



Cash & Carry Vietnam Ltd.



**Ministry of Trade
Of S.R. Vietnam**

Analysis of Vegetables value chain in Hatay province



**Dao The Anh, Dao Duc Huan, Ngo Sy Dat
Dang Duc Chien, Le Van Phong
Agrarian System Department
Vietnam Agricultural Science Institute**

Hanoi – 2005

Table of content

Table of content	2
List of Tables.....	3
List of Diagram.....	3
I. Summary.....	4
II. Study objectives	4
III. Study methodologies	4
III.1. Information collection method	4
III. 2. Method on study site selection.....	5
III. 3. Field implementation method.....	5
IV. General situation	6
IV.1 General introduction on Hatay province	6
IV.2 Vegetable production of Hatay province.....	7
V. Vegetable value chain in Hatay.....	8
V.1 Supply source and market for vegetable consumption for Hatay	8
V.2 Structure of vegetables value chain in Hatay	9
V.2.1 Characteristics of the trade center and actors participating in the vegetable channel in Thuongtin	11
V.2.1.1 Characteristics of the trade center for vegetable “Voi market”	11
V.2.1.2 Characteristics and operation scale of actors.....	12
V.2.1.2.1 Producer actors	12
V.2.1.2.2 Collector actor.....	16
V.2.1.2.3 Trader actor	18
V.2.1.2.4 Retail seller actor	20
V.2.1.2.5. Value of the value chain analysis.....	20
V.2.2.3 Relationships between the actors in the vegetable value chain in Thuongtin	21
V.2.2 Characteristics of trade centers and actors participating in the vegetable value chain in Hoaiduc	23
V.2.2.1 Characteristics of trade center for vegetables “Vang market”	23
V.2.2.2 Operation characteristics and scale of the actors.....	24
V.2.2.2.1 Producer actor	24
V.2.2.2.2 Collector actor.....	29
V.2.2.2.3 Retail seller actor	31
Action direction	32
V.2.2.2.4. Value analysis for the value chain	32
V.2.3 Consumer actor	33
V.2.4 Role of organizations for product development process	35
VI. Conclusions and recommendations	36
VI.1 Conclusions.....	36
VI.2 Directions recommended for the developemnt of vegetable value chain in Hatay	37

List of Tables

Table 1:	Some socio-economic indicators of Hatay	7
Table 2:	Vegetables Area and production in Hatay by district	7
Table 3:	Structure of actors participating in Voi market	11
Table 4:	Characteristics of survey households in the value chain originated from Thuongtin	13
Table 5:	The annually income structure of survey farm household.....	13
Table 6:	Economic efficiencies for some production models of the survey household in Thuongtin (VND).....	13
Table 7:	Season calendar of some vegetables produced in Thuongtin district.....	14
Table 8:	Some characteristics of the professional collectors for vegetables in Thuongtin	17
Table 9:	Some mainly operation characteristics of the trader actor in Thuongtin	18
Table 10:	Some operation characteristics of retail seller actor	20
Table 11:	Price formulation through actors calculated for 1 kg of group of vegetable products (unit: VND/kg)	21
Table 12:	Criteria in the transaction relationship between actors	22
Table 13:	Actors participating activities in Vang market.....	23
Table 14:	Common characteristic of the survey households in value chain originated from Hoaiduc district	24
Table 15:	Annually Income structure of the survey households in Thuongtin district	25
Table 16:	Economics efficiency of some rotation cultivation formula in Songphuong.....	25
Table 17:	Seasonal calendar for some main vegetables of the survey households in Hoaiduc	26
Table 18:	Comparison for Economic efficiencies of the 2 cultivate formulas (calculation on 1 Sao of cabbage)	27
Table 19:	Operation cost of retail sellers and collectors actors.....	31
Table 20:	Some criteria in the operation of collectors and retail sellers.....	31
Table 21:	Price formulation through actors originated from Hoaiduc (unit: VND/kg)	33
Table 22:	Some problems of the consumer group in the value chain	35

List of Diagram

Diagram 1:	Supply sources and consumption markets for vegetables products in Hatay	9
Diagram 2:	Vegetables value chain in Hatay.....	10
Diagram 3:	Role of Voi market in the trading system of vegetables product in Thuongtin	12
Diagram 4:	Supply source and consumption markets of the trade center Hoaiduc district ...	24

I. Summary

Nowadays vegetables are one of the important agriculture products for many provinces. With the advantages of short time production cycle (then the land use ratio is increased), new vegetable varieties given high value and high productivity, it is not required large area, stable market demand... then vegetables have been being one of the main crops and brought a high income for farmers and become an effective conversion for agriculture economics structure. In Hatay province, the total area for vegetables in year 2004 was 20,857 ha which occupied 17.02% of the agriculture land, vegetable production is 268,538 ton, and production value is VND 390,663 million which is 1.34 times compared to that of year 2003. The provincial productivity of vegetables is 12.8 ton/ha¹. The vigorously vegetable development's zones are Thuongtin and Hoaiduc districts with the long traditional experience and high intensive in farming vegetables. In the province there are 2 big trade centres for vegetables which located in two biggest zones for vegetables farming, they are Thuongtin and Hoaiduc. The main market for Hatay vegetables is Hanoi city; the other markets occupy small part of vegetables production.

Present commodity channels in Hatay were established since rather long time and have no big change on structure. The main change is that the number of actors participating in the system is getting fast increase and changing on operation scale. The actors in the system have close mutual relations.

The problems for the vegetables production and trade system of the province is that when institutions change and consumption markets fluctuation or other changes, then whether the actors in the system are ready to adapt or adapt at which level. Whether the available experience from operation practices is able to help them or in case they need assistants then how the assistants are and the where the assistant come. The learning and analysing the present situation of the value chain, the SWOT analysis for the links of value chains can help to answer above questions.

II. Study objectives

- To determine scale and characteristics of production, process and commercial situation of vegetable product of the province.
- To determine the structure of the value chain, the main channels and their scales, operation characteristics of the actors participating in the value chains.
- To analyse quality characteristics, product prices and their formations through different channels.
- To analyse the difficulties in the producing and marketing vegetables products, from then to produce the suitable action orientations.

III. Study methodologies

III.1. Information collection method

During the implementation of the project, two types of information source used are secondary and primary data:

¹ Statistical year book, Hatay - 2004

- *Secondary information source*: Collecting the available study reports, documents, and data concerning to vegetable value chain of the province.
- *Primary information source*:
 - + Applying methods for value chain study in order to collect information through contacting and interviewing the actors in the value chain (using questionnaire).
 - + Method of specialist using: Through the reference of specialists' opinion on the study research, then to make orientation for the study site selection.

III. 2. Method on study site selection

Study sites are selected based on the available information on vegetables value chain, statistic data of the province and reference opinions of the specialists and especially the consultancies of the local actors. The districts selected for the study in Hatay are Thuongtin and Hoaiduc districts.

The reasons to select the two districts as following:

- + There existing the diversification on channels and actors participating in the value chain.
- + The vegetables are main crops in the farming system with large concentrated area, which contributes important part for the socio-economics live of the local.
- + There existing a connection between the actors of the value chain to Hanoi Markets.

III. 3. Field implementation method

In order to implement this study, the following steps are implemented:

Step 1: To determine scale and characteristics of the vegetables production of the province through statistics data and rapid dialogist information to evaluate production activity, to determine the concentrated production zones of the province. The production characteristics of each production zone in order to classify production zone according to production characteristics and product types.

Step 2: To descript the process operation and trading system for the vegetables products: to make reference to specialists' opinions in order to collect information on processing operation for vegetables products in the province. To determine the concentrated commercial areas their scales, their characteristics and market structures. From there it is possible to estimate the production scale and market structures for vegetables trading for the whole province.

Step 3: To conduct a survey on the actors of the value chain for different channels: to evaluate the scale, operation characteristics of the actors participating in the value chains. To analyse and evaluate evolution on product prices, the way to evaluate the product quality during the transaction process, contract types and forms between the actors.

Description of formation process for product price through the actors in the value chains is following

Step 4: To evaluate the role of the vegetable production in the farm household economy, in the job creation, in the regional economics development through farm household survey

Step 5: Synthesis, analysis and writing report

IV. General situation

IV.1 General introduction on Hatay province

Geographic location

Hatay belongs to Red River Delta, it borders to Hanoi capital to the west and the south with 4 gates to entrance to the capital through National roads number 1, 6 and 32. Hatay borders to Phutho to the North, Hungyen to the east, Hoabinh to the west and Hanam to the south.

Natural condition

- Land characteristics:

Hatay land is divided into 2 zones, of which the rivers delta zone covers land consolidating by deposited alluvium, non-deposited alluvium and gley alluvium; the hilly and mountainous zone covers yellow brown soil on the ancient alluvial land, red yellow on shale and red brown, yellow red soil on the base and neuter rocks, brown red soil on limestone land.

In general the Hatay land has high fertile level with numerous terrain kinds then it is possible to plant many kinds of crops and trees of short term, perennials, food crops, industrial crops, forest trees. Some soil types limited agriculture development are deep water alluvium, swampy ground, peat soil, and carbonate black soil.

- Terrain:

Hatay has two types of terrain:

- Hilly mountainous terrain in the western which occupies one third of totally provincial area.
- River delta terrain in the eastern which is rather plain with a low land area named Myduc, Unghoa, Phuxuyen, Thanhvai, Quocoai.

The diversification on terrain is a favours element for numerous varieties of crops and livestock but difficult for irrigation water management.

- Climate

Hatay belongs to the climatic belt of the northern of Vietnam. It is under a monsoon tropical climate with 2 clearly different seasons: summer from April to October, it is hot, humidity and high rain fall; winter from November to March, it is dry, cold, low rain fall. According to the terrain, the province is divided into 3 climate zones:

- Plain zone: Affective by the ocean win, hotter and more humidity climate, the annually average temperature is 23.8 °C, average rain fall is 1700 mm- 1800 mm
- High mountainous zone: cool climate all the year round, average temperature is 18 °C
- Hilly zone: continental climate, effective by the win come from Laos, annually average temperature is 24.5 °C, average rain fall is from 2300 mm- 2400 mm

- Rives system

Hatay has Red River in the eastern, Da River in the Northern. Day River and other rivers distributed rather evenly in the terrain with high density. Together with ponds, lakes, swamps distributed evenly on the whole province, the province has rather rich water surface resources.

Socio-economics condition

Natural area of Hatay is 2,193 km². Hatay has 14 districts and towns, 324 communes and wards, of which 24 wards and towns. In year 2004 population is 2.5 million people; natural population growth rate is 2%. 89.8% population live in the rural areas.

