to their movements in the city. Hence, the vendors do not pay much attention to the quality of the sold vegetables, which they mostly buy in wholesale markets, at the lowest possible price.

One person works in each stall, everyday of the month, during 10.5 months. The income is estimated at 24 000 VND/day, the rent fee accounts for 63% of total cost (see Table 113).

Criteria	Value
Operation capital (VND/month)	**300 000**
* Cost (VND/month)	5 900 000
1 - Cost for buying vegetable	4 950 000
2 - Plastic bags	75 000
3 - Hygiene fee	30 000
4 - Depreciation	15 000
5 - Store rent	600 000
6 - Tax	30 000
7 - Petrol	150 000
8 - Motorbike repairing fee	50,000
Selling volume (kg/month)	2 250
Difference between buying and selling prices (VND/kg)	750
Revenue (VND/ month)	6 637 500
Income (VND/ month)	737 500
Income per day (VND)	24 000

Table 113 - Economic results of ordinary vegetable shops in Hoan Kiem and Cau Giay (average, 4 vendors)

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P

The capital necessary to invest in an ordinary vegetable shop is indicated in Table 114.

Table 114 - Capital necessary to invest in an ordinary vegetable shop

Total (VND)	**11 070 000**
Cash for buying vegetables (VND)	300 000
Shop rent (VND) *(600 000 VND/month)*	600 000
Means of trader (VND) - Moto	10 000 000 10 000 000
Consumables (VND) - Moto equipment - Plastic baskets - Other	170 000 100 000 50 000 20 000

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P, average, 4 vendors

Street vendors

Through our census we enumerated 197 vegetable mobile vendors in the two districts of Hoan Kiem and Cau Giay. Three groups can be distinguished in terms of selling scale, vegetable category, selling location, and means of transportation: short distance vendors (15%), medium distance basket vendors (60%), and long distance bicycle vendors (25%).

Table 115 - Characteristics of enumerated street vendors

No.	Vending address	Number	Area (m^2)	Volume (kg/ month)	Number of vegetables
1	Trung Hoa Market - Cau Giay	30	2 - 3	70 - 100	10 - 25
2	Nghia Tan Market - Cau Giay	27	2	60 - 150	2 - 25
3	Xanh Market - Cau Giay	5	1 - 2	30 - 100	3 - 20
4	Co Nhue Street	43	1 - 2	30 - 120	2 - 20
5	Buoi Street	26	1 - 2	25 - 80	3 - 20
6	NG. Khang Street - Cau Giay	19	1.5 - 2	30 - 120	3 - 25
7	Trung Kinh Street	12	1 - 2	30 - 70	2 - 15
8	19/ 12 Market	10			5 - 7
9	Han Thuyen Street	15			1 - 2
10	Ham Long Street	7			1 - 2
11	Hang Be Market	3			5 - 7
	Total	197			

Source: Survey data of DSA-VASI in 2004, MALICA/MMWB4P

a. Short distance street vendors

This vending form has relatively fixed selling areas. On average, vendors just stop at 2 or 3 selling places on the sidewalk or in the road. After finding a proper place, vendors display vegetables on a plastic sheet and start selling like many other vendors on the street. They transport vegetables by foot or bicycles with baskets. The typical feature of this category is that vendors usually choose a selling place near markets and in populous areas of unskilled laborers. They have about 10 to 25 categories of vegetables for sale.

Vendors mostly come from rural provinces (Hung Yen, Bac Ninh, Ha Tay, etc.), rent housing in Hanoi in order to earn a living during the free-from-crop time in the country side, which means they vend from 6 to 9 months per year.

In Hanoi, vendors often have to get up very early in the morning to buy vegetables directly from producers in the wholesale market (Bac Qua-Thang Long, Dich Vong). A working day for vendors starts from 3 to 4 o'clock in the morning. They go to wholesale markets for buying vegetables and then resell products from 5 am. to 7 pm. With such a long working time per day, on average, they sell quite a large volume of vegetables (80-100 kg/day usually, and up to 150 kg/day) – so quantities sold are similar to those sold by fixed market retailers. Their customers are mostly unskilled laborers with low incomes, students, retired people, and some civil servants. Their priority is low price, they do not pay much attention to the quality of the product. Therefore, they usually offer a cheaper price (up to 60% less) than the other forms of vegetable selling mentioned above.

The income is close to the other categories of retailers (see Table 63). Costs are mainly police fees, accounting for 30%, and house rent (30%). Due to flexible selling places, which are

Criteria	Value
Operation Capital (VND/month)	200 000
* Cost (VND/month)	4 530 000
1 – Money for buying vegetable	4 200 000
2 – Plastic bags	45 000
3 – Hygiene fee	10 000
4 – Depreciation	15 000
5 – House rent	100 000
6 – Police fee	100 000
7 – Bicycle repairing	60 000
Selling volume (kg/month)	2 400
Difference between buying and selling prices (VND/kg)	420
Total revenue (vnd/month)	5 208 000
Income (vnd/month)	678 000
Income perday (VND)	23 000

Table 116 - Economic results of short distance vegetable street vendors in Hoan Kiem and Cau Giay (average, 4 vendors)

Source: Survey data of DSA-VASI, in 2004, MALICA/MMWB4P

The capital necessary to invest in short distance street vending is indicated in Table 117.

Total (VND)	640 000
Cash for buying vegetables (VND)	200 000
Means of trader (VND)	260 000
- Bicycle	260 000
Consumables (VND)	180 000
- Bicycle equipment	40 000
- Pole	30 000
- Basket	50 000
- Plastic	10 000
- Other	50 000

Table 117 - Capital necessary to invest in street vending

Source: Survey data of DSA-VASI, in 2004, MALICA/MMWB4P, average, 4 vendors in Hoan Kiem and Cau Giay

convenient for buyers, vendors can market roughly 2,400 kg of vegetables per month.

b. Medium distance basket street vendors

They are those who sell vegetables by carrying baskets. They sell vegetables over the distance of 3 to 5 km along the streets and in alleys. In the early morning, vendors carry vegetable baskets and sell near market entrances. In the afternoon, they move to residential areas. Vendors are adults or old women. They are farmers from newly urbanized districts, e.g., Tu Liem, Gia Lam, Thanh Tri, or from Ha Tay and Hung Yen Province, deprived of their land because of urbanization. The number of vegetables is limited to 1-5 kinds, mostly leafy vegetables.

The main supply source is from the wholesale markets, Bac-Qua, Long Bien, and Dich Vong. Vendors buy products directly from vegetable growers, with a view of pursuing low prices rather than good quality and appearance of the product. Their working day starts from 3 to 4 am everyday, vendors buy vegetables from wholesale markets, then sell from 5 am to 7 pm. In spite of this long working time, they can only market 30 to 50 kg of vegetables during 10 months. Their customers have a low income, they include students and retired people.

The income of basket vendors is limited to around 12,000 VND/day, due to the small quantities sold, and low resale price (see Table 118). Vendors carrying vegetables with baskets normally do not have to pay store rent, fee for police, or taxes because they can easily escape. As a result, their monthly cost is only 60,000 VND.

Table 118 - Economic results of basket vegetable street vendors in Hoan Kiem and Cau Giay (average, 4 vendors)

Criteria	Value
Operation capital *(VND/thang)*	150 000
* Cost *(VND/month)*	2 160 000
1 – Money for buying vegetables	2 100 000
2 – Plastic bag	30 000
3 – Hygi ene fee	15 000
4 – Depreciation	5 000
5 – Bicycle repairing	10 000
Selling volume *(kg/month)*	1 200
Difference between selling price and buying price (VND/kg)	350
Total revenue *(VND/month)*	2 520 000
Gr oss margin *(VND/month)*	360 000
Income per day *(VND)*	12 000

Source: Survey data of DSA-VASI, in 2004, MALICA, MMWB4P

The average income is around 600,000 VND/month. Thirty percent of the surveyed basket street vendors, i.e., 18% of the total street vendors, earn less than 500,000 VND/month, that is the 2005 poverty threshold.

The capital necessary to invest in basket street vending is indicated in Table 119.

Table 119 - Capital necessay to invest in basket street vending

Total (VND)	400 000
Cash for buying vegetables (VND)	150 000
Means of trader (VND)	160 000
- Bicycle	160 000
Consumables (VND)	90 000
- Moto equipment	30 000
- Plastic baskets	50 000
- Other	10 000

Source: Survey data of DSA-VASI, in 2004, MALICA, MMWB4P, 4 vendors in Hoan Kiem and Cau

c. Bicycle street vending

These vendors cycle around 10 to 15 km along the streets and in small alleys everyday for selling vegetables. The feature of this kind of vending is similar to that of vending by baskets. They also have to get up early in the morning, sell vegetable near market entrances and then move to the residential areas in the afternoon. Vendors selling vegetables by bicycle are mostly newly-married men, who are in good health. They are from the villages famous for growing vegetables such as Dong Du, Gia Lam District, Song Phuong – Tu Liem District, Tu Hiep – Thanh Tri District, and some of them are from nearby provinces.

In this kind of vending, there is no diversity in terms of vegetable category (3 to 7 types including tomato, cabbage, etc.). The main supply source of vegetables is from local vegetable growers in main crop seasons. In the other periods, they have to buy vegetables from vegetable growers in the wholesale markets (Bac Qua - Long Bien, Dich Vong etc.). These vendors start working from 4 o'clock in the morning if they have to buy vegetables at wholesale markets. When vegetables are available in their villages, they buy vegetables on the previous day then they start working a bit later, from 5 am to 4 pm everyday.

According to the estimation of some bicycle vendors, on average, they can market roughly 80 to 100 kg of vegetables per day, thanks to their constant movement (they may appear at 3 different markets in a day). Their clients are mainly workers, students, retired people and civil servants.

The main cost of bicycle vendors is spent on plastic bags, accounting for 47%, and cleaning fees, accounting for 28% of the total cost. Their average income, around 39 000 VND/day, is higher than all the other vegetable retailers (see Table 120). They sell during 10 months, in rotation

Criteria	Value
Operation capital (VND/month)	250 000
* Cost (VND/month)	4 910 000
1 - Money for buying vegetables	4 590 000
2 - Plastic bags	150 000
3 - Hygiene fee	90 000
4 - Depreciation	20 000
5 - Bicycle reparing	60 000
Selling volume (kg/month)	2 700
Difference between selling price and buying price (VND/kg)	550
Total revenue (VND/month)	6 075 000
Income (VND/ month)	1 165 000
Income per day (VND)	39 000

Table 120 - Economic results of bicycle vegetable vendors in Hoan Kiem and Cau Giay (average, 4 vendors)

Source: Survey data of DSA-VASI, in 2004, MALICA/MMWB4P

The capital necessary to invest in bicycle street vending is indicated in Table 121

Total (VND)	710 000
Cash for buying vegetables (VND)	250 000
Means of trader (VND)	360 000
- Bicycle	360 000
Consumables (VND)	100 000
- Moto equipment	60 000
- Plastic baskets	10 000
- Other	30 000

Table 121 - Amount necessary to invest in bicycle street vending

Source: Survey data of DSA-VASI, in 2004, MALICA/MMWB4P, average, 4 vendors in Hoan Kiem and Cau Giay

Conclusion on share of each retail type in employment and supply

The results of census and extrapolation from selected points to urban Hanoi on number of vendors, employees and quantities traded are gathered in Table 122 and Figure 30. They indicate the following trends:

- Vegetables are mostly retailed through street vendors (46% of quantities) and market retailers (39% of quantities); shops and street stalls represent 13% of quantities traded, while supermarkets represent around 0.9%;
- In terms of employment, the highest share is for street vendors (53%), followed by retailers (34%), shops (13%) and supermarkets (0.2%).

