

AN GIANG VEGETABLE ANALYSIS

February 2007

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1- Introduction

1.1- Background

The analysis of An Giang vegetable value chain was carried out within the framework of SME Development Program initiated by GTZ and MPI aims to improve competitiveness of SME in various sectors, particularly agricultural sector.

An Giang is one of four provinces including Daklak, Hung Yen and Quang Nam under this GTZ SME Development program since since 2005. Vegetables in An Giang have been identified as very potential sub-sector and able to bring great impact for farmers as well as SMEs in the Province by one of the program partners – DARD An Giang. The value chain analysis of Vegetable therefore has been developed and carried out with the expectation to improve its competitiveness.

With expectation to improve competitivenesses of vegetables sector in An Giang, GTZ SME Development Programme has designed an assignment to analyze the vegetable value chain in An Giang so that MPI GTZ SME Development Programme can use the exercise's output to develop a project to help An Giang vegetable sector strengthen its competitiveness.

1.2- Purpose

The purpose of the analysis is to understand the vegetable value chain in An Giang so that MPI GTZ SME Development Programme can use the value chain analysis to develop a project to help An Giang vegetable sector strengthen its competitiveness.

In addition to the overall purpose, it is expected that the local team members will be equipped with practical tools and techniques to carry out analysis tasks and prepare the analysis work plans.

1.3- Methodologies

Value Chain Analysis Approach was used to do this study. This approach aims to describe all the actors along the chain from producers to retailers including service providers.

Rapid Market Appraisal tools were used to collect preliminary data and information from the actors of the chain.

In order to achieve the above objectives the works have been conducted as following steps :

- a- Review of national vegetable sub-sector
- b- Review secondary data on vegetable in An Giang - Vietnam and Phnompenh – Cambodia
- c- Training and preparation of An Giang analysis team
- d- Implementation of An Giang VCA including channel to Phnompenh Cambodia

1.4- Team Composition

Analysis team was composed of members from Department of Agriculture and Rural Development of An Giang, Extension Center, Plant Protection Sub-department and Cooperative Sub-department. A consultant from CIAT/SADU in Vietnam (International Center for Tropical Agriculture – Small scale Agroenterprise Development for the uplands) was hired to play a role of facilitation of the team

Table 1 : Vegetable Analysis Team

Name	Organization	Role
Doan Ngoc Pha	Deputy Director - DARD	Main organizer
Trang Thi Nghiem	Extension Center	Team member
Dang Thanh Phong	Plant protection Sub-Department	Team member
Pham Thanh Hau	Plant Protection Sub-Department	Team member
Trang Huu Phuc	Cooperative Sub-Department	Team member
Tran Thanh Vu	Agriculture Section of Chau Phu district	Team member
Truong Thoai My	Extension Station of Cho Moi district	Team member
Nguyen Thi Cam Tu	Plant Protection Station of Chau Thanh district	Team member
Duong Chi Ton	Agriculture Section of An Phu district	Team member
Cu Thi Le Thuy	Agroenterprise Development Specialist - CIAT	Facilitator

1.5- Survey schedule

The analysis was conducted in 10 days from 26th of December 2006 to 5th of January 2007, including two days of training local team. (Annex 1)

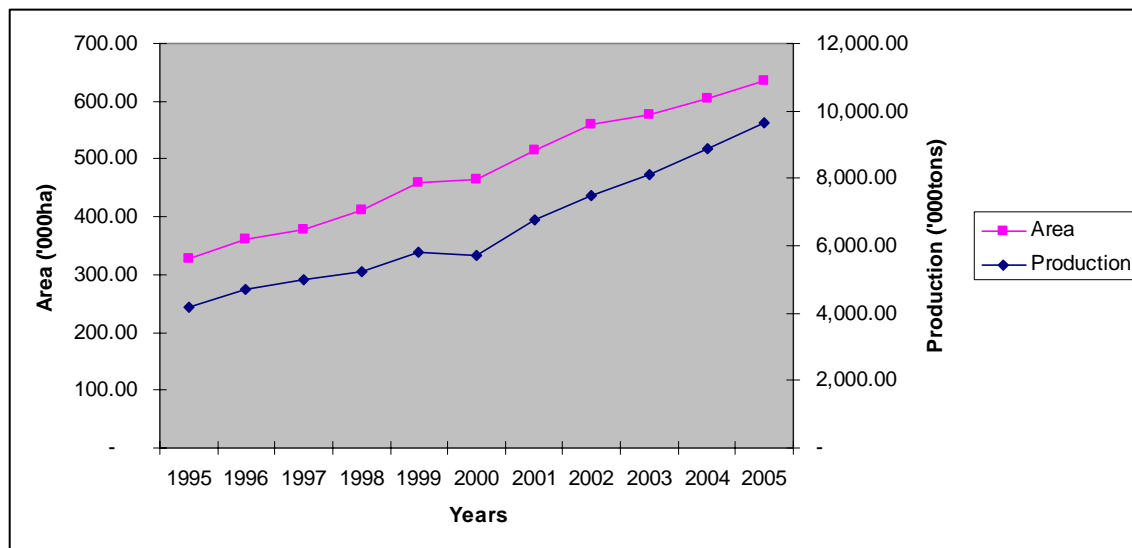
2- Vegetables in Vietnam

2.1- Production Trends

Vietnam is ranked 3rd in the world in vegetable production after China and India. Average production per capita of Vietnam is about 116 kg/capita/year even higher than consumption of South Korea (93 kg) and Japan (52kg). (Source : www.rauquavn.vn – updated Dec. 16th 2006).

