

I. INTRODUCTION

Cần Thơ is a unique city in the Mekong delta, along with other provinces it's famous with its paddy output of 1000 tons/ year.

Recently, due to the proceeding of diversification of cultivation in the Mekong delta, the farmers in Cần Thơ also have been gradually switching their mono-cultivation to planting other farm produces and fruits in order to establish themselves in a capacity to compete and increase productivity of farming products, improving their household economic living standard

However, not like some other provinces in the Mekong delta that have been known for their kinds of fruits (such as Đồng Tháp, Tiền Giang famous with mangos, Vĩnh Long with pomelos or Bến Tre king oranges) Cần Thơ has not, until now, had any fruits that are really famous and link to the name of the city although there has been significant increase of cultivation land and output of many kinds of fruits in Cần Thơ. To make up for this, Cần Thơ has a potential in the area of vegetables and roots and beans that could be developed to become competitive products of the city.

That's the reason why the technical development of Germany GTZ, Metro Việt Nam and the Ministry of Commerce want to assist Cần Thơ in finding out certain potential vegetables and roots that could become main products in the future.

The study of the situation of vegetables, roots and fruits of Cần Thơ and specially the analysis of the value chain of these products shall be the next research conducted by Axis Research (Section 2) after the study of pomelo value chain of Vĩnh Long, presented in Section 1.

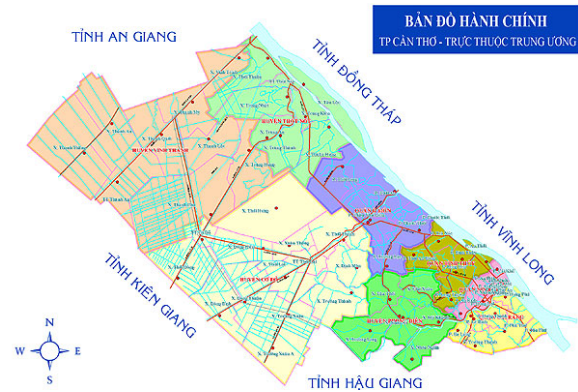
As in Section 1, section 2 also has 3 main parts: 1) Analysis of the economic agricultural situation of the city of Cần Thơ and its cultivation of vegetables, roots and fruits; 2) Analysis of the value chain of vegetables, roots and fruits of the city of Cần Thơ; 3) Conclusion and direction for support to this value chain.

Details of content shall be the following:

II. GENERAL INFORMATION ABOUT THE CITY OF CẦN THƠ AND ITS VEGETABLES AND ROOTS.

1. Surface, population, labor force (2004) Mapping Of Can Tho City

The city of Cần Thơ locates in the center of the Mekong delta, in the middle of a network of waterways with rivers and canals, at north is An Giang, its South river Hậu Giang, at west is Kiên Giang, at east links with Vĩnh Long and Đồng Tháp (see map).



According to the annual statistics report of Cần Thơ 2004, the natural surface of natural land is 138,959.99 ha, the land for farming work is rather high 116,867.96 ha nearly 85%. This is an advantage in enlarging surface for cultivation of trees for additional farm produces and fruits.

In addition, the means of communication on both waterways and roads is favorable for access to nearby provinces and some countries. This is also a convenience for Cần Thơ to promote business and consumption of products, specially farming products.

The population of Cần Thơ in 2004 was 1,127,765 people, divided almost equally to countryside and urban area: 49.8% in the city and 50.2% in the countryside. The majority of population belongs to the race of Kinh (96%), some are Chinese (1.5%), and Khmer (2%) and other ethnic minorities; Density is about 811 persons /km². Out of total labor force of Cần Thơ, workers in the branches of agriculture and forestry compose of 255,896 persons, about 50%. (*source 1, appdx 1*)

2. Economy

The growth of GDP of Cần Thơ was rather high in recent years: during the period from 1976 - 1985 it was 4.99%; 1986 - 2000 at 9.42%, the period of 2001 - 2003 was 11.67% specially just one year after Cần Thơ was upgraded as a city under direct administration of central government, its economic growth attained 14.93% (2004). In 2005 its GDP growth got best record of 15.79% (specially in industry and services, see table 1). Its economy is developing rapidly with high economic growth, quality growth has been gradually improved with economic structure moving to the direction of 'Industrialization, modernization', that improves the proportion of commerce, service and industry. (*source 7, appdx 1*). Average income per capita in Cần Thơ was about 720 USD, 15.9% higher compared to 2004.