Table 122- Employment and quantities traded in the different vegetable retail (urban Hanoi - as defined after June 2004)

	Market retailers	Street vendors	Ordinary vegetable shops	Safe vegetable stores and stalls	Supermarkets	Total
Number of points	248	197	27	19	14	
Nr of employees/point	1	1	1	1 or 2	3 for leaders, 1.5 for medium -scale and 0.5 for small	
Total nr of employees (selected areas)	248	197	27	21	14	
Share of selected area in total Hanoi	18% (1)	9.34% (3)	9.34%	9.34%	100% of leaders, medium and small scale 47% of small SM	
Total nr of employees (ext, Hanoi, direct)	1378(1)	2110	289	225	16	4018
Total nr of employees (ext, Hanoi, direxte and indirect)	1409 (2)	2110	289	225	31	4065
Quantity sold/day/point	100 kg	77 kg	75 kg	120 kg	25 to 1500 kg	
Quantity sold/day/ selected areas	24800kg	15169 kg	2025 kg	2280 kg	2712 kg	
Share of selected area in total Hanoi	18%	9.34%	9.34%	9.34%	100% of leaders, medium and small scale 47% of small SM	
Total quantity	137.8 t/day	162.5 t/day	21.7 t/day	24.4t/day	3.1 t/day	350t/day
% in direct Employment	34.3	52.5	7.2	5.6	0.4	
% in direct and indirect Employment	34.7	51.9	7.1	5.5	0.8	
% in quantity	39.4	46.5	6.2	7.0	0.9	

Source: census by VASI, MALICA/MMWB4P, October 2004

(1)See calculation p. 191.
(2)The percentage of indirect employment relative to direct employment in markets has been estimated at 2.3% (see Chapter 2).
(3) The total of the area of Cau Giay (12.04 km²) and Hoan Kiem (5.29 km²) is 17.33 km², that is 9.34% of the total urban area in 2004 (185.62 km²).

Figure 30- Share of Hanoi vegetable retail points in employment and quantities (old and new urban districts)

Source: census by VASI, MALICA/MMWB4P, October 2004 – the data if for the urban districts of Hanoi as defined in 2004.

These figures were obtained when extrapolating the data of the enumeration to all the urban areas including the new districts of Hoang Mai and Long Bien (former parts of Thanh Tri and Gia Lam respectively). When considering the old urban districts (as defined before 2004) where the density of retailers and supermarkets is higher than in the new urban districts, the share of market retailers and supermarkets is higher: 37.5% for street vending in terms of employment (31% for quantities), 52.7% for market retailers (resp. 57.9%), 5.1% for ordinary shops (resp. 4.2%), 4.0% for safe shops (resp. 4.8%), 0.64% for supermarkets (resp., 1.3%) – see Table 123 and Figure 31.

Table 123 -Employment and quantities traded in the different vegetable retail points (urban Hanoi- as defined before June 2004)

	Market retailers	Street vendors	Ordinary vegetable shops	Safe vegetable stores and stalls	Supermarkets	Total
Number of points	248	197	27	19	14	
Nr of employees/point	1	1	1	1 or 2	3 for leaders, 1.5 for medium -scale and 0.5 for small	
Total nr of employees (selected areas)	248	197	27	21	14	
Share of selected area in total Hanoi	18.47 %(1)	20.57% (3)	20.57%	20.57%	100% of leaders, medium and small scale 47% of small SM	
Total nr of employees (ext, Hanoi, direct)	1343 (1)	958	131	102	16	2550
Total nr of employees (ext, Hanoi, direct+indirect)	1409(2)	958	131	225	31	2630
Quantity sold/day/point	100 kg	77 kg	75 kg	120 kg	25 to 1500 kg	
Quantity sold/day/ selected areas	24800kg	15169 kg	2025 kg	2280 kg	2712 kg	
Share of selected area in total Hanoi	18.47 %	20.57%	20.57%	20.57%	100% of leaders, medium and small scale 47% of small SM	
Total quantity	134.3t/day	73,7t day	9.8 t/day	11.1t/day	3.1 t/day	232t/day
% in direct employment	52.7	37.5	5.1	4.0	0.6	
% in direct and indirect employment	53.5	36.3	5.0	3.9	1.2	
% in quantity	57.9	31.2	4.2	4.8	1.3	

Source: census by VASI, MALICA/MMWB4P, October 2004

(1)See calculation in section D.
(2)The percentage of indirect employment relative to direct employment in markets has been estimated at 2.3% (see C1 report, Moustier, infra).
(3) The total of the area of Cau Giay (12.04 km²) and Hoan Kiem (5.29 km²) is 17.33 km², that is 20.6% of the total urban area before 2004 (8,406 km²).

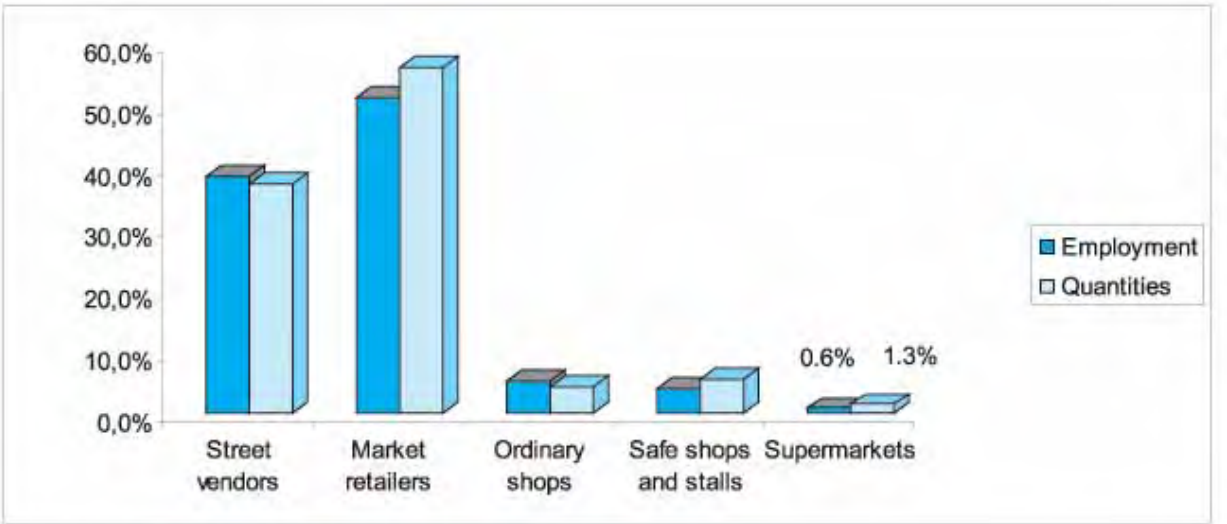


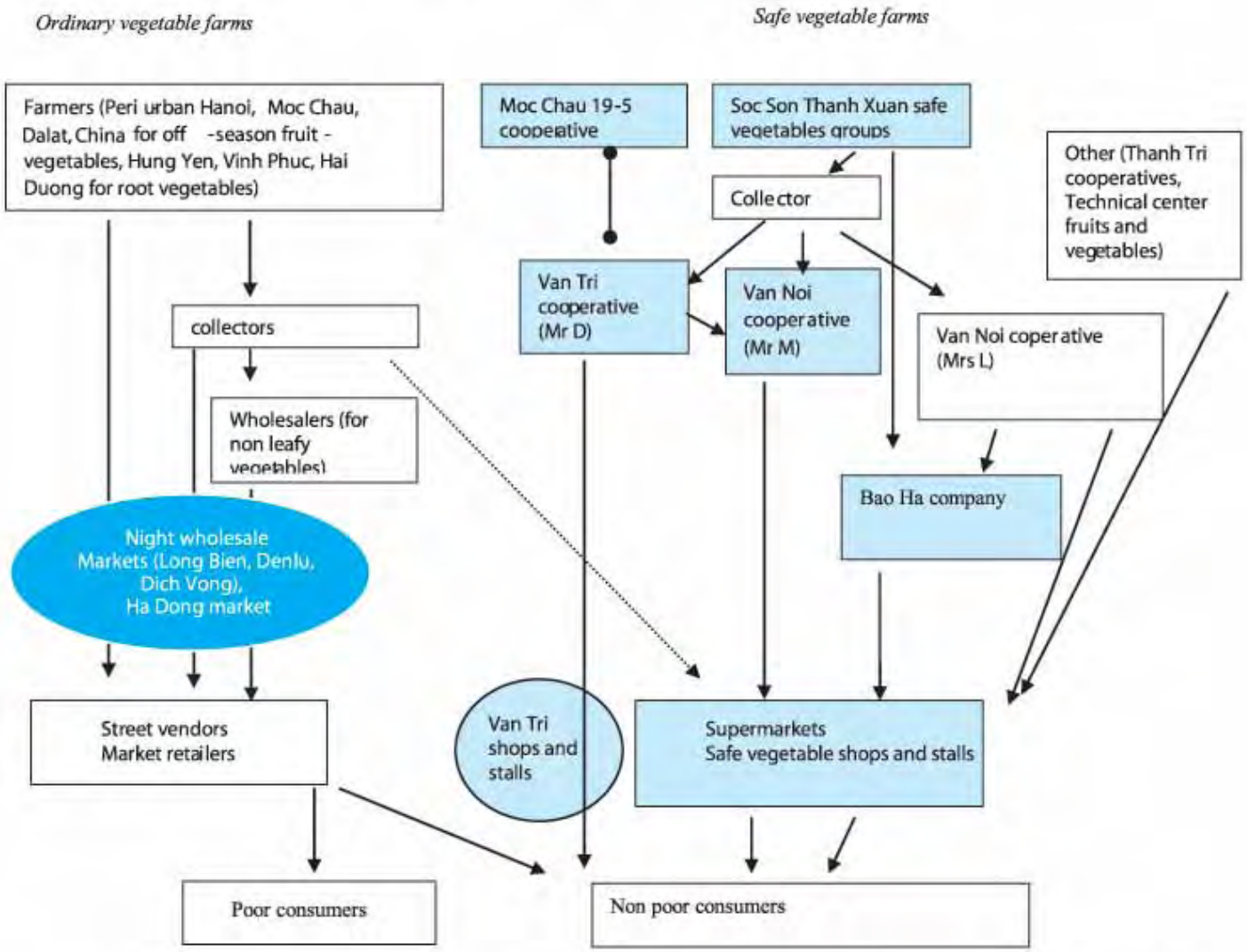
Figure 31- Share of Hanoi vegetable retail points in employment and quantities (urban districts as defined before June 2004)

Source: census by VASI, MALICA/MMWB4P, October 2004.