In period of 1996-2000, annually GDP growth rate of the province is 7.3% (National average of annually GDP growth rate is 6.8%). GDP of year 2004 is VND 4,226.8 billion and the GDP growth rate is 16.05%.

Table 1: Some socio-economic indicators of Hatay

Items	Unit	Year 2000	Year 2004
Population	Person	2,420,936	2,500,000
Population density	Person/km ²	-	1,141
Labour	Person	-	1,268,000
GDP structure	%		
+ Agriculture-Forest-Fisheries	%	38.02	33.61
+ Industry & Construction	%	32.35	37.10
+ Trading & Service	%	29.63	29.29
Income per capita	1.000 VND	3,148	5,031

Source: Statistical year book, Hatay- 2004

IV.2 Vegetable production of Hatay province

For year 2004, Hatay has vegetable area of 20,857 ha (increase by 1,823 ha to that of year 2003). Vegetables production is 268,538 ton. All districts and town of the province have area under vegetables. The districts with large vegetable area are Thuongtin, Hoaiduc, Thanh Oai, and Bavi. The vegetable varieties are very diversified, they include all popular vegetables (both main season and wrong season vegetables) such as kohlrabi, cabbage, cauliflower, tomatoes, celery, leek, all kinds of cabbage and kale, seasoning vegetables... There are some areas which famous on specific vegetables such as Tanminh (Thuongtin) for seasoning vegetables, Songphuong (Hoaiduc) for vegetables diversification, Hahoi (Thuongtin) for short term vegetables (under 1 month)... Almost all zones in Hatay have long time tradition and high intensive technique for vegetable farming such as districts Phuctho, Hoaiduc, Danphuong.

Table 2: Vegetables area and production in Hatay by district

Ord	District / town	Year 2003		Year 2004	
		Area (ha)	Production(ton)	Area (ha)	Production(ton)
	Provincial Total	19,034	252,712	20,857	268,538
1	Thuongtin district	2470	30599	2559	31809
2	Hoaiduc district	2380	40195	2436	43639
3	Chuongmy district	2290	22500	2367	20784
4	Thanhhoai district	2070	26101	2314	27908
5	Bavi district	2051	21090	2014	21946
6	Phuxuyen district	1612	13744	1624	14024
7	Myduc district	1430	20503	1417	20294
8	Unghoa district	1322	15017	1292	12768
9	Phuctho district	1270	22911	1417	27066
10	Danphuong district	685	10164	725	13029
11	Thachthat district	593	7748	654	8695
12	Sontay town	537	7613	547	7881
13	Hadong town	186	2871	387	5931

14	Quocoai district	1100	11527	1102	12737
15	State farms	28	129	2	27

Source: Statistical year book, Hatay- 2004

Classifying vegetable production zone in Hatay

Classifying vegetable production zone in Hatay province base on 2 main criteria as following:

- Classifying based on vegetables area
 - Group 1: includes the districts which have over 2000 ha area for vegetable production. This group includes Thuongtin, Hoaiduc, Chuongmy, ThanhOai, Bavi districts. Total area of this group is 690 ha, with production is 146,086 ton.
 - Group 2: includes districts Phuxuyen, Myduc, Unghoa, Phuchtho, and QuocOai. Total area of this group is 6,852 ha, with production is 86,889 ton.
 - Group 3: includes districts which have lower 1000 ha for vegetable production. This group includes districts Danphuong, Thachthat, Sontay town, Hadong town and state farms. Total area of this group is 2315 ha, with production is 35,563 ton.
- Classifying base on vegetable productivity
 - Group with vegetables productivity is higher than middle level of the province includes Phuchtho, Danphuong, Hoaiduc districts, Hadong, Sontay towns, Myduc, thachthat and state farms. Of which Phuchtho is the top of productivity with the average productivity of 19.1 ton/ha. The 2 towns with small area but their productivity is rather high.
 - Group with vegetable productivity is lower than the middle level of the province includes the rest districts. Of which the productivity of Phuxuyen is lowest (it is 8.6 ton/ha and equal to 0.45 time of that of Phuchtho). The difference on vegetable productivities of the lowest and the highest is rather large. Thuongtin district although is at top on production area but the vegetable productivity is at middle level of the province.

V. Vegetable value chain in Hatay

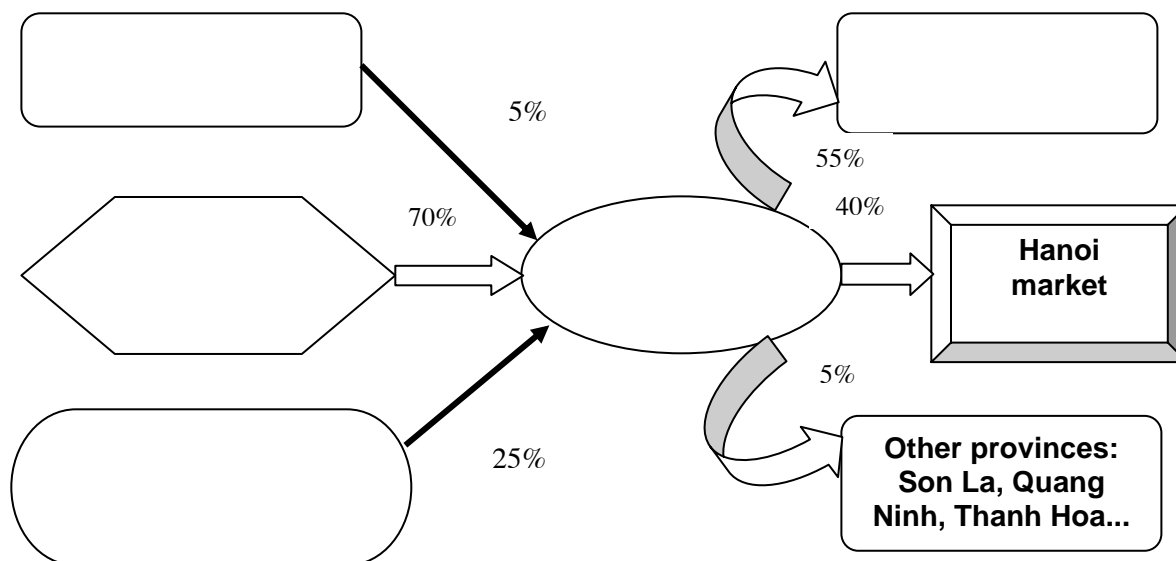
V.1 Supply source and market for vegetable consumption for Hatay

The diversification of the production zones, actors participated and the trade centres for vegetables are the season to create the diversification of supply source and consumption market of the province during recent years. At present the vegetable supply sources in Hatay concentrate to 3 main sources as following:

- Supply sources from production area in the province. These are the main sources to supply vegetables, tubers and fruits for the province. These supply sources contribute rather big ratio in the vegetable supply structure of the province (it contributes about 70%)
- Supply sources from neighboured provinces through system of traders and collectors (they contribute about 25%)
- Supply sources for the high quality products (wrong season products) from other provinces or from China. These sources contribute small ratio in the supply structure of the province (about 5%)

Hanoi and domestic consumption are the main consumption markets for vegetable, tuber and fruit product of Hatay. Structure of the supply sources and consumption markets are presented in following diagram:

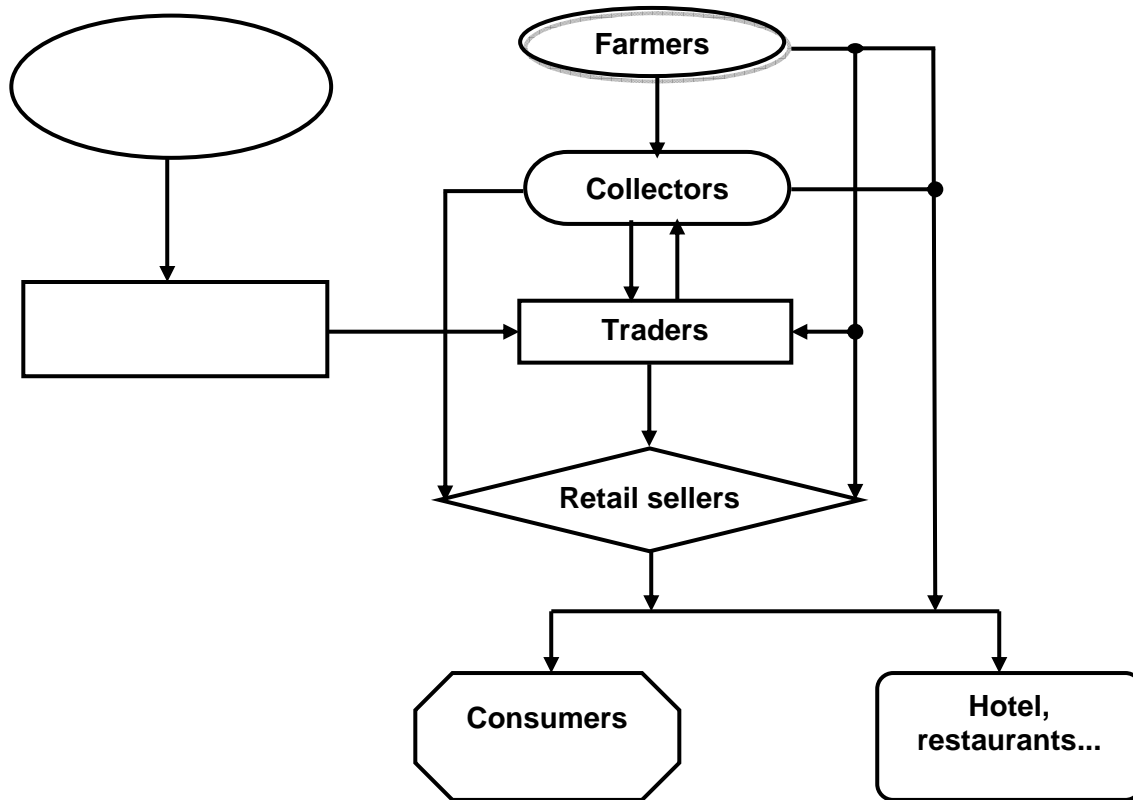
Diagram 1: Supply sources and consumption markets for vegetable products in Hatay



V.2 Structure of vegetable value chain in Hatay

Structure and operation of the vegetable value chain are the first contents to present the statues of the value chain. Structure of the value chain will determine to the small or large scales, diversification level and the expanding level of the channels from production to consumption. The structure of the value chain is created by 2 main elements: Actors and products. The structure of vegetable value chain in Hatay is presented in the following Diagram.