Agricultural production has been changing to a form of urbanic agriculture. Many households attained production value of 50 million dong/ ha/ year, some at 100 million dong/ ha/ year. (*source 7, appdx 1*). But the speed growth of agriculture was not high (3.26%), it was much lower than that of service (16.7%) and industry (22.2%).

Table 1: GDP proportion of economic branches of the city of Cần Thơ (2003-2005)

%	2003	2004	2005	Speed growth of GDP 2005
Agro-forestry-fishery	29.4	21.23	17.76	3,26
Construction industry	34.69	35.05	38.76	22,2
Service	35.91	43.72	44.08	16,7

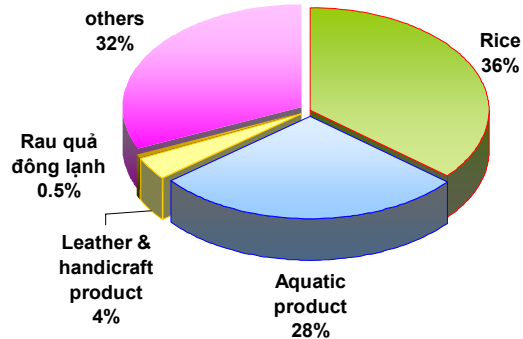
(*Source 7+8, appdx 1*)

Import and export.

The industrial and export processing zones over the territory of the city had attracted 27 projects in 2005 with total capital registration of 113,15 million USD. Now in this city there has been a total of 135 projects still operative with capital registration amounting to 461 million USD. (source 10, appdx1)

The commodity and service export turn-over in 2005 obtained nearly 348,5 million USD., with 15.34% higher, of which the export of rice and fish products covered 2/3 (see chart 1). In 2005, the city had exported 562 thousand tons of rice of different categories (increased 64% compared to the same time of 2004), with total turn-over value of about 140 million USD and over 35,000 tons of fish products, it attained a turnover of more than 108 million USD (increased 11% compared to 2004).

Chart 1: Structural proportion of export turnover of the city of Cần Thơ in 2005
(source: 10, appdx 1)



We can see that Cần Thơ has been gradually moving to industry, commerce and service, but in respect of export transaction, the export of agricultural lines (rice and fish products...) still controls the majority, leather products and handicrafts with modest turnover value of over 13 million USD control only 4% but its speed growth is high. These are two product lines that have been evaluated as their potential for foreign trade of the city.

Particular for export of freezing vegetables and fruits, its value is still very small compared to total export turnover, only 2,000 tons, equal to 1,7 million USD, it's anyway double compared to that of last year. (source 8, appdx 1). This is a result encourageable for the branches of vegetables, roots and fruits of the city.

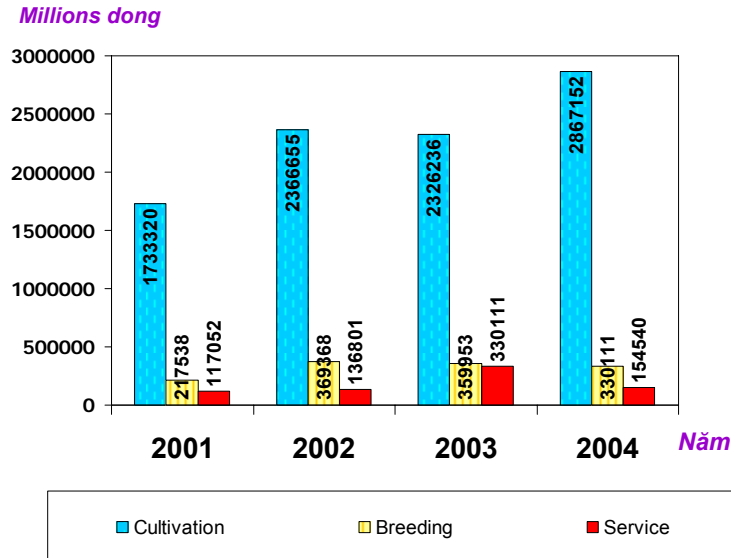
3. Agriculture.