II. MAPPING ORDINARY AND SAFE VEGETABLE CHAINS TO HANOI

Vegetable chains supplying Hanoi are presented in Figure 32, in particular the chains of off-season vegetables (tomato and cabbage) produced in Moc Chau and Soc Son.

Figure 32- Vegetable chains supplying Hanoi



According to Tan Loc's survey (Loc, 2004), Van Noi Cooperative , Thanh Tri (Duyen Ha and Linh Nam) Cooperative and Technical center in Fruits and Vegetables (a semi-public center) are the main suppliers of supermarkets and safe vegetable shops and stalls, in 2004 like in 2002 (see Table 125). While in 2002, Van Noi Cooperative was provisioning 9 out of 11 supermarkets, it is supplying 13 out of 14 supermarkets in 2004 (all except Big C), while the Technical Fruit and Vegetable Center was supplying 5 supermarkets, and finally, Linh Nam Cooperative in Thanh Tri 2 supermarkets (Big C and Seyu).

Table 124- Share of Hanoi vegetable retail points in employment and quantities (old urban districts)

	Peri -urban safe vegetable suppliers				Rural suppliers	
	Van Noi	Linh Nam (Thanh Tri)	Van Tri	Technical fruit and vegetable center	Dalat	Moc Chau
Supermarkets	13/14	2/14	1/14	5/14		

From Tan Loc's survey (2004)
Note: Van Tri and Van Noi cooperatives are located in Van Noi commune.

Like in 2002, the same safe vegetable cooperatives supplied supermarkets, and safe vegetable stores and stalls vendors. Van Tri has an interesting way of directly selling retail in 10 market retail stalls rented by the cooperative, each of those are managed by one member of the cooperative. In addition to this selling through vertical integration from its members, it has a branch in Moc Chau, in the form of another cooperative of 7 members, 19-5 Cooperative, which supplies it with off-season vegetables. Van Tri Cooperative also acts as a wholesaler supplying other cooperatives with Moc Chau vegetables, including Van Noi Cooperative.

Direct retail marketing represents 50% of sales by Van Tri Cooperative for off-season vegetables. The rest is distributed as follows:

- Sale to other safe vegetable cooperatives in Van Noi (37%)
- Sale to safe vegetable retail stores (13%).

According to the chairman of Van Noi Safe Vegetable Cooperative, at present, vegetables from Dong Anh District and Van Noi commune, are supplied to more than 30 stores and stalls, 20 supermarkets, and over 100 of 400 boarding schools in Hanoi.

Two supermarkets are supplied by the Bao Ha Company which buys vegetables from Soc Son Cooperatives and Van Noi (Mrs L's Cooperative). Bao Ha company also supplies 11 shops and stalls.

In regard to ordinary vegetables, retailers are supplied through three wholesale night markets (Long Bien, Dich Vong, Den Lu), directly from collectors (themselves and farmers) or farmers in the case of leafy vegetables and winter vegetables supplied by peri-urban areas, and by wholesalers buying from collectors in the case of off-season vegetables originating from rural provinces (including Moc Chau and Dalat for tomato and cabbage) – see more details on these chains in Hoang Bang An and et al. (2003); Gia and et al. (2004); Moustier, Vagneron and Thai (2004)). In the case of off-season vegetables from Moc Chau, collectors move by truck to Ha Dong to sell to wholesalers with whom they have regular relationships. Daily contacts are made by telephone regarding prices and volumes. There are 4 main collectors based in Moc Chau and Thao Nguyen Town, each selling approximately 500 kg per day. Transport from the field to collectors takes place by motorbikes, transporting 150 to 250 kg by bike, while transport from Moc Chau to Ha Dong Central Market takes place by 10 ton trucks hired by five to six collectors. Since the improvement of the road in 2004, the trip lasts four- five hours while it lasted seven-eight hours before, which has increased the volume of sale.

III. COORDINATION AND GOVERNANCE IN VEGETABLE CHAINS

A. Differences according to quality promotion

Coordination and governance differ significantly according to the importance of quality characteristics – appearance and safety – in the transactions. In the chains of safe vegetables, coordination is characterized by patterns of integration between production and marketing, while in ordinary vegetable chains, spot relationships – with some regular relationships – prevail. This is a common result that theory explains by the efficiency of integration in reducing information and uncertainty in constraints related to quality, especially in regard to product safety, which is very difficult and costly to measure (see in particular: Barzel, 1982; Jaffee, 1995; Brousseau and Codron, 1999; and for an application for vegetable chains in Vietnam, Moustier and al., 2005). Here we will go into the details of these forms of integration for the supply of off-season vegetables to safe vegetable shops, stalls, and supermarkets. The following forms can be distinguished:

- Assembling farmers' cooperatives-driven chains (19-5 Cooperative, Van Tri Cooperative, Van Noi Cooperative), characterized by a combination of horizontal coordination, contractualization and integration with farmers; contractualization with supermarkets (for Van Noi), and an integration of retail marketing (for Van Tri)
- Assembling company- driven chain, in the case of Bao Ha, characterized by contractualization with farmers and supermarkets.
- Spot marketing combined with regular relationships, which is dominant in ordinary vegetable chains

In the context of Vietnam, where the development of supermarkets is recent as well as the procedures for food safety ensurance, and the barriers of entry into production of diverse and regular quantities of vegetables are high,

the supplying cooperatives are still somehow in a situation of an oligopoly in the face of supermarkets (we saw that Van Noi Cooperative is supplying all supermarkets except for one) – yet we are in a situation of diversification of suppliers, and it is worth mentioning that the most recent supermarket, Big C, gets its supply outside of Van Noi.

The criteria for selecting suppliers given by the 13 interviewed supermarket vendors are listed below (Loc, 2005):

- Whenever possible, buying directly from producers is preferred, due to the following reasons: (i) lower marketing costs, (ii) higher freshness, (iii) and higher tracability of product origin in case of quality problems.
- Ability to display a certificate of vegetable safety.
- Diversity of supplied vegetables.
- Diversity of purchasers, which is a proxy for supplier's reliability in terms of quantity and safety.

B. Assembling farmers' cooperative-driven chains

1. Horizontal coordination in assembling farmers' cooperatives

Van Tri and Van Noi are commercial cooperatives. This type of cooperative has existed in Vietnam since 1993 (after decollectivization). They are characterized by farmers' voluntarily participating in terms of shares in the cooperative. The features of collective action in Van Noi and Van Tri cooperatives are summarized in Table 124. Van Tri Cooperative has a board of four members, the highest share of contributors, who are in charge of crop planning, quality inspection, management of retail stalls, input supply, and interface with the authorities, i.e., for the organization of IPM Training and the delivery of certificates. In addition to this selling through vertical integration from its members, it has a branch in Moc Chau, in the form of another cooperative, the 19-5 Cooperative. The vice chairman of the 19-5 Cooperative belongs to the Van Tri Cooperative. Van Tri Safe Vegetable Cooperative contributed to the 19-5 Cooperative by renting vegetable production land for 20 years (since 2003). During the tomato season in 1999, Van Tri Cooperative assigned its members for technical training of members of 19-5 Agricultural Service Cooperative. According to the head of the 19-5 Cooperative, profit of the sale of off-season vegetables is shared between them at the rate of 50% for each side.

Table 125 - Characteristics of horizontal coordination between Van Tri and Van Noi

	Van Tri	Van Noi (Mr M)	19-5 Cooperative
Basic characteristics	Created in 1999 13 members, 6 hectares, 100 tons of vegetables All types of vegetables	Created in 1996 13 members, 5 hectares, 600 tons of vegetables All types of vegetables	Created in 2000 2 Members, 20 hectares 500 tons marketed during 7 months Tomato, cabbage and green beans account for 50% of total

Characteristics of collective action			
Conditions of inclusion	Investment in shares: 3 MVND/ordinary member 5 MVND/ordinary board member 7 MVNDfor deputy head 10 MVND for head Relationships of neighborhood Contribution for cooperative operation including salaries of board members, taxes, share profits to members: 1,5 MVND/month for members renting shops 200 000 VND/day for members selling more than 50 kg 100 000 VND/day for other members sel ling less than 50 kg Willingness for collective action	Investment in shares Relationships of neiginborhood	Share investment in cash or in land Relationships of neiginborhood
Collective access to resources	1 member in charge of collective input su pply (seeds, pesticides)		
Collective quality control	Joint IPM Training Joint application for certificate Inspection of production practices by one member	Joint IPM Training Joint application for certificate	
Collective marketing	4 members involved in the management of market stalls and acting as collectors for the group Minimum price setting by the cooper ative	1 member act as collector for the group	
Mechanism of coordin ation	Neighbor and kinship relationships Interlinkages between input, output, training su pply Hierarchical power of cooperative ma nagement board	Neighbor and kinship relatio nships Hierarchical power of director	

Source: Moustier and al (2005) based on Dini (2002), Ho Thanh Son (2004), plus additional interviews by Ho Thanh Son in 2005.

3. Vertical coordination by assembling farmers' cooperatives

a. Vertical integration of farmers (19-5)

19-5 Cooperative is supplied by 50% from local collectors, and by 50% from farmers (inside and outside cooperatives).

Contractual arrangements with farmers

Mr T's Cooperative signs written contracts with 4 farmers. The contracts stipulate the following for one season:

- Input supply by cooperative (seeds, fertilizers, pesticides)
- Technical advice by cooperative, which allows him to exert control on production protocols
- Purchase of all output by cooperative
- Stable prices for one season (with some possible changes)
- Risk sharing: he participates in the risk of production by not asking for input credit refunding in the case of product losses.
- Payment at the end of the season: the cooperative balances the cost of seeds and other inputs provided at credit for the producers at the beginning of the crop and the vegetable value they collect from these farmers.