Diagram 2: Vegetables value chain in Hatay



Recently diversification level of the actors participating in the vegetable value chain in Hatay is fast developed in large area. The classification, the analysis of characteristics and operation scale of actors in the whole value chain are very difficult. In each zone there are different products, different actors in different channels. Study for totally commodity channels will take a lot of time and efforts, therefore in this study frame only main commodity channels which directly glue to the production centres and have mostly typical characteristics in the vegetables value chain of the province Hatay and their products transport to the final consumers in Hanoi, will be studied. For each commodity channel, the characteristics and operation scale of each actor participating in the channel will be presented from the product origin to the final consumers in Hanoi. Only actor of all types of consumer in Hanoi for all channels will be presented in one common part.

Now, in Hatay there are 2 concentrated centres for production and they stick to big trade centres for vegetables named Vang market (Hoaiduc district) and Voi market(Thuongtin district). These markets are the places to gather vegetables produced not only in the area but also from neighboured zones and from other provinces. Therefore, the 2 centres were selected to be studied vegetable commercial operation of Hatay province. The value chain includes:

- Commodity channel to transport vegetables from the producers in Hoaiduc to consumers in Hanoi.
- Commodity channel to transport vegetables from the producers in Thuongtin to consumers in Hanoi.

V.2.1 Characteristics of the trade centre and actors participating in the vegetable channel in Thuongtin

V.2.1.1 Characteristics of the trade centre for vegetable “Voi market”

Voi market is central market of Thuongtin district. It belongs to commune Hahoi with located near by district centre and along to the old national road 1A. The market has many advantage conditions for the goods distribution circulation with other provinces especially with Hanoi. The market operates as whole sale market; it implements operation on collecting, distributing and a part of retail selling agricultural products and foods for people in the province as well as in other provinces. The other products, fruits and fresh foods originated from livestock such as meat, fish..., the market operates as ordinary retail selling markets in the district. It is estimated that about 35 - 40 ton of vegetables, tubers and fruits are transacted daily at the market.

The operation for vegetable, tuber and fruit products transaction in Voi market lasts from 1h00 to 6h00 in the morning, with a participant of about 180 - 200 people of producers, collectors, traders from the communes of the district, the collectors, traders retail sellers from other localities. The retail sellers and traders are the one who transport vegetables to sell in Hanoi. This period is the busiest time of the market, the rest of the day is for the retail sellers. In this period, the market operation is the same to other detail markets in the district. The roles of the market and vegetable supply sources are presented through number of actors operating in the whole sale market Voi:

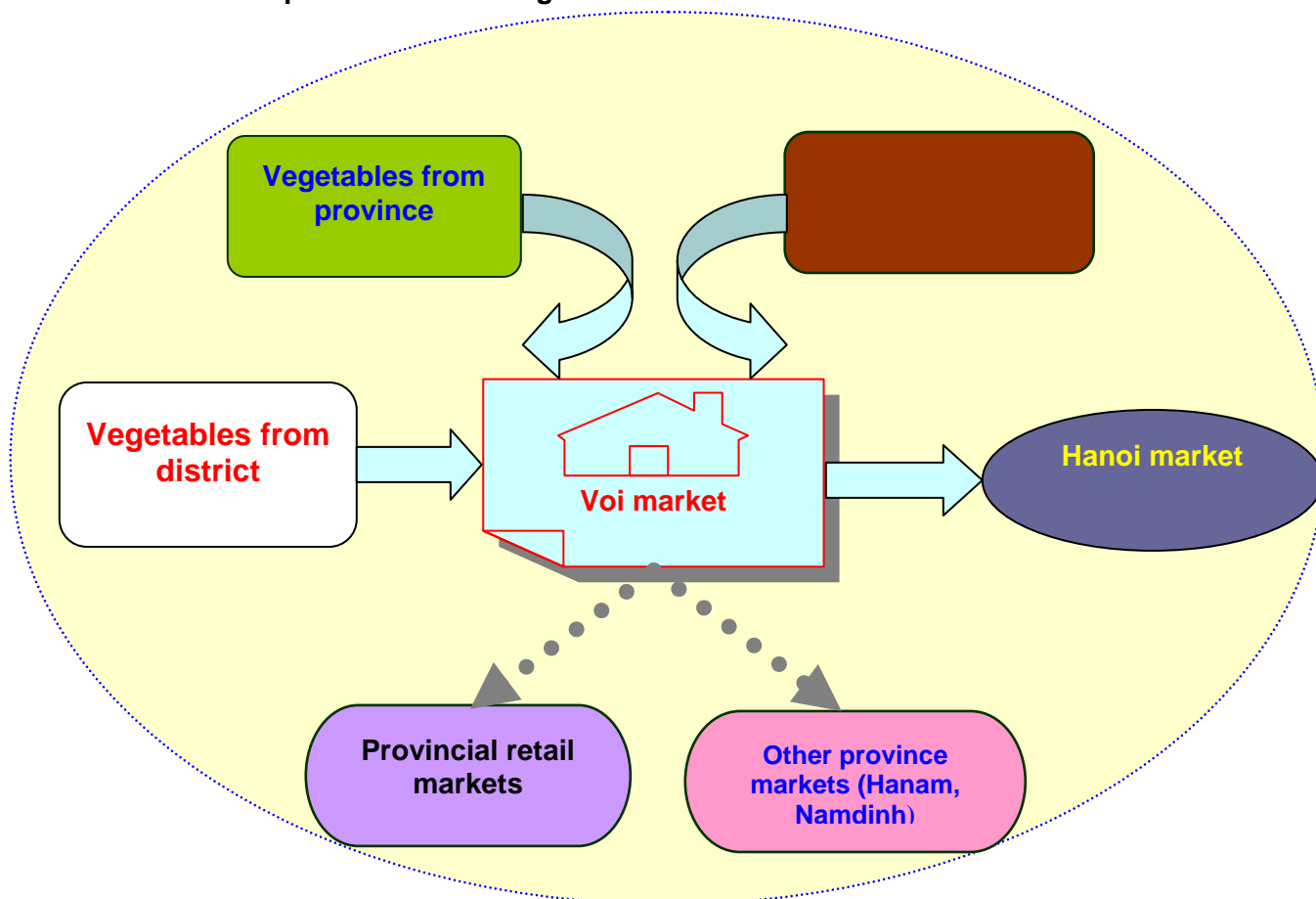
Table 3: Structure of actors participating in Voi market

Actors	Number of actor
Big trader	7
Retail seller	45
Collector	75
of which:	
<i>Collectors from communes in the district</i>	<i>60</i>
<i>Collectors from other locals</i>	<i>15</i>
Producer	70

Source: VASI survey, 2005

With the role of whole sale market, the Voi market has gathered and distributed numerous vegetable sources come and gone. The daily busy performance of trading operation shows that the capacity on receiving product of the market is very big. At the time for wrong season of vegetables, the market also receives numerous sources of vegetables from different regions, especially from Haiduong, Hungyen, Hanam, Ninhbinh, Dalat and China.

Diagram 3: Role of Voi market in the trading system of vegetable products in Thuongtin



V.2.1.2 Characteristics and operation scale of actors

Actors system participating in the trading system in Thuongtin district develops very fast diversifies into many activities. The classification of actors according to the products is difficult because their products depend on the season; therefore we classify the actors according to their characteristics and operation scale. The analysis of characteristics and operation scale of actors participating in vegetables value chain will allow us to evaluate the development process of the market as well as the respond and demand of the markets.

V.2.1.2.1 Producer actor

Farmers are the first actor of the value chain. Economic efficiency of the product will be the main element to determine the strategy of production of farmers. Characteristics and operation scale of the value chain are presented through quantity, types of products therefore they depend closely to this actor.

From the above analysis on market channels, the selected farm households include farm households concerning to vegetable value chains in Thuongtin and their products are sold to Hanoi consumers through other actors. The common characteristics of these households are presented in the following Table:

Table 4: Characteristics of survey households in the value chain originated from Thuongtin

Items	Unit	Quantity
Agriculture land area	m ²	1360
Rice land area	m ²	544
Vegetable land area	m ²	816
Household size	Person	4.52
Labour /household	Labour	2.5
Agriculture labour /household	Labour	1.9

Source: VASI survey, 2005

Area under vegetables of the survey households occupies a high ratio to agriculture land. Vegetables bring high income for farm households (60% of agriculture land and more than 50% of farm household income). The income structure of farm household as following Table:

Table 5: The annually income structure of survey on farm households

Items	Amount (VND million)	Structure (%)
Total income	35	100
Income from agriculture	25	71.4
Income from vegetable	20	57.1

Source: VASI survey, 2005

Each zone has its own of production system. Production system, especially cropping system reflects the overall picture on the strength of the crops in the zone, as well as land use ratio, especially economic efficiency of each production system. For the detail information on the production activity of survey households in Thuongtin study site, the production system of the survey households as following:

- Formula 1: Rice - rice – potatoes
- Formula 2: Potatoes - cabbage - green kale (cai xanh) – sweet kale (cai ngot) – small Chinese cabbage (cai chip) - Coriandrum sativum - salad – daisy kale (cai cuc)
- Formula 3: Celery - Coriandrum sativum - salad - daisy kale
- Formula 4: 7 months for seedling production - salad - daisy kale – coriandrum sativum

Table 6: Economic efficiencies for some production models of the survey households in Thuongtin (VND)

Items	Production value	Cost	Profit
Formula 1	2,500,000	1,155,000	1,345,000
Formula 2	6,900,000	2,415,000	4,485,000
Formula 3	11,450,000	3,354,000	8,096,000
Formula 4	56,450,000	31,014,000	25,436,000

Source: VASI survey, 2005

(Note: Cost does not include home labour)

The above Table shows that the profits are remarkable differences between the formulas. The reasons, that households have to use the formula 1 and 2, are: i) Their land is not able to grow vegetables or ii) their land under vegetables is already large and their labour force is not enough to expand vegetable area. The formula 2 has some short term vegetables. The production households use the formula 2 to limit risk in case price of one type of vegetables is

down then other type of vegetables can make up their income. Formula 3 gives high economic efficiency but it requests production households to have high technique background and high investment. Formula 4 is applied by fewer households because it requests high technique level, production process is very strict and the stable market, further more it is very sensitive to climate risk.

The cropping diversification of the survey households in Thuongtin develops fast. Instead of monoculture with long term growth cycle, the farm households concentrated to the short term vegetable crops such as green kale (cai canh), sweet kale (cai ngot), small Chinese cabbage (cai chip), daisy kale (cai cuc), coriandrum sativum, salad, besides the vegetables which are difficult to grow but giving high value such as leek, onion, garlic vegetables... Some vegetables were preferred to grow before but due to low economic efficiency then now, they were not cultivated such as squash, potatoes. Now the area under these crops is about one third of that the years before.