Since 90s national production and area of vegetable have increased significantly from 197,500 ha/3,213,40 tons in 1991 to 635,800ha/9,640,300 tons in 2005. Within period from 1999 to 2005, annual average growth rate of area and production are 3.16% and 7.55% respectively (Fig. 1).

Figure 1 : Vietnam Vegetable – Area and Production



Source : MARD

Although there are some differences in statistical data by MARD and FAO but the production trends of vegetable in Vietnam obviously increase. (Table 2)

Table 2 - Vietnam Vegetable – Area and Production

Year	Area (1000 ha)		Production (1000 tons)	
	MARD	FAOSTAT	MARD	FAOSTAT
2000	464.6	452.9	5,732.10	5,632.10
2001	514.60	494.50	6,777.60	6,277.90
2002	560.60	500.00	7,485.00	6,235.32
2003	577.80	510.00	8,133.80	6,326.27
2004	605.90	520.00	8,876.80	6,450.00
2005	635.80	9,640.30	600.00	6,600.00

2.2- Main agro-ecologies of Vegetable

Enjoying diversified climate with sub-tropical weather in the North and tropical weather in the South there are various type of vegetable can be well grown in Vietnam including both tropical and temperate vegetable such as kangkong, mustard, “rau ngot” kohlrabi, cabbage, chayote, and carrot.

Of seven main vegetable regions, Red River Delta and Mekong Delta are the biggest. In respect of areas, Mekong Delta (accounted for 25.9% of national areas) is larger than Red River Delta (24.9% of national areas) but production of Red River Delta is higher because of its higher yield. (Table 1)

With favorable condition of weather, Red River Delta including Hanoi, Haiduong, Haiphong, Thaibinh, Hanam provinces can provide various type of vegetables such as mustard greens, kangkong, Chinese cabbage, choysum, cabbage, kohlrabi, tomatoes, onion, garlic and cucumber.

In addition to widely production of some vegetable group as heading cole and cucurbits, Mekong Delta is dominating in rice straw mush room production of Vinh Long and Tien Giang (643 ha and 500ha respectively) and baby corn production in An Giang (2,261ha).

Lam Dong is the only temperate vegetable production area of Central Highland and very suitable to develop high-value vegetables as cabbage, Chinese cabbage, cauliflower and broccoli. Total production area of vegetable is 27,315ha in 2005 with production of 67,700 tons. Of which, headingcole vegetable group (cabbage, cauliflower...) share from 55% to 60%, root vegetable group shares from 20% to 25% (potatoe, carrot, amaranth) and fruit vegetable group (tomatoe, beans) share 10% to 12%.

Table 1 – Areas, Yield and Production of Vegetables per regions in 2005

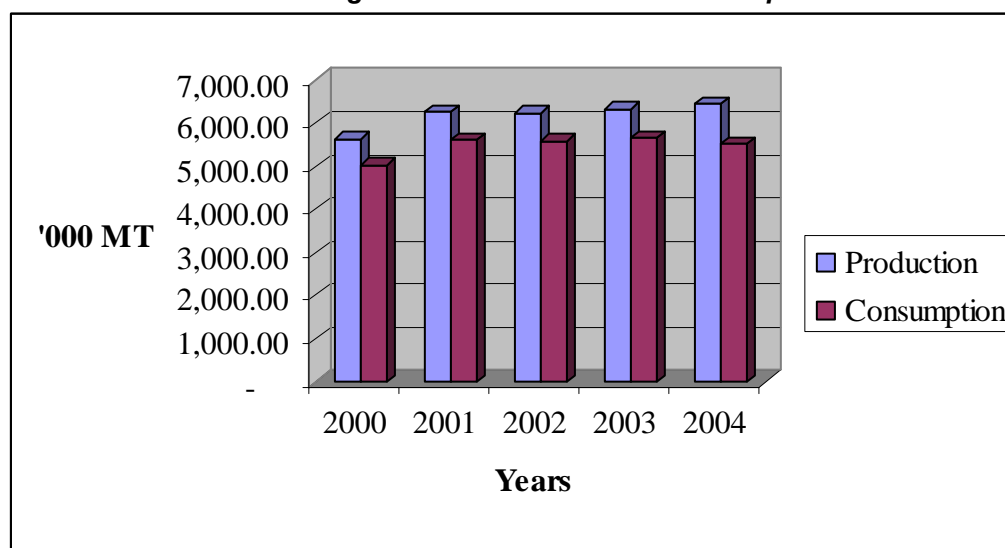
S/No	Regions	Area (1000ha)	Yield (ton/ha)	Production (1000 tons)
	Nation	635.1	15.18	9,640.30
1	Red River Delta	158.6	17.99	2,852.80
2	North Mountainous and Midland	91.1	11.06	1,008.00
3	North Central Coast	68.5	9.78	670.20
4	South Central Coast	44	14.01	616.40
5	Central Highland	49	20.17	988.20
6	Eastern Mekong Delta	59.6	12.95	772.1
7	Mekong Delta	164.3	16.63	2,732.60