The 4 farmers (termed as Group 1 in this report) share the following characteristics. They belong to the Thai ethnic group, have an

agricultural area of over 6 sao (2,160 m²), with hilly or forested land. They are active people with experience in farming production and have a fairly good economic condition in comparison with other farm households in the village (their house is well built and they have a TV, motorbike, etc.). This economic condition is mostly due to their involvement in the supply of the cooperative during the last two years. Before, these households were only growing one rice crop a year. The rest of the time they let the land lay fallow or grew sweet potatoes. Growing vegetables was for self-consumption using local traditional cultivating habits. In the two recent years, these households have shifted to producing commercial vegetables thanks to the support of the 19-5 Agricultural Service Cooperative in terms of training for vegetables planting, providing breeds and materials on credit, and marketing their products.

Salaried workers

Mr T. also employs two vegetable farmers as salaried workers, which represents an even further integration into the production process. These workers (group 2 of vegetable farmers in Moc Chau) are newly-married, illiterate people. One has never owned agricultural land, the other sold it out due to poverty. The 19-5 Agricultural Service Cooperative hires them to produce vegetables on its own land (1 household per 1 hectare). In return, they get the amount of 500,000 VND to 600,000 VND/person/month. Besides that, the cooperative also lends them their houses and other facilities (motorbikes, pump) in order to satisfy their minimum living requirements.

Supply by collectors

The cooperative is also supplied by collectors buying from vegetable households (Group 3). These are the Kinh people who emigrated from Hung Yen, Hai Duong, Ha Tay, and Thai Binh. They have settled there for two generations and have had a lot of experience in agricultural production. They grow a variety of vegetables like the people of the Red River Delta. So their living conditions are quite stable and good compared with other households in the village. Their houses are well built (roofed with tiles or flat roof). They have a TV, a motorbike, and even a refrigerator.

b. Vertical integration of retail stages (Van Tri)

Direct retail marketing, which represents vertical integration, is carried out by the Van Tri Cooperative, through points of sale rented and managed by cooperative members (4 points in 2002, 10 in 2004). Each shop sells between 200 and 250 kg of vegetables per day.

The direct sale of Van Tri vegetables by the producers, allow regular contact with the consumers, who ask questions and are given answers concerning the production methods used by the cooperative.

c. Contracts between cooperative and supermarkets or shops (Van Noi, Van Tri)

In 2002 (Loc, 2002), written contracts existed for 10 shops or market stalls out of 15, and for 9 supermarkets out of 11, for the other supermarkets and shops, contracts were verbal. In 2004, written contracts were observed between the cooperatives and all the supermarkets. Written contracts are signed by the two parties, for a period of 3 months. Terms of the contract define:

- vegetable types and quantities
- quality: (i) description of appearance; (ii) vegetable safety: certificate of quality issued by an official office have to be produced. These certificates have not been updated since 2001, but they are an indication of past training and efforts in terms of quality for the buyers. The stamp of the cooperative also has to be given. Finally, there is a commitment that in case some consumers complain of having been poisoned by a vegetable sold by supermarkets, the supplier and the supermarket vendor should jointly identify the source of the problem and find a solution;
- delivery time (everyday in the morning)
- payment mode: cash, 2 weeks after delivery for supermarkets, daily or weekly for shops
- risk sharing: The contract also stipulates that vegetable suppliers have to endorse risk of 50 to 100% value of the non-sold surplus
- invoice: supplier must provide a VAT invoice and have a bank account.

As regards the relation between the Van Noi Cooperative and supermarkets, the terms of the contract can be adjusted by daily information exchange between the collector and

retailer. The price of products can be adjusted every week. Commonly, the buyer makes a request regarding the volume and category of vegetables the day before the delivery by phoning, or right after the delivery. The orders are flexible, changes may be made through the telephone the day before the delivery day. We are in the typical situation of incomplete contracts, combining the advantages of security for some parameters, e.g., quantities, and some flexibility adapted to market variability (Brousseau and Fares, 1998).

C. Assembling trade company-driven chain

1. Horizontal coordination in Thanh Xuan safe vegetable groups

There are 8 safe vegetable production groups including 80 members which have been established by ADDA organization and Hanoi Farming Association. The safe vegetable production groups help their members to have access to investment, IPM Technical Training, advanced technology (on seeds, planting techniques, etc.) provided by national and international projects (ADDA in collaboration with the Hanoi Farming Association, and the Hanoi Plant Protection Department). Besides, the establishment of vegetable production groups is the basis of attracting two large-scale assembling units: the Bao Ha Company, and a vegetable collector of the safe vegetable production cooperatives in Van Tri.

In general, the participating members are those who have had a lot of experience in agricultural production, large vegetable growing areas in comparison with other households in the village, and they are willing to grow commercial vegetables. According to a local agricultural IPM Training Assistant of an ADDA project, some of the farm households of the groups have quite a good economic condition: a concrete house, TV, motorbike, but there are still some who have poor living conditions. It is estimated that the groups comprise 32% of poor households.

2. Vertical coordination between collector and Thanh Xuan groups

There are three collectors for the safe vegetable production groups in Thanh Xuan. They come from well-known vegetable growing areas such as, Van Tri and Van Noi, that supply vegetables to Hanoi markets. Thanks to past experience in production, they know how to practice the production of various safe vegetables.

Their collection activities are implemented under the form of "consignment." It means that at the beginning of each crop, the collector gives farm households money to buy seeds and plant protection chemicals in order to produce vegetables requested by the buyer regarding time and planting techniques. Once the harvesting time comes, the collector buys all the requested vegetable volume at the market price – after deduction of the input costs. There is no binding on the quality of product between the producer and collector: he just sometimes reminds the producer to comply with the safe vegetable production process without giving out any particular regulations or inspecting the production process.

The collector markets an average of 250 kg of vegetables per day, the transport is by motorbike. Payment is in cash. If the volume purchased is not large, they make daily payments and if the volume is large, they make payments monthly. In general, the mode of payment is negotiable.

3. Vertical coordination between collector and Van Tri cooperative

After collecting vegetables from the farmers, most of the volume (70%) is resold to 4 safe Vegetable Marketing and Production Cooperatives in Van Tri (cooperatives of Mr. M, Mr. X, Mrs. L, and Mr. X). Twenty percent of the volume (special vegetables, e.g., some types of lettuce) is sold to retailers in Hanoi to supply to restaurants and hotels. The remaining 10% that is damaged or withered is sold to the local retailers at the price of ordinary vegetables.

4. Vertical coordination between Bao Ha company and Thanh Xuan group

Bao Ha is a limited liability company acting as an intermediate, cooperating with the Hanoi Plant Protection Department to monitor the production techniques in the targeted areas, i.e. 2 safe vegetable groups in Thanh Xuan and Mrs L's Cooperative in Van Noi. After collecting vegetables, they cooperate with the staff of the Hanoi Plant Protection Department for

packaging, printing bar code and sealing a lead to each bunch of vegetables. The bar code indicates the name and address of farmer, which can be traced back in case of safety problems.

The company employs 3 people. Everyday, the company markets 400 kg of vegetables. Vegetable categories vary from 9 to 23 types depending on the season. The buying price of Bao Ha Company is normally higher by 19% than the price of other collectors. Payment is in cash. It can be made weekly or monthy in accordance to negotiations with farmers.

5. Vertical coordination between Bao Ha company, shops and supermarkets

Bao Ha Company supplies 11 safe vegetable stores and 2 supermarkets in Hanoi. Bao Ha is bound by the same types of flexible contracts as described for the Van Noi Cooperative.

6. Quality management in the different chains

In Van Tri and 19-5 Cooperatives, the cooperative leaders are in charge of checking the application of safe vegetable regulations by their members and suppliers, this is facilitated by the supply of inputs by the cooperative to their suppliers. But apart from this internal control, no control has been exercised since 2001, either on the products or on the practices. With the new mandate of the Plant Protection Department (since early 2005) regarding vegetable safety certification in Hanoi, this situation may change. Besides, a AVRDC/CIRAD regional project on peri-urban agriculture (SUSPER) helps Van Tri Cooperative to improve its internal quality procedures by combining the commitments of farmers on following a simplified production protocol guide and being checked on with random quick-test analysis of vegetables by an external body, the Research Institute on Fruits and Vegetables.

As regards Bao Ha, quality control is done by the Plant Protection Department as follows: control of pesticides, chemicals, heavy metals, according to protocol of ADDA, plus traceability (possibility to trace back the farmer) thanks to the bar code.

Supermarkets declare that vegetable safety is the main criterion for choosing suppliers, but the only thing they do to control quality is to ask for (outdated) certificates of vegetable safety by their suppliers. In regards to physical quality requirements, the interviewed stakeholders declared they mostly look for vegetables "with a good appearance," with little damages, including worm damages, and size homogeneity, but no grading system has been developed by any stakeholder in the chain to control these characteristics and pay price differential according to them . Such

Table 126- Function of the actors participating in each channel

Actor	Moc Chau		Soc Son	
	Van Tri Safe Vegetable Cooperative -driven chain	Market-driven chain	Safe Vegetable Collector-driven chain	Bao Ha Company-driven chain
Producer	Production, preliminary processing	Production	Production, preliminary processing	Production, preliminary processing
Collector	Collection, transportation	Collection, preservation, transportation	Collection, transportation, distribution	-
19 -5 Agricultural Service Cooperative	Transportation, wholesale, quality control	-	-	-
Van Tri Safe Vegetable Cooperative	Transportation, wholesale, quality control		Retail	-
Wholesaler	-	Preliminary processing, wholesale	-	-
Bao Ha Company	-	-	-	Packaging, transportion, distribution, quality control (with Plant Protection department)
Supermarket	Retail		Retail	Retail
Retailer	Preliminary processing, retail	Retail	Preliminary processing, retail	Retail

Source: DSA-VASI surveys in 2004, MALICA/MMWB4P

systems were developed by Susper project in the North and Sofri in the South to collect prices based on specified quality characteristics. Supermarkets also ask their suppliers to provide packaged vegetables – except Big C which sells unpackaged tomatoes from Moc Chau (see Table 126).
Such systems were developed by SUSPER in the North and SOFRI in the South to collect prices based on specified quality characteristics.

IV. DISTRIBUTION OF COSTS, PRICES AND PROFITS ALONG THE CHAINS

A. Comparison between different chains

We assessed the distribution of costs and profits between the different stakeholders of the following off-season tomato chains:
- Moc Chau Cooperative-driven chain, with the 19-5 Cooperative buying from farmers through local collectors, and reselling to Hanoi safe vegetable shops through Van Tri Cooperative;
- Moc Chau Cooperative-driven chain, with 19-5 Cooperative buying directly from contracted farmers;
- Moc Chau market-driven chain: farmers sell to collectors who resell to wholesalers selling to safe vegetable retailers;
- Soc Son company driven chain, involving the Bao Ha Company buying from farmers' groups through collectors and reselling to supermarkets;
- Soc Son market-driven chain, where collectors resell to safe vegetable retailers.