Table 7: Season calendar of some vegetables produced in Thuongtin district

Ord.	Month Vegetables	1	2	3	4	5	6	7	8	9	10	11	12
1	Cabbage	x	x	x	x	x	x	x	x	x	x	x	X
2	Basella alba, pot herbs				x	x	x	x	x	x	x	x	
3	Daisy kale	x	x	x	x	x	x	x	x	x	x	x	X
4	Field cabbage	x	x	x	x	x	x	x	x	x	x	x	X
5	Green kale		x	x	x	x	x	x	x	x	x	x	X
6	Small Chinese cabbage	x	x								x	x	X
7	Water morning glory	x	x	x	x	x	x	x	x	x	x	x	X
8	Gourd			x	x	x	x	x					
9	Tomatoes	x	x	x	x						x	x	X
10	Potatoes	x	x	x							x	x	X
11	Small spring onion	x	x	x	x	x	x	x	x	x	x	x	X
12	Leek										x	x	X
13	Garlic vegetables	x	x	x	x	x	x	x	x	x	x	x	X
14	Celery, leek	x	x	x	x	x	x	x	x	x	x	x	X
16	Kohlrabi	x	x	x						x	x	x	X
17	Cauliflower	x	x	x					x	x	x	x	X
18	Coriandrum sativum	x	x	x	x	x	x	x	x	x	x	x	X
19	Salad	x	x	x	x	x	x	x	x	x	x	x	X

Source: VASI survey, 2005

The diversification also represented in the variety planted. Besides the domestic varieties, the vegetables varieties originated from Japan, Unite State, South Korea with high productivity, and short time growth period are also grown widely. In addition, the cultural method of net cover in order to limit sun light and to expose to the direct rain which cause vegetable plants fallen was applied widely in Thuongtin district. This model was just introduced about 5 years ago but due to its initial investment is rather high (VND 3 million/sao including cement/ bamboo columns and net) then this model is not yet expanded to large area. In opposite, the

model that uses plastic paper to cover plants is used to apply over almost all vegetables area, especially over the one in the survey households.

There are two forms for vegetable consumption among the survey households in Thuongtin: selling vegetables at home or at whole sale market Voi. All sold vegetable products are in fresh. There is not yet any preservation or process technology applied in this area. The collectors buy vegetable products at farmer's fields that reduce a part of labour for the producer households. However this form of vegetable selling is not applied by many farmers because the price difference between the selling forms of at fields and at markets is rather high (the difference is about VND 200 – 500 per bundle depending on each type of vegetables).

Advantage, difficulties and oriented action of the production actors

Advantages	Difficulties
<ul style="list-style-type: none"> - Long time tradition for vegetable planting. The experience and the not very difference on production technology compare to other zones are the advantage conditions for production development of vegetables, tubers, fruit products for this actor. - Hanoi market is very large and convenient transport. The trade network can meet the city demand. - Economic efficiency from vegetable production is rather high and this is demonstrated in the reality. While many locals still wonder to find the conversion direction for cropping structure, the vegetables development especially the special area for vegetables is to bring into play the efficiency. Therefore the farmers do not need to wait for the direction from the government and the government neither need efforts for dissemination. - They are dynamic in production, ready to trail the new varieties or new production process or new model of production organisation with condition of output market should be assurance. 	<ul style="list-style-type: none"> - There is not the local policies to specific support the development of vegetable product (the local policies are still general such as the production zone plan, science and technique transfer) - There is not any organisation to support the producers to sell vegetable product. Therefore the selling process still faces many difficulties (fluctuant price, traders force price...). Most of farmers themselves have to find the markets for themselves. - The techniques and seedlings for the high class and wrong season vegetables are still limited, not yet disseminated. - Lack of information on market demand on products. - The producers are not yet well organised to produce safe vegetables. In other words, there is not a suitable mechanism. This is the most important element and the first problem to be solved for safe vegetable production.
Action direction to the producer actor in Thuongtin	
<ul style="list-style-type: none"> - Planning, establishing high quality vegetable production zones and invest to construct infrastructure to serve the production process: automatic irrigation system, glass house, net house, internal field road... - Supplying new, high quality varieties which certified by different departments to the vegetable production zones. - Constructing channels of seedling and materials supply up to hamlet level. - Conducting training on farming techniques for high quality and wrong season 	

vegetables.

- Issuing specific policies for the farm households who cultivate vegetables in the planned zones such as policy for credit or credit in kinds...
- Establishing organisations for production and distribution of vegetables: cooperatives, association, union... with stamp and legal personality that help to have assurance and stable contracts signing with other organisations.

V.2.1.2.2 Collector actor

Collector actor is the person participating to the value chain as the trader to buy the products from the producers and sell to other actors in the market channel. This is the first chain link to link between the producers and market. There are two types of collectors in the survey in Thuongtin as following:

Local collectors:

Local collectors are the one who live around Thuongtin district. Their operation is in small scale and mainly limited in the district. The operation process of this actor has following characteristics:

- Their activity is seasonal, not professional. Most of the collectors are farmers in the communes of Thuongtin district. They take advantage of leisure time after harvest to participate into collecting activity to increase income for their family.
- They collect the product from farm households in their commune then distribute those goods to other whole sale traders, retail sellers or other collectors through trading system of Voi market.
- Their activities are performed not year round (about 8 – 9 months).
- Transport means of the collectors are mainly motorbike. The daily average amount of goods which this actor transacts is about 150 - 170 kg

Professional collectors:

The activities of these collectors are regularly year round. The products they collect are different according to the season. Their daily activities are divided into 2 main phases:

Phase 1: From 1h00-2h30, this is the time to collect vegetables from farmers, traders or local collectors.

Phase 2: From 2h 30 - 7h00, this is the time to distribute the vegetables products to the retail sellers, restaurants or collective kitchens in Hanoi.

Their professional nature has following characteristics:

- Their operation time last a year round, their main income source is depended on vegetable collection and distribution.
- They have been operating these activities for long time (most of them have more than 10 year experience)
- Their input and output systems are stable.
- Their main distribution clues are in Hanoi city markets.
- Their transaction with input and output actors mainly through telephones
- Their transacted vegetables products are about 4-5 types per day (except the collectors selling tubers, fruits products)

- Transacted amounts in average are 125-200 kg/time or 350 – 450 kg/time for transport by motorbike or truck respectively. The main distribution form is whole sale to the retail sellers and restaurants in Hanoi.

In addition, the professional nature of the collectors in Thuongtin also presents in that some of them unite in renting truck (5-6 people) to distribute collected products to the markets in Hanoi.

The operation characteristics of these actors are presented in the following table:

Table 8: Some characteristics of the professional collectors for vegetables in Thuongtin

Items	Unit	Quantity
Transported amount	Kg/time	416
Average operation years	Year	15.3
Number of actors for input	Person/day	7.6
Number of actors for output	Person/day	4-5
Labour participated	Labour	2
Number of product types sold/day	Type	3 – 4
Average capital	VND1000/day	1000 - 1500

Source: VASI survey, 2005

Advantages, difficulties and action direction of the collector actor

Advantages	Difficulties
<ul style="list-style-type: none"> - Well understood on geographical terrain for product collection and actors network - Sharp to markets - Main career is vegetable trade -> To devote to the career. 	<ul style="list-style-type: none"> - Unusually fluctuant prices. - Much depending on the output actors. - Capital, transport mean are still lack, then the expanding distribution of products is still limited. - Many actors participating in trade and distribute the same product in the same area, then the trade process faces many difficulties. - No legal personality -> could not introduce the goods to the big super markets in Hanoi. - Lack of knowledge in the product preservation -> high spoilt ratio during the trading process
Action direction for collector actor	
<ul style="list-style-type: none"> - Planning production zone for specializing for vegetable cultivation, introducing new varieties to the local production area -> the transport cost is reduced. - Support to supply information on market demand for each specific region (supplying information on product types, product quality...) - Support to sign consumption contracts with companies, super markets (through the companies, organisations... then they re-contract to collector actors through economics contract). - Supplying credit with favour interest and long term. - Conducting training courses for the actors participating in the product preservation, accessing to market information. 	

V.2.1.2.3 Trader actor

Trader actor includes people who operate the business in the larger area than the trade system of the district. This is the unique actor in the system who has relationship to other markets rather than in the district or province. They are the chain link to connect between the collectors and retail sellers, outside province markets and district markets, between consumers, restaurants, hotels and other actors. These people usually buy vegetables, tubers, and fruits from the collectors, long distance traders from other provinces, producers then to sell to the collectors and the retail sellers for selling products in Hanoi or a small part for retail selling in the small markets in the district. This actors established big kiosks in the Voi market, to create convenient conditions for gathering products as well as transacting with other actors in the value chain. In Thuongtin the trader actor is divided into 2 following types:

Small scale trader actor:

Their activities also have rather high professional nature, but due to they can not control the product source (they have not truck), then the operation scale is varied between 1 to 2 ton/day. The tendency of that unity to renting truck to buy goods from other area is getting recognized by the small scale traders. This unity of these traders is presented a part of the development of trade system of vegetables in this area.

Large scale trader actor:

They have long experience in this operation (more than 10 years), their activities have high professional natural. Since they have truck then during the operation process they always control the goods source. They established by themselves a network of collectors, producer and traders. This network operates rather strictly not only in the province area but also expanding o other provinces. Therefore their transaction process mainly base on the credibility among their network. The information exchange between them is mainly through telephones.

The relationship between the traders and input actors mainly based on the mutual credibility each other. All the relation contracts between them are not formal by writing but the two sides always follow rather well. Their relationship brings to them the sustainable and regularly goods sources. This actor occupied small ratio among the actors participating in the trade network for vegetables but they play an important role during connection and distribution for vegetable, tuber and fruit product to trade system for vegetable product in Thuongtin district in particular and in Hatay province in general.