Source : *MARD*

2.3- Domestic Consumption

Vegetable plays very important role in Vietnamese's diet. It is the second most important foodstuff after rice. Currently, national production is mainly for domestic consumption. According to FAO, domestic consumption shares from 85% to 90% of total national production. (Fig 2.)

Figure 2 – Production and Consumption



Source : FAOSTAT, 2005

Average daily per capita consumption is about 182.95 gram in 2004, according to FAO, still lower the standard of 200gr per day.

However, vegetable consumption patterns differ amongst regions. Kangkong is preferred in both the South and the North but Kohlrabi is most preferred in the Red River Delta (96%) but not in Mekong Delta (3%). (Table 2)

Table 2 – Regional preference to major vegetable species

Product	Hanoi HCMC	Other cities	Towns	North Moun.	Red River	North Central	South Central	High land	South Eastern	Mek. Delta
Bean	64	64	52	54	62	57	50	65	62	38
Kangkong	97	99	96	91	98	98	90	79	94	94
Kohlrabi	42	69	45	91	96	68	19	59	12	3
Cabbage	94	92	90	90	94	70	47	78	79	78
Tomatoe	98	99	95	85	94	78	76	79	89	87
Other species	94	93	91	81	84	91	98	97	98	97

Source : IPRI, 2002

2.3.1- Consumption vesus income

As higher income gained as more expenditure spent to vegetables and fruit. In value, the consumption of vegetable from the richest group is 3 times more than the poorest one. (Table 3)

2.4- Import

Although import of vegetable to Vietnam tends to increase since 5 years but it is still a trade surplus sector. Import of vegetable to Vietnam is insignificant. Compare to export, import turnover is just one tenth in both volume and value (Table 3). Major species imported are mainly cabbage, carrot, white cabbage from China.

Table 3 : Vegetable trade of Vietnam

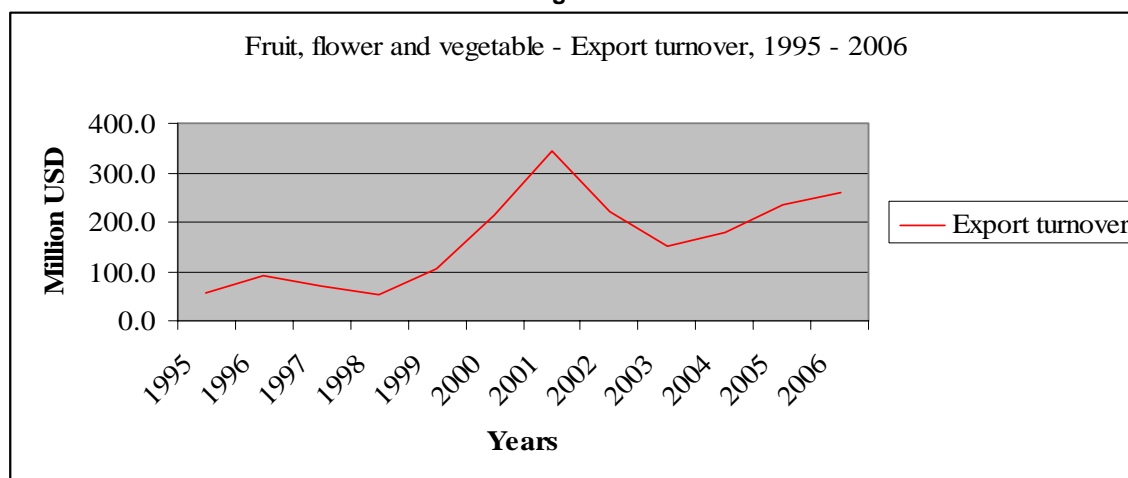
Year	Export		Import		Net trade	
	Volume ('000MT)	Value (mill. USD)	Volume ('000MT)	Value (mill. USD)	Volume ('000MT)	Value (mill. USD)
2000	33.68	19.25	3.19	0.81	+30.49	+18.44
2001	29.54	17.49	9.20	0.83	+20.34	+16.66
2002	46.18	18.99	17.49	1.17	+33.29	+17.82
2003	56.19	23.05	13.54	1.71	+42.65	+21.34
2004	331.84	24.51	39.03	2.52	+292.81	+21.99

Source : FAOSTAT

2.5- Export

Export turn-over of vegetable and fruit has significantly increased since 1996. (Figure 3). However, in recent years the government plan of vegetable and fruit exporting has not met due to due to high post-harvest losses from 25% – 30% of total produce; limited in processing capacity and pesticide and fertilizer residue is over limit.