3.1. General situation.

In general, the speed growth of agricultural production value of Cần Thơ in recent years has not been worth considered (average of 1 -2%/ year). (Source 1, appdx 1)

In agriculture, the value of cultivation still prevails over breeding and service thanks to the value of rice export (major) (see chart 2); but the speed growth of this branch was up and down during the years from 2001-2005 (see more on table 3): it's highest growth was 23% in 2004.

Chart 2: Agricultural production value of the city of Cần Thơ from 2001-2004
(source: 1, appdx 1)



3.2 The situation of vegetables, roots and fruits.

3.2.1 Cultivation land.

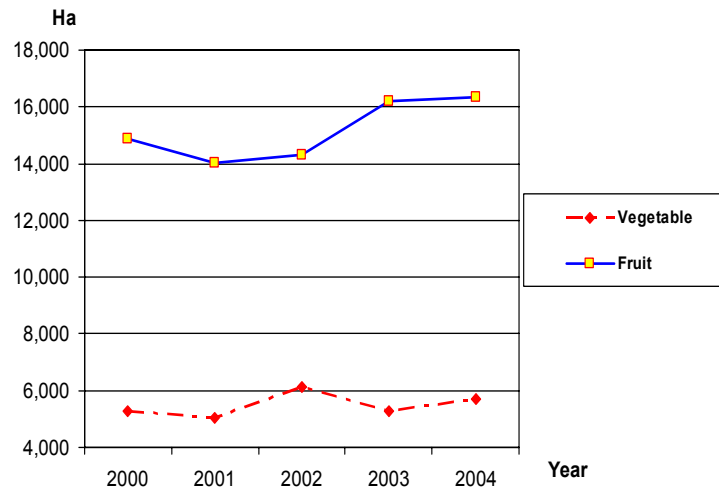
According the annual statistics report of 2004, the land surface for cultivation in recent years had no considerable growth, only about 1%, mainly on certain cereals (paddy, farm produces etc.), annual industrial trees (beans, sesame...), and some long year trees (fruits trees...). Table 2 showed statistics figures of cultivation land until 2004. Chart 2 showed more specifically plants surface for vegetables and fruits in Cần Thơ from 2002-2004.

Table 2: Cultivation surface of the city of Cần Thơ 2002-2004

Year	2002	2003	2004
Total	255,725	255,097	264,015
I. Annual trees	229,188	226,965	230,671
1 Cereal trees	229,188	226,965	230,671
2. With flour and roots	73	90	77
3. Vegetables and (including melons and beans)	6,109	5,296	5,691
4. Annual industrial trees	2,234	3,148	8,069
5. Other annual trees	-	3	10
II. Long year trees	18,121	19,595	19,497
1. Industrial trees	3,812	3,405	3,137
2. Fruits trees	14,309	16,190	16,360