Table 9: Some mainly operation characteristics of the trader actor in Thuongtin

Items	Unit	Quantity	
		Large scale trades	Small scale trades
Transported amount	Ton/time	4- 5	1-2
Average operation years	Year	11	8.8
Operation time per year	Month	12	12
Operation capital	VND million	30	10-12
Average operation cost	VND1000 /day	400 - 500	150 - 200
Ratio of input products by from:			
+ Farmers	%	15	35
+ Collectors	%	75	55

+ Whole sale trader	%	10	20
Output actors		+ Collectors in and out side district + Small traders + Retail sellers	+ Collectors in and out side district + Retail sellers

Source: VASI survey, 2005

Besides the above characteristics, during the operation, this actor also has following characteristics:

- Commercial is main career to bring income for the family, therefore they devote most of the time year round for this work. Their products are mainly tubers, fruits which have long time preservation (squash, potatoes, carrot, chayote, taro, onion...)
- They have regularly close relationship with the collectors and retail sellers who bring products to sell in Hanoi.
- The transacted amount of the whole sale actors is rather high, from 2-5 ton/day
- They have kiosks in the Voi market.

Advantages, difficulties and action direction of the trader actor

Advantages	Difficulties
<ul style="list-style-type: none"> - They have long experience in the operation - They have sustainable network of input and output, able to control the goods source - Their infrastructure to serve trading is rather enough (kiosk, transport means...) 	<ul style="list-style-type: none"> - Their business mainly based on the credible relationships, not yet contraction mechanism. Therefore the business some time is still unstable. - Lack of specializing tools for transport, package and preservation for the products. - Lack of knowledge on preservation technique. The spoilt ratio is still rather high. - Not able to control input product quality (insecticide, plant protection chemical surplus). - Secondary cost is still rather high (cost for transport law making...)
Action direction for trader actors	
<ul style="list-style-type: none"> - To expand finding for consumption markets through establishing communication channel to supply information to each traders especially for the near by markets. The agriculture cooperative can play a role as Communication Bridge. This work is not only help traders to operate year round but also help farmers to sell their products. - To support on preservation technique to reduce the product loss. - To support to get loan in case suffering risk. 	

V.2.1.2.4 Retail seller actor

The retail seller actor is the person whose clients buy vegetable products to serve their consumption at the last step. The clients of this actor are final consumers, restaurants, hotels...

The retail seller actor for the vegetable, tuber, fruit product, is much diversified. The classification into different types is very difficult. Therefore in this study frame, this actor is divided into two main types: retail seller actor in Hanoi and the local retail seller actor who bring product from Thuongtin district and sell in Hanoi. The operation characteristics and scale of this actor is presented in following table:

Table 10: Some operation characteristics of retail seller actor

items	Unit	Hanoi retail sellers	Local retail sellers
Sold production/day	Kg/day	150 - 200	80 – 120
Average operation years	Year	15	10
Operation time per year	Month	12	12
Sold product types	Type	15-20	8-10
Input actors		Traders, collectors, farmers	Traders, collectors, farmers
Ratio of input products by from:			
+ Traders	%	45	15
+ Collectors	%	55	5
+ Farmers	%	5	80
Input actors		High class and regular restaurants, consumers	Consumers, regular restaurants...
Output actors	%	Consumers 75% Restaurant 25%	Consumers 90% Regular restaurant 10%
Average capital	VND 1000	25,00 - 3,000	1,500 - 2,000
Profit	VND1000/day	70- 90	30-40

Source: VASI survey- 2005

The above Table shows a part of the differences between the above two actors. This difference also represented in the form of buying and selling goods: while the retail sellers in Hanoi have fixed place, sustainable network of input supply, short distance for going to buy goods (at the high whole sale markets in the inner Hanoi or other actors bring goods to their selling places), the local retail sellers have to go for a long distance from buying places to the selling places (from Thuongtin to Hanoi). The professional nature and convenient condition for trading are one of the elements to increase profit and reduce labour cost during the operation process of each actor. In addition, it also contributes to the develop market system.

V.2.1.2.5. Value of the value chain analysis

Trading condition and the relationship of each actor are the condition to found the mechanism during the price formulation in the market. In the same operation environment, the actors participated will effect to the price changes. In Thuongtin, the process of price formulation and the profit distribution between actors in the value chain are concentrated to analyse for some

main channels. The commodity channels and products which are selected to calculate during the analysis process include 3 commodity channels which trading vegetable product from producers in Thuongtin to Hanoi markets. They are following:

Channel 1: Producer-> Collector -> Whole sale trader -> Retail seller in Hanoi -> consumer in Hanoi

Channel 2: Producer-> Whole sale trader -> Retail seller in Hanoi -> consumer in Hanoi

Channel 3: Producer-> Local retail seller -> consumer in Hanoi

In these commodity channels, the vegetable products are circulated from the produces in Thuongtin to the final consumers in Hanoi, through 4 main actors. Study price is the average price of the vegetable products at study period. Cost calculated is the average cost for the study period for different actors per kg of the vegetable, tuber, fruit product. These analyses are the basics to evaluate the price fluctuation in the markets.

Table 11: Price formulation through actors calculated for 1 kg of group of vegetable products (unit: VND/kg)

	Channel 1	Channel 2	Channel 3
Producers			
<i>Selling price</i>	2000	2150	2200
Collectors			
Buying price	2000	-	-
Cost	191	-	-
Cost price	2191	-	-
<i>Selling price</i>	2250	-	-
Profit	59	-	-
Whole sale traders			
Buying price	2250	2150	-
Cost	108	116	-
Cost price	2358	2266	-
<i>Selling price</i>	2750	2700	-
Profit	392	434	-
Retail sellers			
Buying price	2750	2700	2200
Cost	175	175	295
Cost price	2925	2875	2495
<i>Selling price</i>	3250	3250	3000
Profit	325	375	505
Consumers			
Buying price	3000	3000	2800

Source: VASI survey- 2005

V.2.2.3 Relationships between the actors in the vegetable value chain in Thuongtin

The transaction relationships between the actors are also the important criteria to present the development of the value chain. The more strict of the agreements or the constraints between the actors, the value chain is evaluated more development. In addition, the relationships

between the actors will show which actors to be the coordinator of the value chain. That can be presented in many aspects, which can be the regular or not regular relationship; in the specific criteria: information exchange, product quality, time and amount of goods transaction, payment form and good reception form...The relationships between the actors are mainly founded based on the time of operation in the channel therefore the agreements between actors all are informal (not in writing). These characteristics easy to lead to the lost control for the big actors at the consumption ends of the value chain whenever the fluctuation of market happens (on price, supply and demand amounts)

Table 12:Criteria in the transaction relationship between actors

Items	Producers	Collectors	Whole sale traders	Retail sellers
Communication and information exchange	Catching market information mainly through collectors in Voi market or other farmers in the area.	Input information from the output actors or directly from the practise.	Establishing relationship to exchange information with input and output actors in order to be initiative to goods supply.	Based on the market information in the distribution area.
Mechanism on information exchange and transaction relation	Based on the acquaintance relation during the trading	Level of creditable in the trading.	Telephone, or from previous transaction	Telephone or relation during the transaction process.
Product amount during transaction	Selling all produced product when selling price is agreed. Selling at field or at market	Buying or selling according to the order of the output actors Direct discussion	Depending on price, product type and transport means	Depending on product type as well on the client type.
Product quality	Product quality is evaluated mainly by sensation: green, clean, young, not crushed....	Product quality is evaluated mainly by sensation.	Product quality is evaluated mainly by sensation.	Product quality is evaluated mainly by sensation and some specific criteria during the transaction process (quantity, size,

				colours...)
Relation level to the input and output actors.	No regular relation to specific actor, they sell product to the actor who pays the highest price.	Regular relation with the output actors	Regular relation with the both output and input actors.	Regular relation with some input actors and many output actors.

Source: VASI survey- 2005

V.2.2 Characteristics of trade centres and actors participating in the vegetable value chain in Hoaiduc

V.2.2.1 Characteristics of trade centre for vegetables “Vang market”

Vang market located in Songphuong commune Hoaiduc district. The market operates as a trade centre for vegetables to gather vegetables from the district and other areas in all day of the week. The vegetables source in the district is mainly in the centre with many different kinds depending on the seasons.

The trading activities start at about 5-6 AM and close before 9 AM every day. The transaction form mainly is whole sale. Vegetables usually are harvested the day before or early in the morning and are transported to the market by different means, but mainly by bicycles and by human shoulders (quang g,nh) because the distance from the production area to the market is not far. There are many retail sellers and fewer collectors who buy vegetables as whole and transport to sell in the markets in Hanoi (green market, Dichvong market, Moi market and the retail selling markets in the small streets of Hanoi), in Hadong town. These places are the main places that the vegetables in Vang market transported to. Vang market's role is to gather the vegetable sources in the area; very few vegetables from other provinces came and gone.

Table 13: Actors participating activities in Vang market

Actors	Quantity (person)	Amount/day (kg)	Vegetable type (type)
Collector	20	200-300	4-5
Retail seller	70	70-150	7-10

Source: VASI survey-2005

The activities of the market are busiest in the vegetable season which is from September to March following year. In that period, vegetables also are transport to other provinces such as Quangninh, Langson but with very small amount, (about 500 kg/day) and last only about 1 month. In this period, the number of actors participating in trading is higher and trading goods

amount per day also is higher. At the survey time (October 2005), due to affection of the storm number 7, the vegetables supplying to market was reduced allot and it was the reason for the vegetable price increase. This situation shows that the centre activity depending on the vegetable supplies from the communes.

Diagram 4: Supply source and consumption markets of the trade centre Hoaiduc district



V.2.2.2 Operation characteristics and scale of the actors

Operation characteristics and scales of the actors present the development level of the value chain. The larger scale of each actor, their activities is more professional and the actor have more effective to the value chain, The study on characteristics and scales of the actors participated will allow to know the reaction capacity of each actor to the market development.

V.2.2.2.1 Producer actor

Farmers are the first actors of the value chain. Their investment level and production background play a decisive role to the quality and type of supplied product. Therefore this actor is concentrated to analyse in this report. In order to know the characteristics of these actors, 20 farmers were selected according to value chain method originated from value channels in Hoaiduc district.

Table 14: Common characteristic of the survey households in value chain originated from Hoaiduc district

Items	Unit	Quantity
Sample size	Household	20
Agriculture land area	m ²	1692
Vegetable land area	m ²	1080
Rice land area	m ²	612
Household size	Person	4.7
Labour /household	Labour	2.7
Agriculture labour /household	Labour	2

Source: VASI survey, 2005

Area under vegetables of the survey households occupies a high ratio to agriculture land of the household (occupied 64%). This is one of the advantage conditions for the diversifying and developing cropping for the production households. The result also shows that income from vegetable cultivation contributing an important part in the income structure of the farm

households and that is also the reason for the increase of area under vegetable cultivation of the farm households for some last years

Table 15: Annually income structure of the survey households in Hoaiduc district

Items	Amount (VND million)	Structure (%)
Total income	32	100.00
Income from agriculture	20	62.50
Income from vegetable	15	47.00

Source: VASI survey, 2005

Deeply study on the production system of the survey household in Hoaiduc, the main formulas used in the production of the farm households are following:

- Formula 1: Trach bean - Thailand melon – Kohlrabi - early cabbage – late cabbage
- Formula 2: Rice – rice – late cabbage
- Formula 3: Fruit tree (papaya)
- Formula 4: Seed production lasts 6-7 months, the rest time for secondary crops and let land aerated and loose.