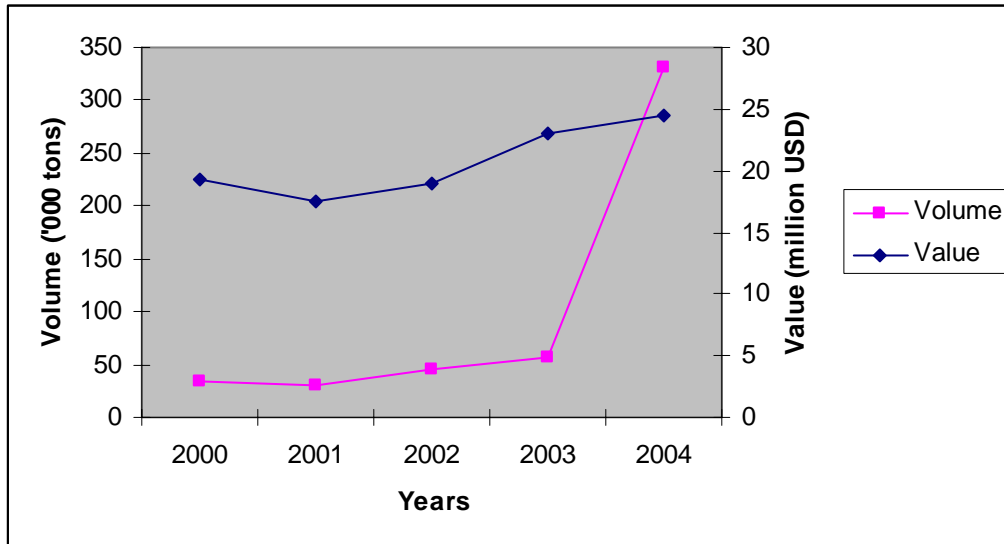
Figure 3



Source : GSO, 2005 and est. 2006, MARD

Specifically, vegetable export of Vietnam is increasing. In 2004, there was a significant increase in volume but not in value. (Fig. 4)

Figure 4 – Export of Vegetable



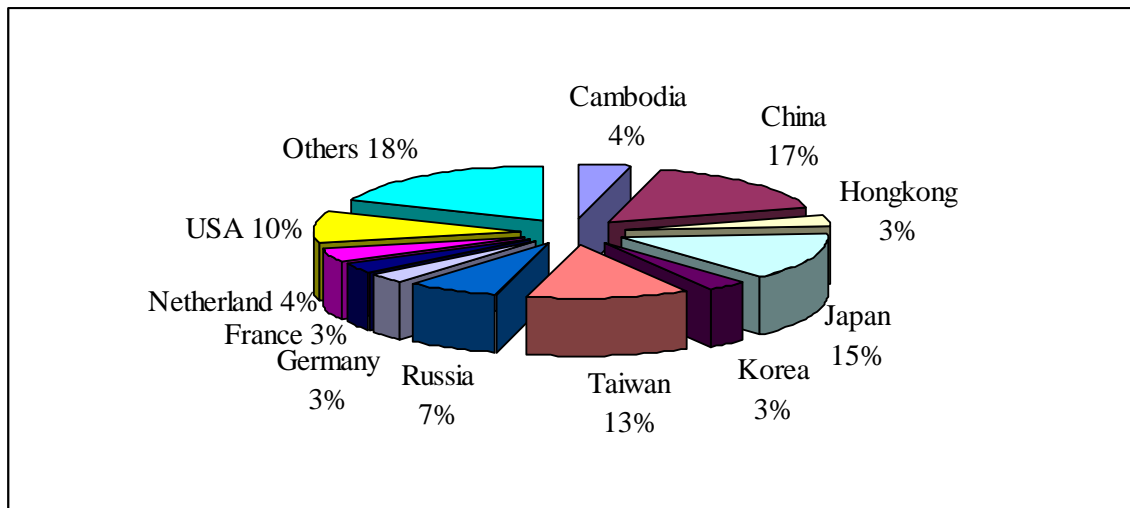
Source : FAOSTAT

2.5.1- Main export market

Currently, vegetables and fruits of Vietnam are being exported to 45 countries over the world. Vegetable market share was just 0.2% (FAO, <http://unstats.un.org/unsd/default.htm>).

According to MARD, main fruit and vegetable export markets of Vietnam are Taiwan, China, Japan, US, Hongkong, Cambodia and Russia. Species exported are mainly rice straw mushroom, mustard greens, cucumber, bottle gourd, vegetable beans, onion, garlic...