The comparison leads to the following observations (see Table 127, Table 128, Table 129, Table 130 and Figure 33, Figure 34, Figure 35, Figure 36).
- In Moc Chau, the differences between farmers' profits selling to the cooperative or to collectors selling to wholesalers in Hanoi are limited (profits higher by 8% for farmers contracted to the cooperative compared with farmers not selling to the cooperative); the main benefit which the cooperative brings to the farmer, in particular the small-scale ones, is the price stability, the guarantee of purchase and the provisioning of inputs. The final retail prices are similar between the "safe" and the "ordinary chains" as vegetables from Moc Chau are sold as "safe vegetables" in all cases, without any external quality control. The Moc Chau Cooperative displays the certificate of quality of the Van Tri Cooperative, which relates to the past control by the Department of Science and Technology of Van Tri farmers, not Moc Chau farmers – although the fact that the Moc Chau Cooperative farmers have been trained by Van Tri farmers can be considered as a kind of guarantee of safety; while the famers outside of the Moc Chau Cooperative do not have any certification;
- it is Soc Son farmers belonging to the safe vegetable groups and who sell to the Bao Ha Company who gets the highest profits among the farmers; this is due to both their peri-urban location and to the contractual arrangements they have with the Bao Ha Company itself with guaranteed outlets in supermarkets and shops;
- among the different chain stakeholders, it is the collectors and wholesalers selling vegetables of Moc Chau who get the highest incomes, due to the biggest quantities traded – although their profits per kilo are smaller than other actors, e.g., 19-5 and Van Tri Cooperatives (for tomato, 105 t/year for collectors, 132 t/year for wholesaler, 6 t/year for Bao Ha, 13 t/year for 19-5, 12 t/year for Van Tri). It will be worth investigating the reasons of these differences in quantities traded, maybe a function of the number of years in the business, or the fact that the cooperatives prefer the reliability of their suppliers in terms of product quality rather than the number of suppliers and their large scale.
- compared with the other actors, supermarkets get relatively low margins (less than 20% of the final price, while farmer's margins are more than 25%);
- selling to supermarkets does not bring more income to farmers than selling to safe vegetable shops, even though the retail price is 20% higher, the price difference is distributed into increased profits by the assembling and distribution cooperatives (Van Tri, Van Noi) and company (Bao Ha), and into the supermarket margin. Compared with safe vegetable shops, supermarkets represent more constraints for their suppliers, in particular as regards the possibility of returned products.

Table 127 -Distribution of costs, prices and profits along different Moc Chau tomato chains

	Cooperative-driven chain (through collector, to shop)		Cooperative-driven chain (direct, to shop)		Cooperative-driven chain (direct, to supermarket)		Market-driven chai (to shop)	
	Value (VND/ kg)	% of retail price	Value (VND/ kg)	% of retail price			Value (VND/ kg)	% of ret price
- Producer								
Total production costt	251	8	251	8	251	5	303	9
+ Material cost	140		140		140		256	
+ Labor cost	104		104		104		0	
+ Land cost	7		7		7		47	
+ Added value	803		1060		1060		881	
+ Net profit margin	699	21	949	29	949	22	881	25
Farm-gate price	950		1200		1200		1184	
- Collector								
+ Total costs	17	1					581	17
+ Operating cost	17						573	
Transport costs	13						285	
Other costs)	4						288	
+ Labor cost	0						8	
+ Added value	233	7					327	9
+ Net profit margin	233						319	
Collectors' sale price	1200 (Moc Chau)						2084 (Hadong)	
-19-5 Agricultural Service Cooperative								
Total costs	300	9	317	10	317	8		
+ Operating cost	124		139		139			
Transport costs	95		108		108			
Other costs	29		31		31			
+ Labor cost	176		178		178			
+ Added value	336		321		321			
+ Net profit margin	160	5	143	4	143	3		
Cooperative's sale price	1660		1660		1660			
Van Tri Cooperative								
Total costs	403		403		525			
+ Operating cost	403	12	403	12	525	13		
Transport costs	205		205					
Other costs	198		198					
+ Labor cost	0		0		0			
+ Added value	1237		1237		695			
+ Net profit margin	1237	37	1237	37	695	17		
Van Tri sale price	3300 (retail)		3300 (retail)		2880			
-Ha Dong Wholesaler								
Total costs							71	
+ Operating cost							71	2
Transport costs							33	
Other costs							38	
+ Labor cost							0	
+ Added value							379	
+ Net profit margin							379	11
Wholesaler's price							2534	
- Safe vegetable retailer								
Total costs							182	
Operating cost							182	5
Transport costs							167	
Other costs							15	
+ Labor cost							0	
+ Added value							784	
+ Net profit margin							784	22
Safe vegetable retailer's price							3500	

n Noi cooperative								
al costs					261	6		
erating cost					261			
Transport costs					261			
Other costs					0			
abor cost					0			
Added value					359			
Net profit margin					359	9		
n Noi coop wholesale ce					3500			
permarket								
permarket margin					700	17		
tail price					4200			

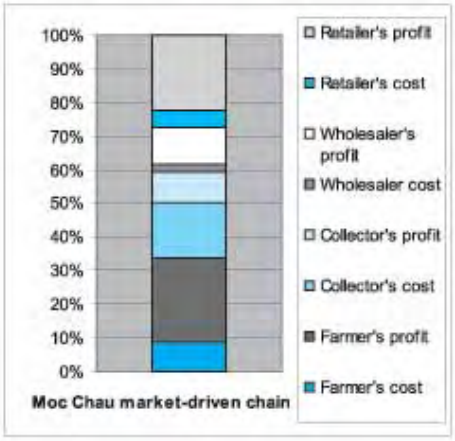
Note: in the table, labor costs include paid labor costs only
Source: VASI survey, MALICA/MMWB4P, 2004

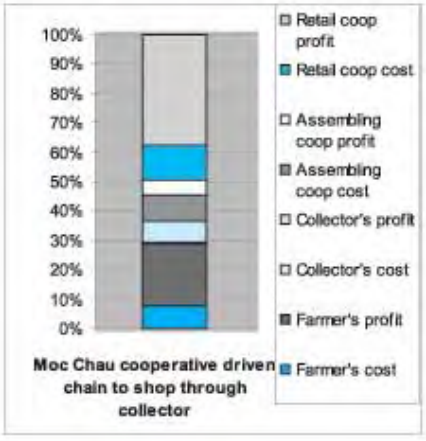
Table 128- Distribution of costs, prices and profits along different Soc Son off-season tomato chains

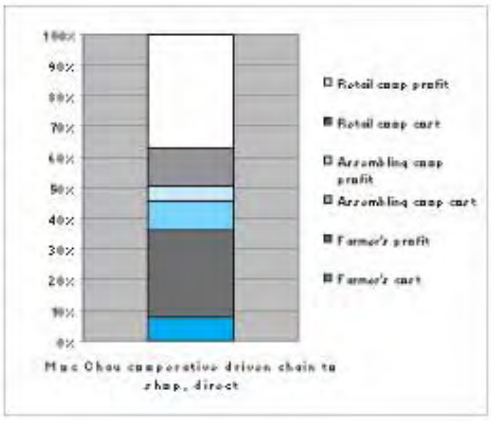
	Collector- driven chain		Bao Ha Company-driven chain	
	Selling price (VND/ kg)	% of final price	Selling price (VND/ kg)	% of final price
- Producer				
+ Input cost	369	10	369	8
+ Labor cost	0		0	
+ Added value	1727		2121	
+ Net profit margin	1727	48	2121	49
Farm-gate price	2096		2490	
- Collector				
+ Operating cost	156	4		
+ Labor cost	0			
+ Added value	598			
+ Net profit margin	598	17		
Collectors' sale price	2850			
- Bao Ha Company				
Total cost			857	20
+ Operating cost			357	
+ Labor cost			500	
+ Added value			918	
+ Net profit margin			418	10
Bao Ha's wholesale price			3765	
- Retailer				
+ Operating cost	259	7		
+ Labor cost	0	0		
+ Added value				
+ Net profit margin	491	14		
Gross margin			585	13
Retailer's price	Shop : 3600		SM : 4350	

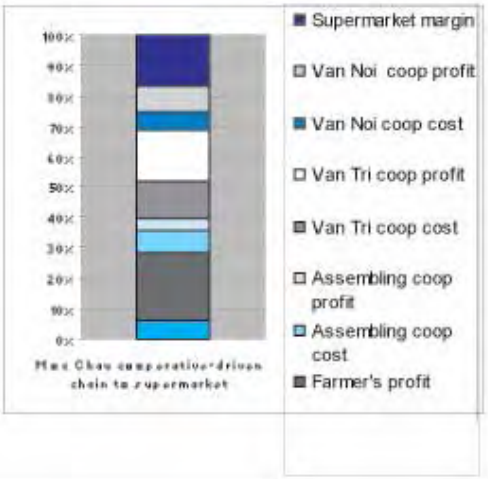
Source: VASI survey, MALICA/MMWB4P, 2004 (SM=supermarket)

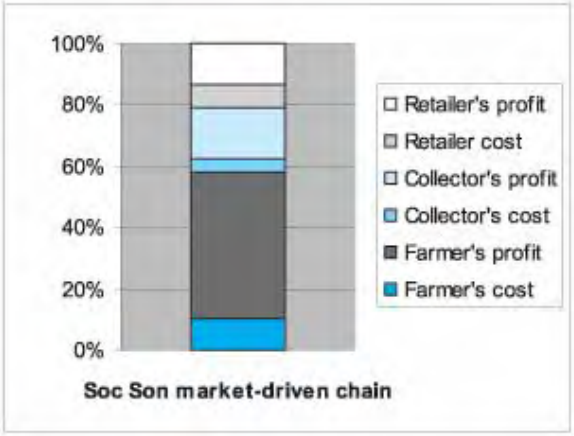
Figure 33- Disagregation of costs and profits relative to the final retail price (%) in Moc Chau chains.