Formula 1 has higher land use ratio and requires the producers to have well intensive background. This formula is the most popular used by the survey households. However, due to the worry about low price and not stable for vegetables then some households have tendency to transfer to fruit trees such as kumquat, orange, pomelo, papaya. The area under formula with rice is getting smaller and gives lowest profit compare to the rest 3 formulas. The formula 4 gives the highest profit at present, which is VND 21.2 million per sao per year. The efficiency of each formula is presented in the following table:

Table 16: Economics efficiency of some rotation cultivation formula in Songphuong

Rotational cultivation formula	Unit	Turnover	Cost	Profit
Formula 1	VND/sao/year	6,900,000	2,300,000	4,600,000
Formula 2	VND/sao/year	2,655,000	920,000	1,735,000
Formula 3	VND/sao/year	5,600,000	2,000,000	3,600,000
Formula 4	VND/sao/year	46,100,000	24,900,000	21,200,000

Source: VASI survey, 2005

(Note: Cost does not include home labour)

The demand of vegetables getting more diversified as well as the diversification of the crop varieties are a part to push the production households to diversify crop cultivation. Instead of the cultivating only some traditional crops, the farm households in this area already diversified the crop cultivation. The tendency of concentration to the short term crops with high economic efficiency is strongly developed in this area. Product types and their seasons for the vegetables in Hoaiduc district as in following table:

Table 17: Seasonal calendar for some main vegetables of the survey households in Hoaiduc

Ord	Month Vegetables	1	2	3	4	5	6	7	8	9	10	11	12
1	Early cabbage							x	x	x			
2	Late cabbage	x	x	x	x	x				x	x	x	x
3	Kohlrabi	x	x	x	x	x		x	x	x	x	x	x
4	Tomatoes	x	x	x	x	x				x	x	x	x
5	Cauliflower	x	x	x							x	x	x
6	Trach bean	x	x	x	x	x		x	x	x	x	x	x
7	Chinese pea	x	x	x	x	x	x	x	x	x			
8	Green peas									x	x	x	x
9	Chayote	x	x	x						x	x	x	x
10	Carrot	x	x	x							x	x	x
11	Gourd	x	x	x	x	x	x	x	x	x	x	x	x
12	Celery	x	x								x	x	x
13	Leek	x	x							x	x	x	x
14	Bitter gourd	x	x	x	x	x	x	x	x	x	x	x	x
15	Onion										x	x	x
16	Spring bulb onion	x	x	x				x	x	x	x	x	x
17	Small spring onion			x	x	x	x	x					
18	Water morning glory	x	x	x	x	x	x	x	x	x	x	x	x
19	Squash				x	x							
20	Cucumber				x	x	x	x	x	x	x		
21	Thailand melon	x	x	x	x	x					x	x	x
22	Green kale	x	x	x	x							x	x
23	Field cabbage								x	x	x	x	x
24	Sweet kale	x	x							x	x	x	x

Source: VASI survey, 2005

Last few years, the production households paid very much attention to application of scientific breakthroughs, especially to production process for safe vegetables which is constructed and supported by the provincial centre for agricultural extension in year 2003. At present, 100% of the survey households participating in the vegetable value chain in Hoaiduc mastered very well production techniques for safe vegetables in the first year of application. This technique process includes some contents such as treating manure and black soil before application to vegetables (not using fresh manure or black soil, only using compost); Using micro-biologic fertilizers such as BIO; BIO plant for leaf spraying; reducing nitrogen application; maximum limitation of insecticide use and to ensure the duration gap between sprayed and consumed times. However, for the following years, the farm households did not follow this process as strict as before. The households think that the new program is just stopped at dissemination and support a part but not yet established an efficient monitoring system for the production, neither there is not a mechanism to constraint the producers. After 2 years operation, the

program stopped, but the program also contributes to strengthening farm household knowledge on production technique for safe vegetables in widely scale. According to the calculation of the Hatay provincial centre for agriculture extension, if the producers follow strictly the process and their product is accepted by the consumers, it would bring not only great social significance but also the economic efficiency for the producers.

Table 18: Comparison for economic efficiencies of the 2 cultivate formulas (calculation on 1 sao of cabbage)

Items	Safe vegetables		General vegetables	
	Amount	Value	Amount	Value
Cabbage seedling (plant)	1,000	60,000	1,000	60,000
Manure (kg)	300	60,000	400	80,000
Urea nitrogen (kg)	-	-	10	50,000
Potassium (kg)	-	-	6	25,000
NPK	10	50,000	20	30,000
Disease prevention chemical		21,000		25,000
Biologic insecticides		20,000		30,000
Bio and Bio plant fertilizer (ml)	237	66,000	-	-
Straw for vegetable bed cover		15,000	-	-
Looking after (working day)	7	105,000		150,000
Productivity	1,500			
Selling price	500			
Total cost (VND)		397,000		450,000
Total return value (VND)		750,000		750,000
Profit (VND)		353,000		300,000
Profit difference		+ 53,000		0

Source: Hatay provincial centre for agriculture extension - 2004

Now, the vegetable producers sell their product through 2 forms: first form is that selling to collectors or to retail sellers at local (main form) and second form is that transporting vegetables to sell outside of local in case the vegetable price is very low at the local, therefore if selling vegetables at local then the profit would be very low. For the form 1, vegetables is harvested the night before to sell at field or at the collectors' or retail sellers' houses or at the Vang market in the early following morning. Usually the producers only harvest when vegetables reaching harvested age, although the vegetable price was high before. Most of them have not established the firm relationship with the buyers as making contracts because they (event the buyers) are not sure what products and how much for each product will be able to sell. The selling price is totally depending on the market. Usually, the product quality is not classified carefully then there are not many levels of price. At the middle season, the vegetables harvested amount is huge in a short period without any preservation or process solution therefore the vegetable price is down, causing the losses to the producers. In this situation the second selling form is one of the solutions. The producers directly transport vegetables to sell at the outside markets such as Hadong and Hanoi. The loss causing by transport is almost nothing because the transport condition is rather good.

Advantage, difficulties and oriented action of the production actors in Hoaiduc

Advantages	Difficulties
<ul style="list-style-type: none"> - Producers are familiar to the cultivation mode for safe vegetables, as the result of the previous project. This is also the long time traditional area for vegetables. - The farmers in Songphuong are very hard working. They can stay a day in the field to take care their vegetables. - The irrigation system in this area is rather good; it can meet the irrigation demand for vegetable cultivation. - Vegetable seedling is produced at the local by some households. Most of these households have long time experience for vegetable cultivation. Their vegetables are sold out of the district and province. - Vegetable production development is paid attention by the authorities of the district and province 	<ul style="list-style-type: none"> - The previous project has helped Phuongvan cooperative, the cultivation techniques for safe vegetables and supported some of inputs. However the crucial problem of output selling is not yet sold. - Now, the area under some fruit trees with high value such as kumquat, pomelo... have tendency to increase on the former vegetable planted area. Therefore the vegetable area have tendency to decrease. - The industrial and urban zones are growth fast which also threat to narrow the vegetable area. - Due to the local is near by Hanoi, many local labours immigrated to the city to find new opportunity. Therefore the labour force for vegetable cultivation is not much; especially the vegetable cultivation requires long time labours.
Action direction	
<p>The demand on safe vegetables in the future will grow up very much compare to present. Therefore the direction for local farmers to gather together to an organisation to produce safe and clean vegetables to supply for the neighboured markets, especially for Hanoi, will has high feasibility. Therefore the support activities should concentrate to the following main issues:</p> <ol style="list-style-type: none"> 1. To disseminate to farmers, the advantage of the safe vegetable production, that is the decisive tendency for future consumption. The producers should know the real advantage of this work, and then they participate initially to the safe vegetable production. 2. To revise the safe vegetable cultivation technique into documents and disseminate to farmers through conducting training course at commune scale. The subjects are the farmers who already participated in the safe vegetable production project and the farmers who volunteer to participate. 3. To organise farmers into cooperative. The new organisation structure for the cooperative may not be the same with the present cooperative managers. It will become as initiative apparatus for the operating the production activities in order to meet the market demand. However if it is possible to collaborate with the present cooperative then it would be easier for the production operation since the present cooperative manages some crucial steps for production such as irrigation. 	

4. To study the market demand. To determine where the objective markets are, who the objective clients are, since there to have suitable actions. For the direction to safe vegetables, the clients are only one part of population.
5. From the result of market study, to determine the suitable vegetables for the markets. The vegetable production can approach to which orientation; diversified or concentrated to some plants, that depends on the study results. It should be take advantage of the commune. For producing the ordinary crops (cabbage, kohlrabi, cauliflower...), it would need to determine what the differences of the products from other places are, that can be the competitive advantage of geography, product quality and selling service...
6. To implement the brand name construction for safe vegetables. This is objective that should need to reach. To achieve it, the strictly quality management system should be established, which is one element to ensure the sustainable of the product. Actually, if there is not the criterion to distinguish what the safe vegetables are, what the ordinary vegetables are, then the safe vegetables would not be able to sell at right value.
7. To learn production models for safe vegetables, quality management, brand name construction from the successful models such as Vannoi safe vegetables (Donganh, Hanoi), Phan river safe vegetables (Vinhhyen, Vinhphuc). However, it is need to determine where the advantage of the cooperative is.
8. To establish distribution system for vegetables. Creating a retail sale kiosks in the retail sale markets can be one orientation, however this work will be very difficult. In addition, the signature of long term contracts to distributors, distribution companies is better solution.
9. To construct a marketing strategy is the quite important element to determine whether the product being able to come to consumers or not.

V.2.2.2.2 Collector actor

Due to the operation scale of the trade centre is not large, and then the value chain here has not many collectors, only 20. The trading scale of this actor is small and most of them have been participating in the trade at least 10 years. The function of the collector is very simple and the collectors have not diversified activities as those in other areas. The vegetables are collected from farmers and then to be transported to the markets through mainly whole sale traders with some retail sale combinations. The daily time for this activity is stated at 2h AM and closed before 7h AM.