Figure 5 : Main Export market of Vegetable of Vietnam, 2004



Source : GSO, 2005

China is still the biggest export market of Vietnamese vegetable in 2004 with 17% of total export turnover. However, export turnover to this country have been dramatically reduced since 2002.



Source : GSO, 2005

While export of vegetable to China is dramatically decreasing, vegetable and fruit import from this country to Vietnam is increasing. In addition to import taxes reduction imposed on agro-products since 2003, the others are small scale production, high losses after harvest, high chemical residue and deviation in production strategies to export.

2.6- National Production Plan to 2015

According to National program on production of vegetable, fruit and flower for exporting drafted by Ministry of Trade, Vietnam is targeting from USD600mill. to USD700mill. of vegetable export value in 2010 with annual growth of 23% to 25%.

In order to reach this target the strategies production areas to the year of 2015 are planned as bellows :

Table 4 : Production Regions to 2015

Regions	Area ('000ha)	Production ('000MT)
Red River Delta	215	4,700
North Mountainous and Midland	165	2,300
North Central Coast	100	1,700
South Central Coast	60	1,000
Highland	100	220
South Eastern	110	2,100
Mekong Delta	250	5,300

3- Vegetables in An Giang Province

3.1- Overview of An Giang

An Giang occupies a position in the upper reaches of the Mekong Delta with area of 3,406.2 km². The Hau Giang and Tien Giang branches of the Mekong are the dominant geographical features of the province. With the exception of the west, most of An Giang is fairly flat and is criss-crossed by many canals and small rivers. This terrain has led to An Giang being a significant agricultural centre, producing significant quantities of rice.

Being located in the center of three big provinces of Ho Chi Minh city; Can Tho and Phnompenh, An Giang has favorable conditions in inter-regional trading.

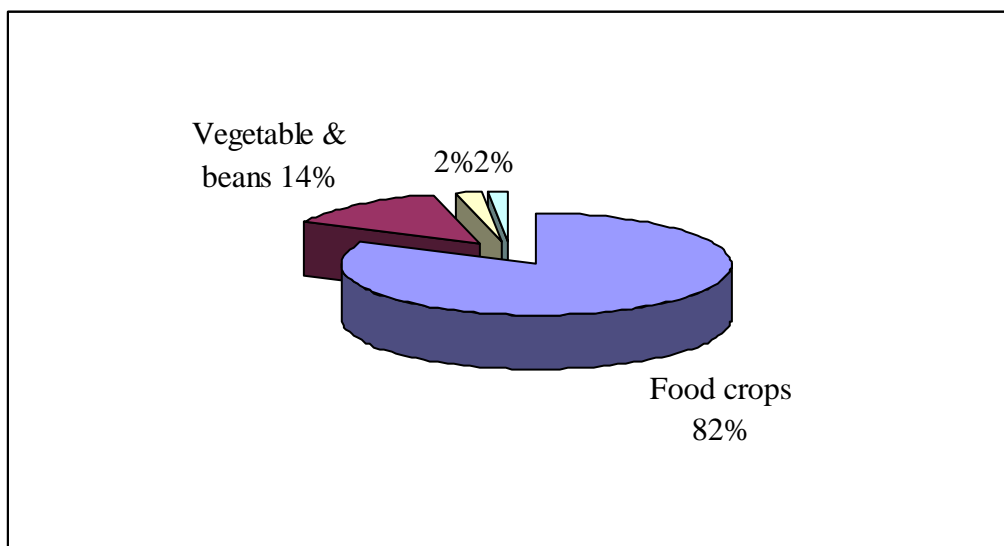
Annual trading growth between An Giang and Cambodia is 23%. Export turnover was USD330 million in 2005. Main export products from An Giang to Cambodia are aquaculture products, vegetable and fruits, instant noodles, garments...

3.2- Production

Overview : Vegetable is the second most important crop in An Giang after rice. In 2005, total area of annual crop is 574,012 ha of which 91% (529,698ha) is for rice, 4% (23,495ha) is for vegetable and remaining 5% is for crops. (An Giang Statistical Year Book, 2005).

Regarding gross output, vegetable accounted for 14% of the total cultivation output, just after rice in 2005. (Fig. 7)