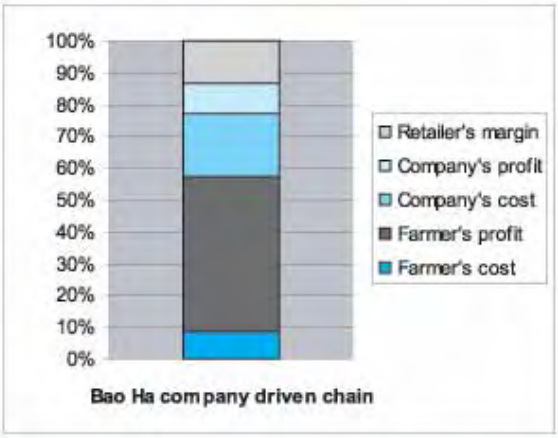




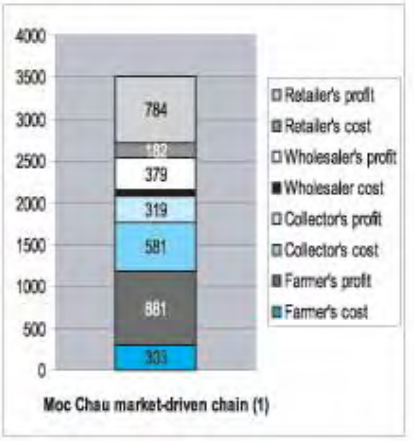


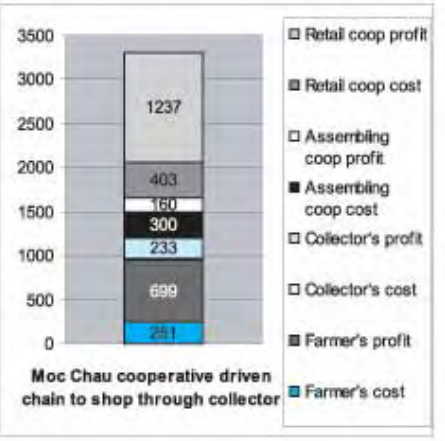


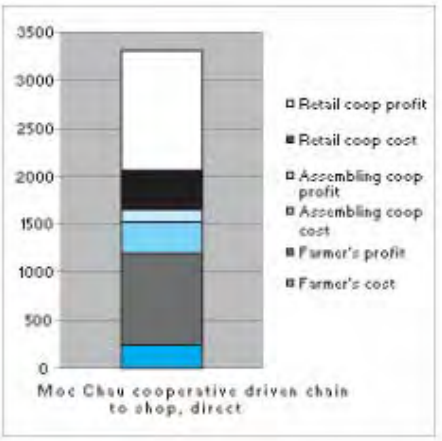


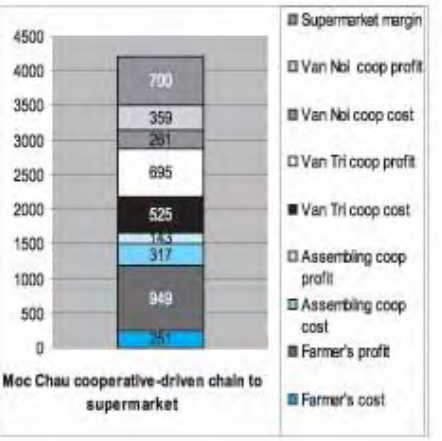


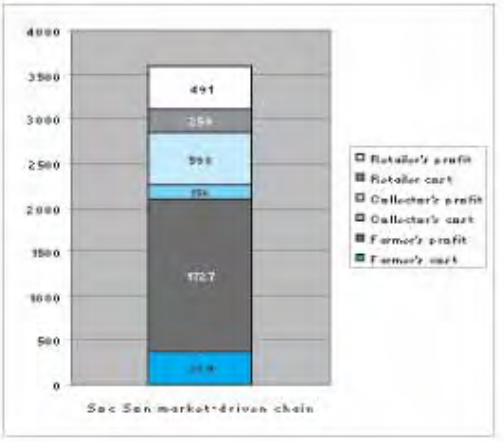
Source: VASI surveys, MALICA/MMWB4P,

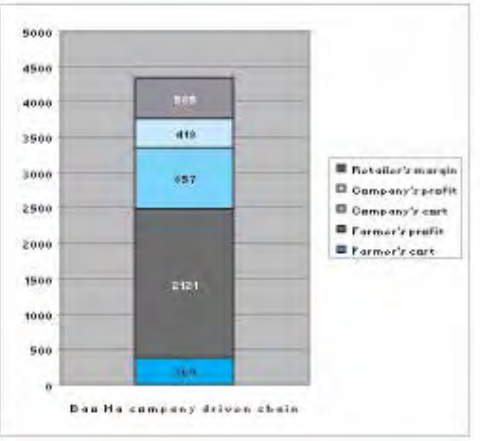








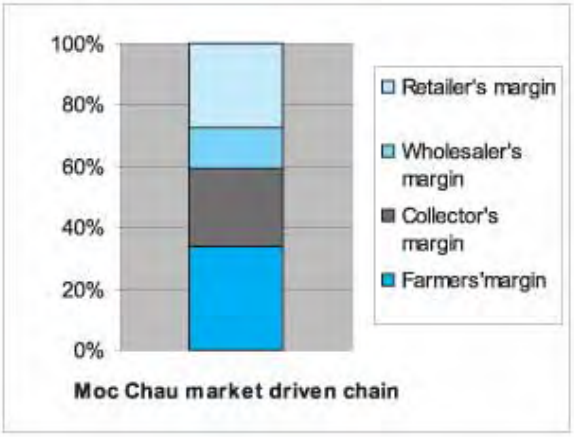


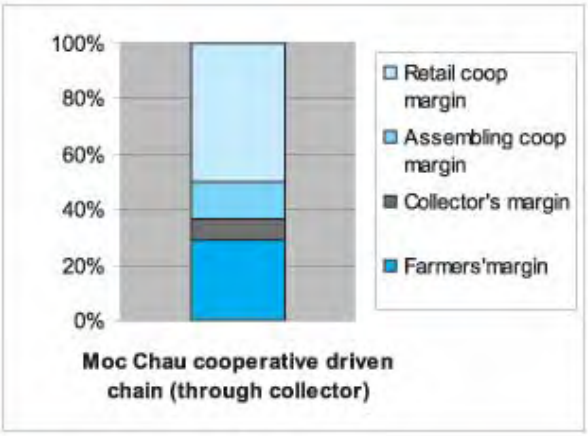


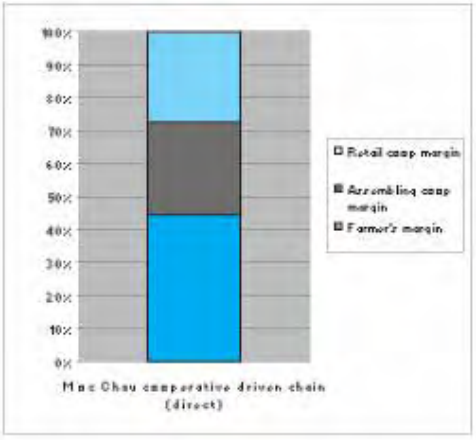
Source: VASI surveys, MALICA/MMWB4P, 2004

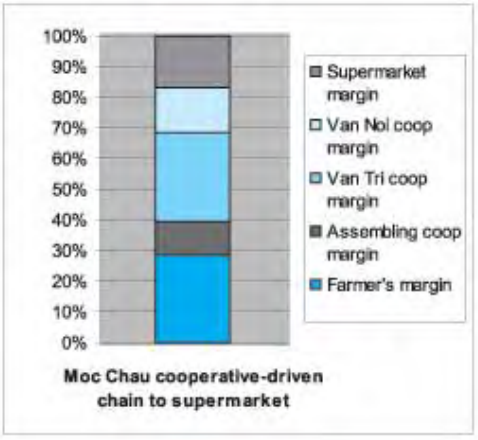
Figure 34- Disagregation of costs and profits relative to the final retail price (values) in Moc Chau chains.

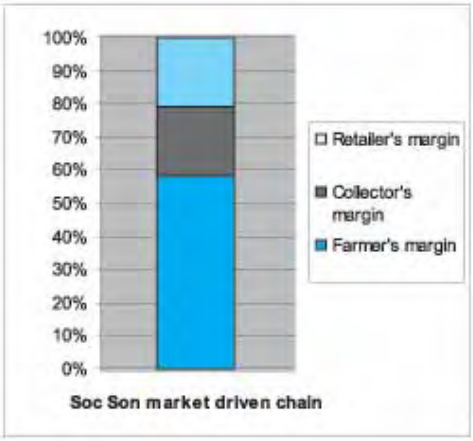
Figure 35- Disagregation of actors' margins relative to final retail price in Moc Chau chains.