Product collection operation:

The vegetables source in the district can supply 100% of the demand of the collectors in Hoaiduc. The daily collected amount in average is 250 - 400 kg. Therefore with almost 12 month operation per year, one collector is able to buy from 88 to 140 ton of vegetables. Usually, a specializing vegetable collector trade 3-4 kinds of vegetables and they rarely change clients since the acquaint clients know where they can buy the intended vegetable kinds. Therefore when other kinds of vegetables increase price, the collector still keep their own products but not transfer to the new one. The collectors usually buy products at 2 times per day: the afternoon before or early following morning in the Vang market. Almost collectors

buy vegetables in the afternoon before for the following early morning selling, only when they could not buy enough in the afternoon, they will buy in early morning in Vang market. There is not any contract for product consumption between collectors and producers. In case of shortage of product, the collectors order in advance, otherwise the vegetable producers have to find the person to sell their products at their fields or to transport to the buyer houses by bicycle or motorbike. The buying price depends on market price and having connected to the price in previous day. The product is classified when transaction. The quality classification for the product is mainly based on vegetable appearance, the price difference between class 1 and 2 can be VND 500-1000 per kg, and the payment is made at once. For the products such as cabbage, usually a 3 kg extra is added for each 100 kg of the transacted product (payment for 97 kg). However for the product selling up to final consumers, the collector lost more, it is about 5--7 kg /100 kg. Since the characteristics of easy to crushed and withered, not yet having equipment for preservation then it is impossible to store vegetables (except tomatoes and tuber vegetables that can store for 1 week). However, the collectors are rarely storing these vegetables...

Now the difficulty for vegetable buying is that when vegetables in shortage, the collectors have not enough vegetable amounts as demand, especially when they receipt an order from the buyers.

Selling product operation:

Vegetables are collected to the collectors' houses and are watered to keep humidity to sell in the following morning in the night markets in Hadong and Hanoi. In the vegetable season, the collectors can transport vegetables 2 times per day by motorbike. The whole sale is main form of trading and it occupies to 80-90% of total transacted vegetables. The subjects who buy whole sale are the retail sellers and small restaurants. The first class of product usually is bought by the retail sellers; the lower quality is sold to regular restaurants. The very small vegetable amount is sold to consumers who go to market early. All collectors have their own regular clients. There are not any contracts on vegetable consumption between the collectors and other actors, they only use oral orders. Even for high class restaurants and regular restaurants, it does not exist the contract in writing. As the buying input goods, the clients can order for the following day in the market or make a telephone to have additional order. The daily buying goods amount of each client is rather sustainable. Payment can be made at once when selling or can be 1-2 day latter for the acquainted clients. The collectors usually have unstable profit because the vegetable price is always fluctuant. However they always ensure the regular profit from VND 70-100 thousand/day. When vegetable price is higher, the profit can increase by VND 200 thousand /day.

As the collector's opinions, the vegetable trading is not required big capital, the payment is made immediately and there are not many difficulties. The risks that the collectors may face during the operation process are losses due to crushed, price reduction that could not predict, could not found enough vegetables to buy when shortage of vegetables. Sometime the buyers under evaluated the product quality to force price.

Table 19: Operation cost of retail sellers and collectors actors

Items	Collector	Retail seller
Petrol	12,000	7,000
Packaging	10,000	10,000
Market ticket	15,000	3,000
Sanitation fee	2,000	2,000
Motorbike circulation ticket	2,000	-
Motorbike keeping ticket	-	2,000
Kiosk rental	-	6,000
Telephone	5,000	-
Total	46,000	30,000

Source: VASI survey - 2005

Table 20: Some criteria in the operation of collectors and retail sellers

Items	Unit	Collector	Retail seller
Transported amount	Kg/time	250- 400	70-150
Average operation years	Year	10	10
Operation time per year	Month	12	12
Operation capital	VND 1000	5,000	1,500
Product types collected	Type	3-4	8-10
Output actors		Retail sellers Restaurant Consumers	Consumers
Selling form			
+ Retail sale	%	80-90	100
+ Whole sale	%	10-20	
Transport means		Motorbike	Motorbike, bicycle

Source: VASI survey- 2005

V.2.2.2.3 Retail seller actor

Number of the retail sellers at the study area is plenty; it includes the professional sellers and the farmers who do retail sale. The farmer retail sellers operate not regularly, only in the leisure time after harvested. In this part only the characteristics of the professional sellers are presented.

Product buying operation: Different from the collector, the product buying is operated in the morning in Vang market, and then the product is classified there and to transport to be sold. They operate daily from 5h - 20h. The retail sellers usually trade from 8-10 kinds of vegetables, mainly leaf vegetables with total amount of 70-150 kg/day. The vegetable kinds they bought are not different much. The decision to buy what kind of vegetables with what amounts is depended on the previous day situation. Since this actor buy input product at market then they have very few permanent supplier and other reason is that the farmers have not product to sell daily.

Product selling operation: the main transport means are bicycles or motorbikes. The sellers with bicycles can transport less amount and most of them have no fixed place in the market then they sell vegetables as peddler. The places to sell products are in retail markets in

Hadong and Hanoi. Some sellers have their own places in side market and they have to pay monthly for this place, some others sellers sell product outside of markets. The retail sellers can be clearly classified: the retail sellers in the central markets usually buy high quality vegetables, and the rest in the edges of city buy lower quality vegetables. Most of the retail sellers participating in the vegetable trade for rather long time then they can create acquainted clients for them.

Due to the small scale then both collectors and retail sellers have not yet created the professional activities, which are: i) not yet signed a contract for product consumption with the big clients; ii) Not yet packaged products; iii) Not yet had the equipment for preservation and storing; iv) Supplying draw products, not yet created the additional value for the product. With the above limitations, in order to be successful in establishing professional distribution system, especially to supply vegetables to super markets, the retail sellers are not selected.

The retail seller system contributes a great part in the value chain, to carrying vegetables to many zones, many direct consumers and to regulate the price balance between markets. According to the retail seller evaluation, the trading faces not many difficulties, except the price fluctuation which may affected to their profit.

Advantages, difficulties and action direction of the retail seller and collector actors

Advantages	Difficulties
There is very large and diversified system of collectors and retail sellers in commune. Their operation area for input buying is expanded out of the commune. Their output markets are mainly in Hadong and Hanoi.	The trading actor operates individually with small scale, not in a collective organisation. This due to the reality requirement for uniting in one organisation is not yet appeared.
Action direction	
<p>For the establishing cooperative for safe vegetable production, the main action direction to the trade actors (including collector and retail sellers) are following:</p> <ol style="list-style-type: none"> 1. The support group should exploit information on the demand on safe vegetables in the areas which these trade actors operate, including the close as well as far markets. 2. To receive them to join cooperative as a members in charge of product trading. Off course, it should be sure that their benefit is better when they participate in the cooperative compare to when they operate individually outside. In additional, it is very difficult for them to drop the present work which feeds their family. 3. To select the cooperative members to participate in the retail sale system in the kiosks in the markets 4. To provide training for the trade actors, the techniques on packaging, preservation, transporting such that the loss will be minimum and the skills of selling and product introduction. 	

V.2.2.2.4. Value analysis for the value chain

The commodity channels, chosen to calculate the price formulation process in Hoaiduc, are following 2 main commodity channels:

- Channel 1: Producer-> collector-> *Retail seller in Hanoi* -> consumer in Hanoi
- Channel 2: Producer-> *Local retail seller* -> consumer in Hanoi

The assumption during the calculation is that selling prices are the study time prices and are the average prices of the survey actors; costs of the actors per day are rather stable; the trading amounts per day are averages of the survey actors.

Table 21: Price formulation through actors originated from Hoaiduc (unit: VND/kg)

	Channel 1	Channel 2
Producers		
<i>Selling price</i>	2,500	2,700
Collectors		
Buying price	2,500	-
Cost	131	-
Cost price	2,631	-
<i>Selling price</i>	3,200	-
Profit	569	-
Retail sellers		
Buying price	3,200	2,700
Cost	177	231
Cost price	3,377	2,931
<i>Selling price</i>	4,100	3,900
Profit	723	969
Consumers		
Buying price	4,100	3,900

Source: VASI survey- 2005

At the study time, the vegetable prices are rather high since the supply amount is decreased. When the vegetable price is high due to shortage of vegetable supply, the difference between the selling and buying prices are usually higher than that at other times. Due to the differences on sold amount, place and product hand over model, then the selling prices to collectors and to retail seller are different between farmers but this difference is not high. In the commodity channel the total cost of the collectors is rather high, but the cost per product unit is smaller than that for the retail sellers. The profit per product unit of the collectors is lower than that of the retail seller but their profit per day is higher than that of the retail sellers, due to the trading amount of the collectors is higher (250-400 kg/day)

In the commodity channel, there is not the very concentrated profit to one actor. The selling prices of farmers or the trade actors are totally depended on the market demand-supply, but the trade actors have basics to ensure their profit level but the producers have not. If the selling price for vegetables in the market is changed then they would be able to adjust the buying price to be lower or higher depending on the fluctuation. The informal communication channel can help to keep balance on prices between the production zones.

V.2.3 Consumer actor

The main market for vegetable consumption for 2 study sited is Hanoi city. Due to the diversified characteristics of the people on living location, living standards, consumption

behaviours... the consumers are classified based on many different criteria. This part will present the characteristics of vegetable consumption for each specific group. The grouping the consumers mainly based on evaluation and classification of the survey retail sellers. They classify consumers into 3 groups as following:

- Group 1: Restaurant and hotel consumer

This group has highest demand on the vegetable quality, types and especially for the safe level of vegetables for human health. The quality demand is presented through the criteria: vegetables should have good appearance, fresh, quite not crushed or spoilt, not disease infected. This group consumes many types of vegetables at the same time.

Usually the collectors or retail sellers can not directly bring vegetables to the restaurants or hotels, but have to through a middle man and the contract to supply vegetables is signed with this man (he/she can be the staff of the hotel, restaurant or not be). However, not all the hotels and restaurants and the suppliers have to sign a contract in writing but mainly by oral based on the long term relationship and creditable each other. In order to keep the customers, the suppliers rarely let the accident happened as the not good, low quality, wrong type, missing appointment... To exchange with that, the selling prices for this group always are higher than those for other groups by VND 800-1500 /kg depending on the vegetable type. The restaurants, hotels usually do not keep vegetables over night.