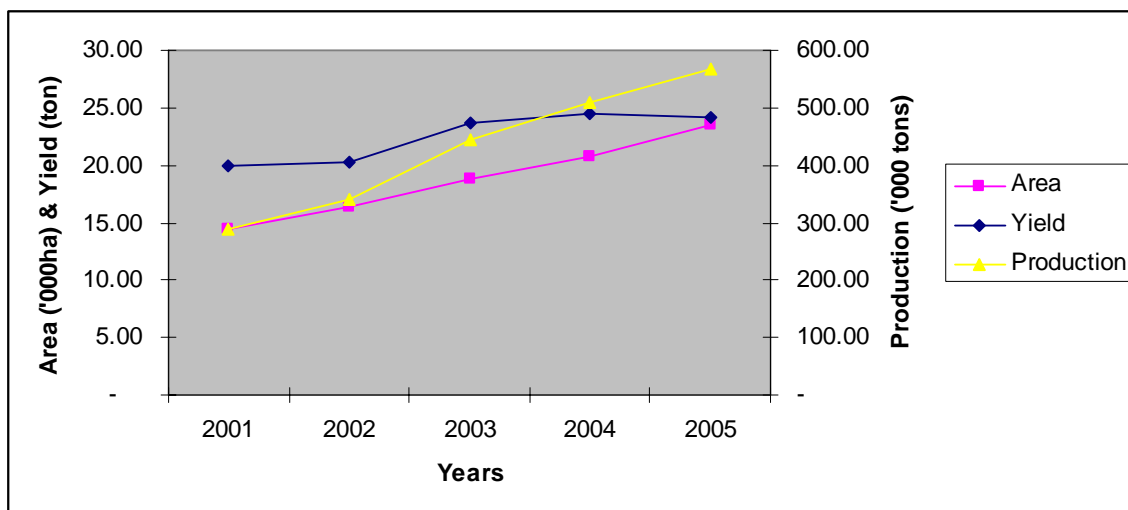
Figure 7 – Vegetable share in total cultivation output, An Giang



Source : An Giang Statistical Yearbook, 2005

Production trends : Vegetable production tends to increase since 2001. Production annual growth is about 13% although there was an yield reduce but expansion in area in 2005 (Fig. 8).

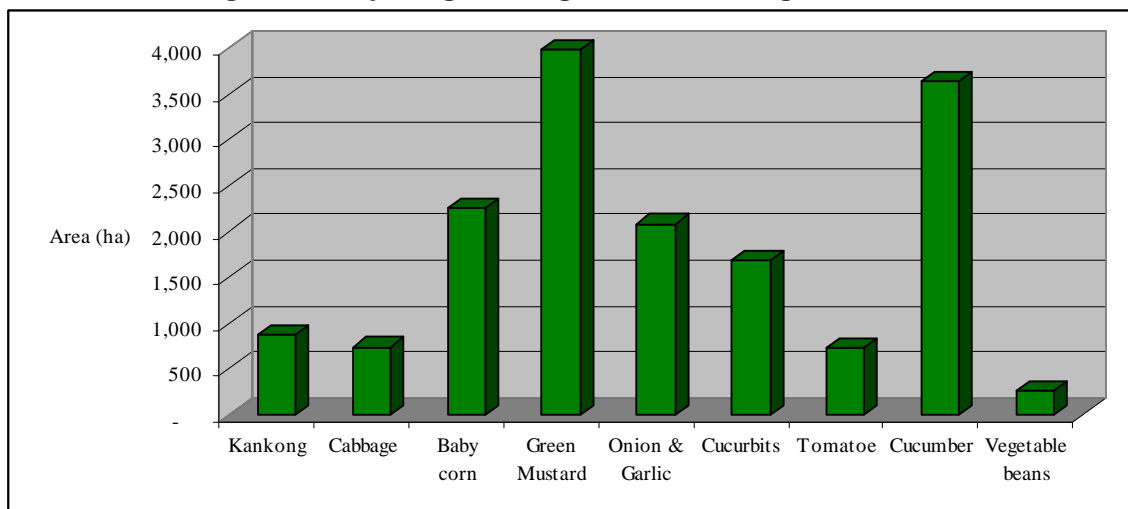
Figure 8 – Area, yield and production of An Giang Vegetable, 2001 – 2005



Source : An Giang Statistical Year Book, 2005

Major vegetables and main production districts : Various vegetable species can be grown well in An Giang except for carrot, kohlrabi, cauliflower and broccoli. Main vegetables grown are kangkong, cabbages, baby corns, green mustards, onion & garlic, cucurbits, tomatoes, cucumbers and beans. Of which green mustards, cucumbers, baby corns and onion and garlic are widely grown.

Figure 9 – Major vegetables grown in An Giang, Areas 2005



Source : Agriculture Statistical, An Giang, 2005

Cho Moi district is the largest production areas of An Giang in all of vegetable species, particularly baby corns. 92% of baby corns in An Giang is produced within Cho Moi district. Vegetables yield of Cho Moi is the highest compare to the other districts. Production is about 70% (425,071 tons) of total provincial vegetables while area is 61% (15,386ha) of total vegetables. Followed by Chau Phu, Tri Ton, Chau Thanh and An Phu. (Annex 1).

Crop schedule and production seasonality : In general, vegetable cultivation in An Giang is almost uniformly distributed across the year in . The main factor that strongly influenced to production seasonality of vegetable is water level in Tien and Hau rivers. Every year in July and August there often appears flooding in Tien and Hau rivers by heavy raining. Those result in scarcity of vegetable within at least 3 months from July to October. (Annex 2).