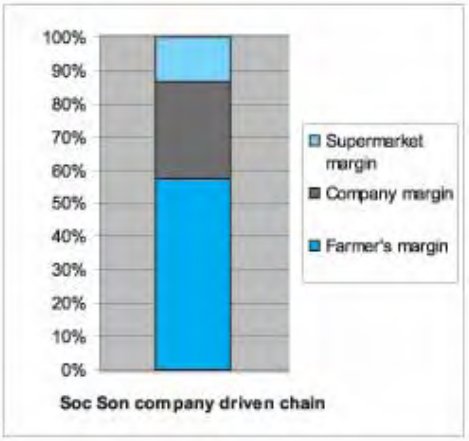




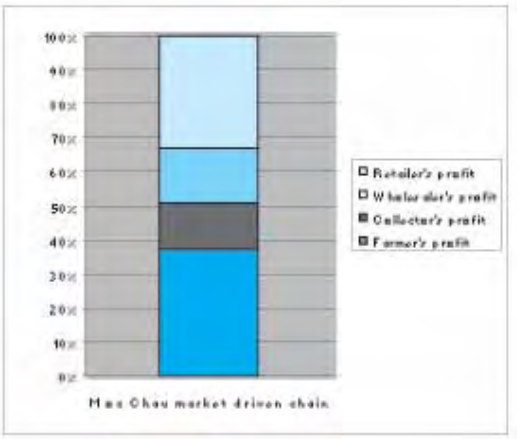


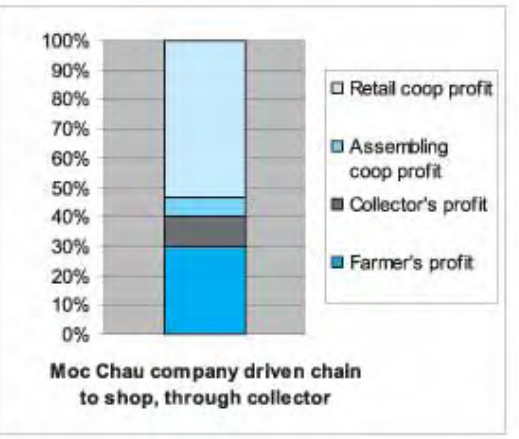


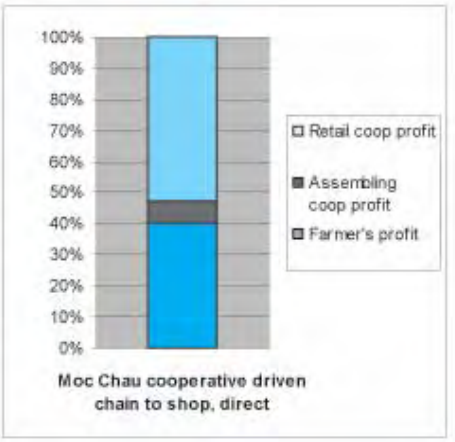


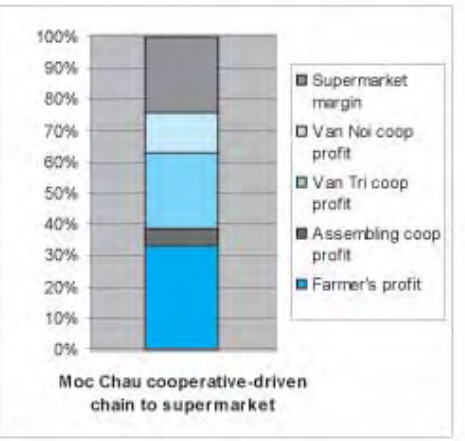


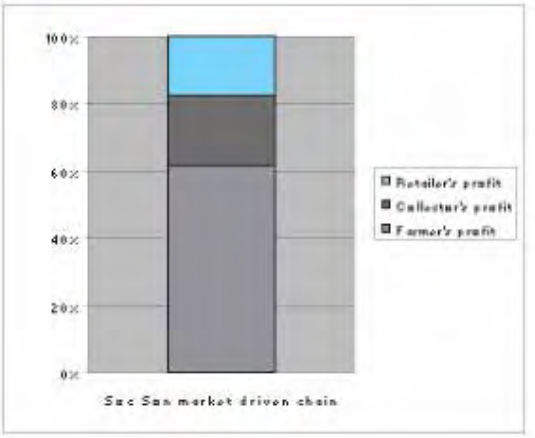
Source: VASI surveys, MALICA/MMWB4P, 2004











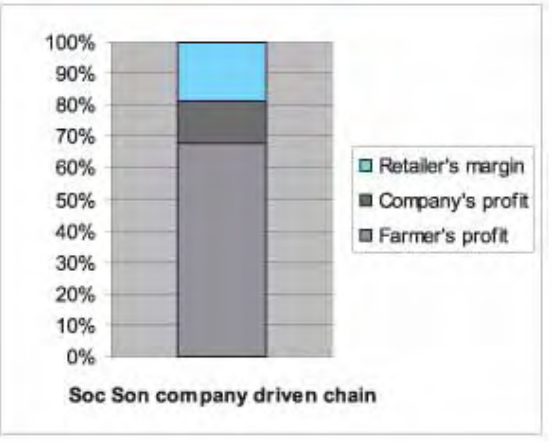


Figure 36- Distribution of actors' profits in Moc Chau chains.

Source: VASI surveys, MALICA/MMWB4P, 2004

Table 129- Estimation of incomes of various actors of the vegetable chains (VND)

	Tomato			All commodities	
	Profit/kg	Quantity/year	Income/year	Quantity/year	Income/year
Farmers Moc Chau inside coop	949	3340	3 169 660	9200	8 730 800
Collectors Moc Chau (local)	319	2100	669 900	13440	4 287 360
19-5 Cooperative	160	12600	2 016 000	500000	80 000 000
Van Tri Cooperative	695	11900	8 270 500	612000	425 340 000
Farmers Moc Chau ouside coop	881	8400	7 400 400	15000	13 215 000
Collector Moc Chau (to Hanoi)	319	105000	33 495 000	105000	33 495 000
Wholesaler Hadong	379	132000	50 028 000	148000	56 092 000
Farmer Soc Son	2121	2374	5 035 254	8700	18 452 700
Collector Soc Son	598	20130	12 037 740	82500	49 335 000
Company Bao Ha	418	5610	2 344 980	132000	55 176 000
Safe vegetable shop	359	3400	1 220 600	40800	14 647 200

Note: in this calculation, we assume that the actors get the same profit per kilo for all vegetables traded; hence the figures of total incomes should rather be taken for comparison than in absolute terms.

Table 130- Estimation of incomes of various actors of the vegetable chains (USD)

	Tomato			All commodities	
	Profit/kg	Quantity/year	Income/year	Quantity/year	Income/year
Farmers Moc Chau inside coop	0.06	3340	203.18	99200	559.67
Collectors Moc Chau (local)	0.02	2100	42.94	13440	274.83
19-5 Cooperative	0.01	12600	129.23	500000	5128.21
Van Tri Cooperative	0.04	11900	530.16	612000	27265.38
Farmers Moc Chau ouside coop	0.06	8400	474.38	15000	847.12
Collector Moc Chau (to Hanoi)	0.02	105000	2147.12	105000	2147.12
Wholesaler Hadong	0.02	132000	3206.92	148000	3595.64
Farmer Soc Son	0.14	2374	322.77	8700	1182.87
Collector Soc Son	0.04	20130	771.65	82500	3162.50
Company Bao Ha	0.03	5610	150.32	132000	3536.92
Safe vegetable shop	0.02	3400	78.24	40800	938.92

B. Comparison of production costs

Off-season tomato costs in Moc Chau are lower than that in of Dong Anh (by 20% outside the cooperative and by 100% inside the cooperative, when considering the cost per kilo), especially fertilizer (chemical and organic) costs are lower, because of more favorable soil conditions and more frequent crop rotation (see Table 131 and Table 132). The tomato yield of Moc Chau is twice (inside the cooperative) or three times (outside the cooperative) higher than that of Dong Anh, but the revenue per sao of Moc Chau Cooperative farmers only accounts for 97% of Dong Anh due to the lower sale prices (48% of Dong Anh price) because of the transport costs supported by collectors.

Tomato production costs per sao and per kilo are lower for Moc Chau farmers supplying the cooperative than for farmers outside of the cooperative (20% difference as regards costs per kilo), labour costs are higher and the yield is lower: farmers supplying the cooperative use less chemical inputs than farmers not supplying it, which suggests that they try to follow the safe vegetable regulations. The yield in Soc Son is even lower than in Moc Chau (see Table 133), and profits per kilo are intermediary between Moc Chau and Dong Anh, as sale prices are close from Dong Anh prices (see Table 134).

Table 131 - Calculation of tomato production cost per unit of land (Moc Chau and Dong Anh)

	Unit	Moc Chau supplying 19-5 coopera-tive	% of input cost	Moc Chau ouside 19-5 coopera-tive	% of input cost	Dong Anh	% of input cost
Input cost	VND/sao	377585		1147500		626371	
Fertilizer and manure		156857	41	440496	38	265869	42
Seeds		100800	27	98400	9	89881	14
Pesticides		51428	14	184800	16	50357	8
Tomato's stakes			13	151200	13	82262	13
Land rent		50000	5	180000	13		10
Land tax		18500		3600		61670	
Others				89004	8	76332	12
Labour cost	VND	394000		0		0	
Total cost	VND/ sao	771585		1147500		626371	
Yield	kg/ sao	2570		3793		1267	
Sale price	VND/ kg	1200		1184		2522	
Revenue	VND/ sao	3084000		4490912		3195374	
Added value	VND/ sao	2706415		3343412		2569003	
Margin profit	VND/ sao	2312415		3343412		2569003	

Source: Survey data of DSA-VASI, In 2004 , MALICA/MMWB4PP, plus SUSPER project data for Dong Anh (4 producers in Moc Chau Outside 19-5 cooperative, 4 producers in Moc Chau 19-5 cooperative, 8 producers in Dong Anh)

Table 132 - Calculation of tomato production cost per kilo (Moc Chau and Dong Anh)

	Unit	Moc Chau supplying 19-5 coopera-tive	% of input cost	Moc Chau ouside 19-5 coopera-tive	% of input cost	Dong Anh	% of input cost
Input cost	VND/kg	147		303		495	
Fertilizer and manure		62	41	116	38	210	42
Seeds		39	27	26	9	71	14
Pesticides		20	14	49	16	40	8
Tomato's stakes		19	13	40	13	65	13
Land rent		7	5	47	13	49	10
Land tax				1		0	
Others				23	8	60	12
Labour cost	VND	104		0		0	
Total cost	VND/ kg	251		303		495	
Sale price	VND/ kg	1200		1184		2522	
Added value	VND/ kg	1053		881		2027	
Margin profit	VND/ kg	949		881		2027	

Source: Survey data of DSA-VASI, in 2004, MALICA/MMWB4PP, plus SUSPER project data for Dong Anh (4 producers in Moc Chau Outside 19-5 cooperative, 4 producers in Moc Chau 19-5 cooperative, 8 producers in Dong Anh)

Table 133- Calculation of tomato production costs in Soc Son and Dong Anh (per unit of land)

	Unit	Soc Son	% of input cost	Dong Anh	% of input cost
Input cost	VND/sao	319833		626371	
Fertilizer and manure		113750	36	265869	42
Seeds		105500	33	89881	14
Pesticides		32789	10	50357	8
Tomato's stakes		37500	12	82262	13
Land rent		-	-	61670	10
Land tax		20294	6		
Others		10000	3	76332	12
Labour cost	VND	0		0	
Total cost	VND/ sao	319833		626371	
Yield	kg/ sao	867		1267	
Sale price	VND/ kg	2096		2522	
Revenue	VND/ sao	1816667		3195374	
Added value	VND/ sao	1496834		2569003	
Margin profit	VND/ sao	1496834		2569003	

Source: Survey data of DSA-VASI, in 2004, MALICA/MMWB4PP, plus SUSPER project data for Dong Anh (4 producers in Moc Chau Outside 19-5 cooperative, 4 producers in Moc Chau 19-5 cooperative, 8 producers in Dong Anh)

	Unit	Soc Son	% of input cost	Dong Anh	% of input cost
Input cost	VND/kg	252		495	
Fertilizer and manure		90	36	210	42
Seeds		83	33	71	14
Pesticides		26	10	40	8
Tomato's stakes		30	12	65	13
Land rent			-	49	10
Land tax		16	6	0	
Others		8	3	60	12
Labour cost	VND	0		0	
Total cost	VND/ kg	252		495	
Sale price	VND/ kg	2096		2522	
Added value	VND/ kg	1181		2027	
Margin profit	VND/ kg	1181		2027	

Table 134 - Calculation of tomato production costs in Soc Son and Dong Anh (per kg)

Source: Survey data of DSA-VASI, in 2004, MALICA/MMWB4PP, plus SUSPER project data for Dong Anh

IV. PARTICIPATION OF THE POOR IN THE VALUE CHAINS

If we consider the official poverty rate of 150,000 VND/month in cities before 2005, i.e., 5,000 VND/day, and 120,000 VND/month in rural areas, i.e., 4,000 VND/day, we cannot find any poor households involved in the tomato chains. If we consider the 2005 official poverty threshold, 500,000 VND/month in the city, 270,000 VND in rural areas, we find that 18% of poor among the street vendors are living in poverty. If we consider people who were formerly poor and whose involvement in tomato value chains made them get out of poverty, we found out that tomato farmers in Moc Chau involved in the supply of the 19-5 Cooperative, either in the form of employees, or in the form of contracted farmers, were previously involved in rice and maise production for self-consumption. It is the commitment of the cooperative to endorse the risks in case of production losses, and the guaranteed purchase of all the outputs by the cooperative which convinced the Thai farmers to get involved in tomato commercial production. Signs of moving out from poverty include the extension and improvement of the house and investment in a motorbike.