- Group 2: Collective kitchens, regular restaurants

In opposite with the restaurants and hotels who consider quality demand is the first element for vegetables; the collective kitchens usually do not request high quality. They select to buy the vegetables which are not good, unqualified one (the rest of vegetables of the collectors after they solve the good vegetables). The important element is that the prices are cheap (the difference between the best and the worst vegetables is about VND 1200-2000 /kg). Most of these actors have the specializing suppliers for vegetables and vegetables are delivered at 2 locations: at market or at buyer place. If delivering at market then the price is lowers and the buyers having possibility to choose vegetables. The daily amount of vegetables consumed by this group is rather stable. Some big collective kitchens such as Hanel company, signed direct contract to the collectors in commune in order to ensure the daily vegetable supply.

- Group 3: Individual consumers

This is the most popular consumers. In the Hanoi market, classify the consumers according to area: the areas with high living standard such as inner districts, and the lower living standard in the edges of the city and the suburban of the city (Thanhtri, Tuliem...). This classification is clearly presented in the retail sellers activities: they bring the good and high quality vegetables to the central areas and the worse and lower quality vegetables to the rest areas. However, in each area, there is also the classification for the consumers according to the specific level as following:

- i. High class consumers: They are the one who have high income such as government staff, traders... The first attention element to be considered when buying vegetables of this group is quality, appearance and safe level. The buying amount for this consumer type each time is not much. The consumption level of high class and special vegetables of this group is more frequent than that of other groups. They usually buy vegetables from the acquaint sellers to ensure the price as well as safe level, they rarely buy from peddlers.

- ii. Regular consumers: They are students, workers... This is the group with low income and they always pay attention on price rather than quality when they decide to buy vegetables. They have not regular demand on high class vegetables.

Table 22: Some problems of the consumer group in the value chain

Item	Restaurant, hotel	Collective kitchen, regular restaurant	Individual consumers
Quality demand	High quality, nice appearance, fresh and safety	Not paying much attention on quality	Different demands on quality from different groups
Consumption characters	<ul style="list-style-type: none"> - Big amount, many vegetable types - Frequent demand on first class vegetables. - Ensured quality and safe vegetables - Some preliminary processed vegetables 	<ul style="list-style-type: none"> - The daily amount of vegetables is stable - Not paying much attention on origin, but mainly on low price products. - Frequent demand on regular vegetables - Consuming some preliminary processed vegetables. 	<ul style="list-style-type: none"> - Small consumption amount - Daily demand on fresh vegetables - Usually buying at convenient places, near by their houses. - There is a consumption classification based on their income levels
Product expectation	<ul style="list-style-type: none"> - Having clear origin - Safety, clean sanitary - Contract signature with the prestigious suppliers 	<ul style="list-style-type: none"> - Having a sustainable suppliers - Ensured safety 	<ul style="list-style-type: none"> - Ensured safety and sanitary
<u>Recommendation</u>	<ul style="list-style-type: none"> - Establishing a supply system for confidently safe vegetables. The best way for the solution is to establish an organisation managed by State. - Having a system for monitoring and strict fining offenders on hygienic safe on vegetable production. 	<ul style="list-style-type: none"> - To reduce the climate affective to vegetable production - It should have confident organisation for safe vegetable production. - Establishing a collective organisation (cooperative, farmers' association) for product supply. 	<ul style="list-style-type: none"> - Constructing many prestigious stores for safe vegetables. - New planning the markets and sellers for vegetables.

Source: VASI survey - 2005

V.2.4 Role of organizations for product development process

During the product development process, the organisations play quite important roles. These roles are presented as following:

- Provincial people's committee:

It plays a role of authority to issue directions, policies to the relative departments such as Department of agriculture and rural development (DARD), Centre for extension and other organisations.

- Department of agriculture and rural development

- Consulting to Provincial people's committee on mechanism, policies concerning to agriculture and rural development.
- To direct the sections to implement the provincial directions policies for agriculture development.
- In collaboration with other departments (Centre for extension, Sub department of plant protection...) to finding out new varieties, production process to be suitable to different zones in the province as well as the commercial promotion for the products.

- District section for agriculture:

- Consulting to district people's committee on mechanism, policies concerning to agriculture and rural development.
- Making affection to extension organisations on transferring technique and scientific breakthroughs.
- Managing staff system at grassroots level in the cooperatives
- Participating to construct projects, plan crop and livestock zones.

- Extension station.

- To conduct training courses, transferring technique and scientific breakthroughs, building production demonstrations...

VI. Conclusions and recommendations

VI.1 Conclusions

Hatay is one of the provinces having biggest production of vegetables with total area of about 20,857 ha and production of 268,538 ton/year (year 2004). Vegetable production of the province is divided into 3 main groups based on production scale. The grouping is described as following: Group 1: includes the districts of Thuongtin, Hoaiduc, Chuongmy, ThanhOai, Bavi; Group 2: includes the districts of Phuxuyen, Myduc, Unghoa, Phuc Tho, QuocOai; Group 3: includes the districts having vegetable area under 1000 ha. They are districts of Danphuong, Thachthat, Sontay town, Hadong town and state farms. The intensive background levels for vegetables of the districts are rather largely different. The zones with high intensive background level are Phuc Tho, Danphuong, Hoaiduc, Sontay town, Hadong town, Myduc, Thachthat and state farms. Of which the first position is for Phuc Tho district with the average productivity of 19.1 ton/ha. The two towns even though have small area but the productivity is rather high. The vegetable planting seasons are not big different between the zones. Main vegetable production scale of the province is at household level. The process foundation and factory system is not yet founded.

The commercial system for vegetable products of the province has following characteristics:

- The trade centres for vegetables in the study areas are fast developing last recent years.

- The operation value chains mainly are short. They are the bridges to connect between the production zones to around consumption markets that are inside province and mainly part in Hanoi. The long distance channels for going to the far province markets in the middle central or in the southern are not yet developed.
- Markets operating based on the development of the private trader system. There is not any support from the government in the finding new or sustainable markets for their products.
- The development of production and trading operation system has brought economic efficiency for the actor participated. There is not yet specific strategy for improvement of adaptation to the market changes for the actors participating to the market from the producers to trader actors.
- To develop and expand production for the first class and typical products of each zone are the present tendency of the producers as well as local authorities of each zone.
- The main difficulty of the participated actors is price fluctuation.

VI.2 Directions recommended for the development of vegetable value chain in Hatay

<p style="text-align: center;">On production</p>	<ul style="list-style-type: none"> - Planning concentrated production zones which are suitable to soil, climate characteristics as well as production projects for specific zones. - Constructing production process for different crops and to carefully make trialling the process before introducing to the largely production scale. - Training, technique transferring through workshops, discussions at hamlet level. - Controlling the seedling quality through constructing distribution channel for high quality seedling to the producers. - Constructing an irrigation canals system, upgrading intra hamlets and inner field roads to create convenient conditions for the traders and producers to practise transaction on the products at fields. - Supporting capital for the producers through supplying credit with favour interest and long term. - Stimulating the production households following farm model. - Establishing cooperatives, associations, unions specializing on commercial service for vegetable, tuber, and fruit products for the localities.
---	---

<p style="text-align: center;">On consumption products</p>	<ul style="list-style-type: none"> - Stimulating, calling and supporting process and consumption companies for vegetable products through specific policies such as favour policy for land rental... - Updating, disseminating market information to the producers through different methods such as speakers, radio, leaflets, internet... for the whole areas in the province. - Finding product consumption markets for the producers through trade fair registration, connecting to the big super markets in Hanoi and to the big industrial zones... - Calling supports from organizers, companies... inside and outside province for product consumption (the companies stand as the legal personality organisers to sign consumption contracts with buyers and then to contract on consumption products with farmers). - Establishing farmers' organization that having legal personality (association, cooperatives...) to directly sign contracts with organisers and companies for vegetable trading. - Guiding the farmers' organizations to know how to make consumption contracts in the specific mechanisms, especially mechanism on price determination and contract breaking. - Establishing different groups for specific functions (collection group, transport group, process group...)
---	---

Appendix

List of the survey actors

Actor	Address
Cropping section - DARD Hatay	Hadong town, Hatay
Hoaiduc district	
Agriculture and rural development section in Hoaiduc district	Troi town- Hoaiduc- Hatay
Phuongvan cooperative	Songphuong commune- Hoaiduc
Hong –An	Collector to Hadong
Thuy -Sam	Collector to Hanoi
Son –Thuy	Collector to Hanoi
Mr. Minh	Collector to Hadong
Le Van Tien	Hamlet 7-Songphuong (collector to Green market)
Nguyen Viet Ly	Hamlet 1-Songphuong (collector to Hanoi)
Mrs. Suu	Songphuong (to the crossing market)
Nguyen ThÞ Tam	Hamlet 6-Songphuong (collector to Hanoi)
Thuy - Hai	Songphuong (retail seller in Hanoi)
Vinh - Quyen	Songphuong (retail seller in Hanoi)
Cao Hop Tam	Farmer for vegetable planting- hamlet 1
Cao Van Giap	Seedling produce farmers, hamlet 1
Nguyen Ba Vi	Vegetable planting farmer – Hamlet 1
Mr. Quang	Seedling produce farmers, hamlet 9
Mr. Que	Seedling produce farmers, hamlet 2
Thuongtin district	
Agriculture and rural development section in Thuongtin district	Thuongtin town
Hahoi agriculture cooperative	Hahoi commune- Thuongtin
Lien – Tu	Collectors to Hanoi, Quang Trung hamlet
Tuan – Lung	Collectors to Phuly, Quang Trung hamlet
Kha - Diep	Collectors to Hanoi, Quang Trung hamlet
Cuc - Phuong	Collectors to Phuly, Dinh Tien Hoang hamlet
Hieu – Moc	Thu gom @i Hanoi, Pham Hong Thai hamlet
Mau – Hop	Collectors to Hanoi, Pham Hong Thai hamlet
Xuan – Nguyet	Collectors to Hanoi, Nguyen Trai hamlet
Hien - Bac	Collectors to Hanoi, Nguyen Trai hamlet
Khai - Nhan	Trader to Hanoi, Ninhbinh, Phuly, Namdinh, Khe Hoi hamlet
Huong - Kien	Trader (Voi market- Hahoi)
Do Van Manh	Farmer, Quang Trung hamlet
Nguyen Van Can	Farmer, Quang Trung hamlet
Uong Van Bai	Farmer, Dinh Tien Hoang hamlet
Nguyen Huu Hoi	Farmer for seedling production Dinh Tien Hoang hamlet
Le Van Duoc	Farmer, Dinh Tien Hoang hamlet
Nguyen ThÞ Thanh	Farmer, Hahoi hamlet
Uong Van Thao	Farmer for seedling production, Quang Trung hamlet
Mr. Hien	Farmer for seedling production, Quang Trung hamlet (church)