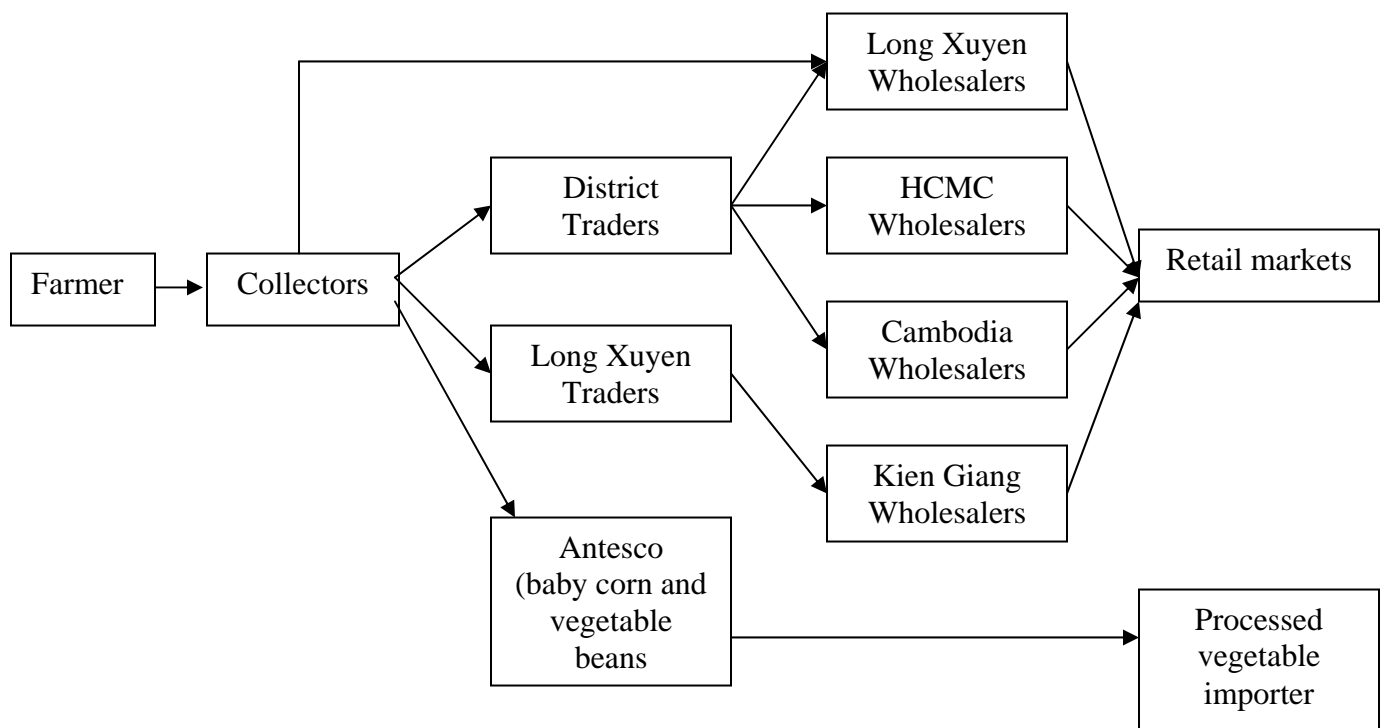
Fertilizer and Pesticide : According to Plant Protection Sub-Department of An Giang, overuse of fertilizer an pesticide are still remaining. Of 18 vegetable sample tested, there were over chemical residue on 6 sample taken from districts of Chau Thanh, Cho Moi, Long Xuyen, Chau Phu and Chau Doc.

According to officer from this sub-department, heading cole, onion and lettuce are the group with highest risk of overusing pesticide.

3.3- Vegetable chain

An Giang is not a vegetable supplier to the neighbor provinces but also one of the main supply sources to Cambodia through a network of huge collectors and wholesalers. (Diagram 1).

Diagram 1 – Vegetable chain from An Giang



The major actors along the vegetable chain are Farmers, Collectors, Traders, Wholesalers and Retailers. In addition, there is Antesco – an exporter get involved in this chain.

Farmers : Average areas for vegetable production per household is approximately 0.25ha. Gross revenue from vegetables cultivation is from VND60 million to VND70 million per ha depends on species.

District collectors : Fresh vegetables are mainly collected by collectors who are living within districts or come from the neighbor districts. There are about 400 collectors and traders operating within Cho Moi district – the main vegetable production of An Giang. Packaging, sorting vegetables are mainly done by the collectors. Differences in price paid to farmers and sold to wholesalers are from VND500 to VND1000 per kg depends on each type of vegetables. However, the collectors are sometimes the main risk takers due to weak linkages between collectors and wholesalers.