Poor farmers may present advantages for the participation in the Moc Chau Cooperative supply as his head declared to us that they were more hard-working. In regard to Soc Son, richer households may be more willing to shift their land use from agriculture to housing purposes, and shift from agriculture to other activities.

The conditions for participation of producers in the different value chains are summarized in Table 135 and Table 136.

Table 135 - Conditions for producers to participate in the different chains

	Moc Chau		Soc Son	
	Van Tri Safe Vegetable Cooperative–driven chain	Market driven chain	Safe Vegetable Collector-driven chain	Bao Ha Company driven chain
Operation Capital (million VND)	2 -3	1.7 -2.5	1.2 - 2.8	1.2 - 2.8
Relation	- Having relation with 19-5 Agricultural Service Cooperative - Having relation with the collector	- Be acquainted with the collector	- Having relation with the collector	
Experience	- Having experience in agricultural production	- Having experience in vegetable production	- Having participated in Safe Vegetable Training Course.	- Having participated in Safe Vegetable Training Course.
Other conditions	- Large area for vegetable growing (> 5 sao) - Having trust of 19-5 Agricultural Service Cooperative.	- Having experience in selling product at local market. - Growing many categories of vegetables at the same time.	- Member of Safe Vegetable Growing Groups of ADDA organization.	- Member of Safe Vegetable Growing Groups of ADDA organization, under the supervision of Hanoi Plant Protection Department.

Source: DSA-VASI surveys in 2004, MALICA/MMWB4P

Table 136 - Operation conditions of 19-5 Agricultural Service Cooperative

Criteria	Unit	Amount
Operation Capital	Million VND	30 (trade capital)
Land area	ha	20
Workshop area	m2	40
Value of facilities and equipment	Million VND	250
Other		Having regular relation with Van Noi Safe Vegetable Cooperative

Source: DSA-VASI surveys in 2004, MALICA/MMWB4P

The members of 19-5 Cooperative whom we surveyed have quite rich households, they have an income of around 2 million VND/month, concrete houses (flat roof, more than 2-story houses), and assets such as motorbikes, television, and a fridge. The cooperative has 11 regular hired laborers with the salary of 500,000 VND/month, 90% of laborers are farmers, and they are hired to work all year to produce vegetables, fruits and maize. So there is no possibility for the poor to be a member of the 19-5 Agricultural Service Cooperative because of both capital and material facilities. But the poor can become hired laborers or contracted farmers

Van Tri Safe Vegetable Cooperative has 13 members, they contribute their shares by cash (3 million VND / 1 member of the cooperative). The average trading volume of vegetables of the cooperative is 612 tons/year, this is the biggest-scale actor in the distribution channel.

Households participating in the cooperative are quite rich families; each household rents one retail store of safe vegetables in Hanoi markets. They have the stable income of 1.5 million VND/month, have concrete houses (flat roof, more than 2-story house), and have assets such as motorbikes, television, and a fridge. The cooperative does not hire outside laborers, it uses family labor.

The binding in share contribution and the

Criteria	Unit	Amount
Operation Capital	Million VND	54
Store area	m2	15
Value of facilities and equipment	Million VND	270
Other		Renting retail store in the big markets in Hanoi

Table 137 - Operation conditions of Van Tri Safe Vegetable Cooperative.

Source: DSA-VASI surveys in 2004, MALICA/MMWB4P

As regards collectors, conditions to enter the different chains are summarised in Table 138.

Criteria	Moc Chau		Soc Son
	Chain of Van Tri Safe Vegetable Cooperative	Market driven chain	Chain of Safe Vegetable Collector
Operation Capital (million VND)	30	17 - 10	5 - 20
Relation	- Having regular relations with Van Tri Safe Vegetable Cooperative - Conversance with production area and relation with big producers.	- Having regular relation with wholesaler. - Conversance with production area and have relation with big producers.	- Having regular relation with retailer. - Conversance with production area and relation with big producers.
Experience	- Having ability to forecast the supply of vegetables in the area.	- Having ability to forecast the supply of vegetables in the area. - Having ability to preserve vegetables.	- Having ability to forecast the s supply of vegetables in the area. - Having experience in growing vegetables.

Table 138 - Conditions for the collector to enter the different chains

Source: DSA-VASI surveys in 2004, MALICA/MMWB4P

necessity to open safe vegetable stores for members of the cooperative exclude the participation of the poor who have the desire to become new members of the cooperative, and the poor also do not have any chance to be hired by the cooperative (see Table 137).

Capital requirements exclude the poor from collection activities. Some other important requirements for collectors are vegetable growing experience and having relationships with farmers.

Making a survey on 3 wholesalers of different scales shows that vegetable trading activity is the main job that brings income to the family. Wholesalers work at all months of a year, with two family workers (husband-wife, brothers, etc.). Before becoming wholesalers, they used to be market retailers, and their savings and experience enabled them to become wholesalers. Wholesale activities require a large capital amount for buying products as well as investing in facilities, motorbikes, phone service, product store devices, etc. Besides the requirements in capital and labor, they must have other requirements such as a favorable selling location and a close relationship with the retail network (see Table 139).

Table 139 - Conditions to operate as a wholesaler.

Criteria	Unit	Amount		
		Max	Min	Average
Operation Capital	Million VND	42	15	20
Store area	m2	8	4	6
Laborer	person	2		2
Value of facilities and equipment	Million VND	21	13	15
Location of the store		Convenient for transporting by truck		
Regular relation with retail places	Store	15	10	10
Experience	Year			> 5

Source: DSA-VASI surveys in 2004, MALICA/MMWB4P

The conditions to start Bao Ha are indicated in Table 140

Table 140 - Conditions to open Bao Ha Company

Criteria	Unit	Amount
Operation Capital	Million VND	15
Workshop area	m2	4
Worker	Number	3
Value of facilities and equipment	Million VND	93
Regular relation with retail places	Store	10
Relation with Hanoi Plant Protection Department in supervising producing process, harvesting and packaging		

Source: DSA-VASI surveys in 2004, MALICA/MMWB4P

It can be seen that poor households do not have a chance to participate in the company due to their limitation in capital, relations with the retail network and administration. The poor can participate as hired workers but they must have professional skills in regard to quality control.

As for opening a safe vegetable store, this store should have a good location, convenience for the travelling of customers so the price for renting a store is quite high, a minimum of 0.6 million VND/month and the store owner has to pay the rent for 6 months to one year in advance. The store owner should also show an aptitude for selling, knowledge in safe vegetable producing process, and conversance with places where safe vegetables are produced. Due to the above requirements, most of the safe vegetable selling stores are owned by members of the safe vegetable cooperatives of the peri-urban area, people who have more than 3 years experience in selling ordinary vegetables or the ones who have had experience in selling food in general. Compared with safe vegetable retail places, it is easier to open an ordinary selling place in terms of operation capital (0.35 million VND/ one selling place), location for hiring a place and skill of the seller. So the sellers of ordinary vegetables are of different socio-economic profiles, from the young, newly married couples to the old and retired civil servants. The conditions to operate as street vendors make the busines possible for the poor (see Table 141). Street vending is the sector which has the highest participation of the poor.

Criteria	Street vendor near markets	Short Distance Street Vendor	Long distance street vendor
Operation capital (million VND)	0.2	0.15	0.25
Conversance with Hanoi area	Conversance with the streets in Hanoi Knowing the consumer demand of residential areas at each period of time.		
Relations	Having relation with some vegetable sellers in wholesale markets. Paying 100% of the value when buying products.	Paying 100% of the value when buying products.	Having relation with some vegetable producers in the villages Can buy the product on credit
Means of operation	Bicycle	Bicycle Bamboo frame	Bicycle
Other	Having a good health Having an aptitude in selling		

Table 141 – Conditions to operate as street vendors

CONCLUSION

After studying vegetable value chains for products of Moc Chau and Son Son, we have made the following conclusions:

- The Hanoi vegetable market is divided into two main distribution channels: distribution channel to safe vegetable stores, stalls and supermarkets; distribution channel to ordinary market retailers and to street vendors. Each channel has its specific characteristics in terms of participating actors, product quality, types of vegetable supply and consumers.
- The organization of marketing chains is characterized by more integration for the "quality" channel than for the ordinary channel, which is market-driven, while the "quality" channel is driven by assembling farmers' cooperatives and private assembling trade companies.
- The actors who participate in distribution channels do not have binding regulations for supplying high quality products. Hence, at the moment, the incentives to supply safe vegetables are limited, and this may be a constraint for supermarkets to get their supply in the domestic market. For farmers to be able to supply supermarkets in the long run, they need to be able to prove that they can follow the safe vegetable production regulations by organizing a quality certification by an external body, e.g., the Provincial Plant Protection Department, as it now has a mandate for vegetable quality control.
- Participation of the poor in the market is restrained due to conditions of capital and experience, especially in the quality channel. Yet the contractual arrangements with small-scale farmers developed by the Moc Chau Cooperative, that includes support to risk-taking are innovative institutional arrangements that are worth promoting.
- Direct sales between farmers' groups and supermarkets is the form preferred by supermarkets, and they are presently observed for most all peri-urban vegetables (except for Soc Son vegetables which go through collectors and the Bao Ha Company); while rural vegetables are supplied either by the peri-urban cooperatives acting as collectors of rural vegetables (this is the case of Van Tri), or through collectors and wholesalers (this is the case of vegetables from Hung Yen, Hai Duong, Bac Ninh, Vinh Phuc, which supply potato, onion, pumpkin). The possibility of Soc Son and rural vegetable farmers, including Moc Chau farmers, to directly supply supermarkets and safe vegetable shops, could be investigated, which implies that these groups are provided with some credit to launch the business of vegetable collection and distribution, plus input supply.
- The different retail outlets: ordinary market retailers, street vendors, safe vegetable retailers and supermarkets, are different in terms of

capital requirements, and criteria for supplier selection, hence they should be considered as complementary. Supplying supermarkets is not necessarily the most interesting option for farmers' groups, because of their frequent returns of unsold products, which explains why the Van Tri Cooperative decided to give up supplying to supermarkets, while selling mostly through its own rented shops. It would be worth investigating how the Van Noi Cooperative has been able to maintain its relation with supermarkets for more than five years.

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