Table 5 – Transaction cost of collectors and wholesalers

Description	Amount
Collectors	
- Sorting and packing	200vnd/kg
- Transportation from field	100vnd – 150vnd/kg
- Transportation to delivery	50vnd – 100vnd/kg
Wholesalers in Long Xuyen Market	
- Transportation from market to parking plots	20,000vnd/ton
- Rental	336,000vnd/month
- Loading and transportation from Dalat and other fees	1,000,000vnd/ton
- Electricity	120,00vnd/month

Wholesale market : play very important role in fresh vegetables distribution. There are two main channel leading An Giang vegetable to consumers. Domestic channel mainly through Long Xuyen wholesale market. It was impossible to get official daily volume traded through this market. By direct observation and discussion with some big wholesalers it is estimated that **at least 100 tons** of vegetables distributed per day. The other main market channel is to Cambodia through Binh Khanh border gate.

Table 6 – Price differences between traders and retailers

Vegetable	Unit	Bought buy Trader (vnd)	Retail price (vnd)	Differences (vnd)
- Green mustard	kg	1,600	3,000	1,400
- Chieve	kg	1,400	3,000	1,600
- Bottle gourd	kg	900	2,500	1,600
- Bitter melon	kg	2,000	3,000-3,500	1,000 – 1,500
- Tomatoes	kg	3,500	5,500 – 6,000	2,000 – 2,500

- Cucumber	kg	2,400	3,500 – 4,000	1,100 – 1,600
- Eggplant	kg	2,400	5,000	2,600
- Radish	kg	1,200	3,000	1,800
- Cabbage	kg	1,800	4,000	1,200
- Yardlong Bean	Kg	2,500	4,000	1,500

Import from other provinces : There are about **150 tons of vegetables and fruit imported** daily into An Giang province by road. Cabbage, Green Chilli, Carrot, Chayote, cauliflower, broccoli and kohlrabi are main type of vegetable imported from Da Lat and the North.

Price seasonality : Vegetable prices are obviously distinguished by flooding season and rainy season in Cambodia. Annually, vegetable price enjoys highest price in flooding season i.e. from August to October then reducing from November to December. From January to March, price is increasing because of scarcity from Cambodia then maintain stable to July.

4- Cambodia market

In Cambodia, two main seasons can be distinguished : the dry season from November to May and the rainy season from May to November. In the early dry season, vegetables are easy to grow and give high yield because of favorable cropping conditions. But at the end of the dry season when water is no more available the yields decrease, especially for temperate vegetables like tomato, cabbage and Chinese cabbage.

In the rainy season, vegetables are difficult to grow and give low yield. During this season some vegetables such as tomato, cabbage and Chinese cabbage cannot be grown to meet the market needs. At this time the imported vegetable quantity increases.

Cambodia, therefore is quite potential market for vegetable from An Giang. There are currently three vegetables especially imported from Vietnam through Tay Ninh and An Giang such as : tomatoes (90% is imported in July and October); cabbage (95% imported in July and October); Chinese cabbage (100% imported all year around). In addition to tomatoes and Chinese cabbage there still numerous of cucumbers, bitter melon, green mustard, chilli. Those products originate from Da Lat and An Giang province.

Imported products from Vietnam are preferred to local products because of bigger size, longer availability. Main distribution channel to retail market in Cambodia is through wholesalers in Dumkor and Chba Ampou markets. More than 90% of retailers get their supply from those wholesalers. Some wholesalers are specialized in Vietnamese vegetables but some do both imported and local products. Whosalers are supplied by collectors with whom the have regular relationships as collectors of Vietnam vegetables to the border gate or directly to Dalat area by truck. (Paul Moustier et al.)

Daily trading volume of Vietnam vegetables such as tomato, cabbage and Chinese cabbage is about 40 tons through those two markets. Estimated volume of all type of vegetables imported from An Giang province was around 75 tons per day in the time of survey – January 2007.

5- Conclusion and recommendation

5.1- Conclusion

- Vegetable in An Giang has been commercialized in some district as Cho Moi, Chau Thanh but just at household level.
- Commodity channel has not been developed and still simple. Prices are very volatile and sometimes change very quickly within a day.
- There's only one processing factory – Antesco Joinstock Company in the province operating mainly in baby corns and straw mushroom processing.
- There more than 150 agricultural services cooperatives but just mainly provided irrigation services. One of those – Hoa Thuan Cooperative failed to collect hygienic vegetable to provide some supermarket in 2005 after two trial months.
- Vegetables have not been under control of fertilizer and pesticide usage properly. No institutions are in charge of testing produce before taking to consumers or to export to Cambodia

5.2- Recommendations

- Communication and linkages amongst actors along the commodity chain should be improved.
- Production plan should be reviewed and organized in order to avoid glut of market in the month of November, December and January and to satisfy domestic market demand from July to October. Production of specific vegetables should be addressed to satisfy Cambodia demand from April to October.
- Production practices and input application should be under control properly to supply to high-value market as supermarkets in both Long Xuyen and Phnompenh.
- Collective marketing of vegetables should be organized and facilitated in order to mitigate price volatile of vegetables and supply to high value market.