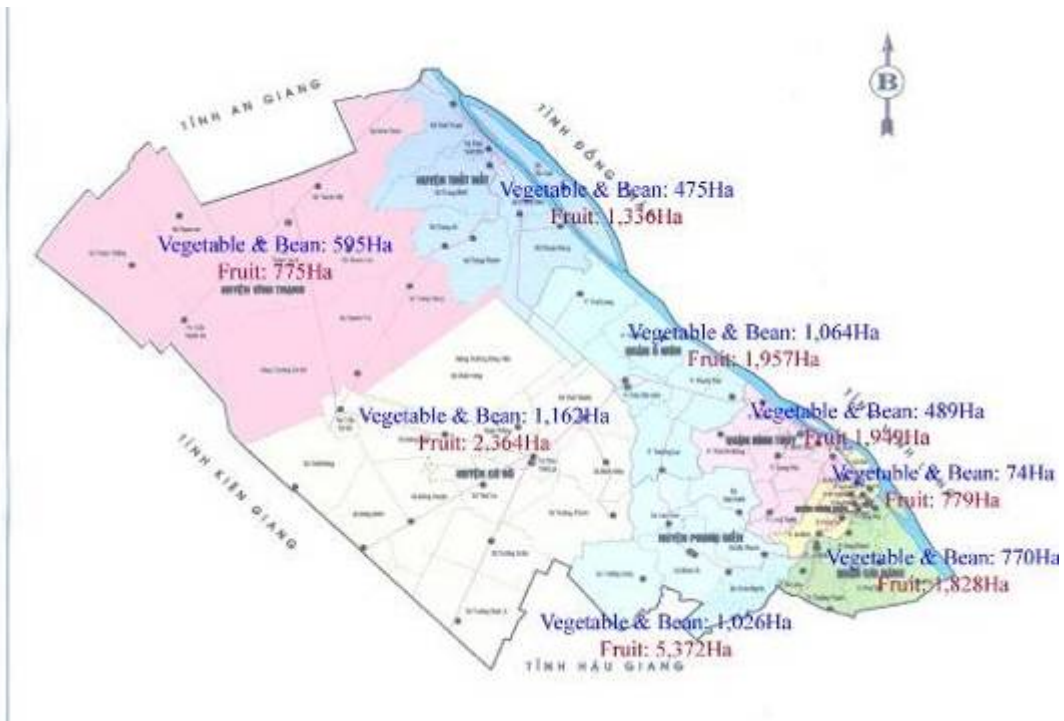
(Source: annual statistics report of Cần Thơ 2004, No. 1, appdx 1)

Chart 3: Speed growth of of surface of vegetables, roots and fruits of Cần Thơ 2000-2004



According to the above chart, the cultivation surface for fruits trees was 3 times larger than that of vegetables, but its speed growth was low (2004 only attained 1,05%). While the speed growth of vegetables attained 7.5% in 2004, even the total vegetable surface covered 5,691 ha, only 1/3 of fruit trees surface and mostly planted at Ô Môn, Phong Điền. Among fruits trees the surface of trees for segmental fruits controlled over 7,000 ha (nearly ½ of surface), including oranges, mandarins, pomelos and lemons, most found in the district of Phong Điền.

Proportion map of vegetables and fruits in districts of the city of Cần Thơ 2004 (source: Statistics report of Cần Thơ 2004 & Axis)



3.2 Production value.

According to statistics reports from 2000-2005, the production value of cultivation of the city of Cần Thơ showed an average growth of about 12%. (see table 3)

Table 3: Farming production value of Cần Thơ

Unit: million dong

Year	2000	2001	2002	2003	2004	Estimate 2005
Total	1,778,472	1,733,320	2,366,655	2,326,236	2,867,152	3,265,292
Cereal trees	1,350,280	1,292,533	1,928,304	1,871,825	2,283,949	2,649,379
Fruits trees	250,052	259,601	221,795	253,488	303,399	321,022
Foods trees	101,098	102,520	115,849	100,608	110,983	114,192
Farming by-products	47,114	45,092	67,237	56,244	79,660	93,621
Industrial trees	27,337	31,620	31,670	32,993	87,133	127,236
Trees with roots	2,106	1,463	1,309	1,587	1,358	1,242
Others	485	491	491	491	671	735

(Source: Annual statistics report of Cần Thơ 2004, No.1, appdx 1)

According to above table, the production value of fruit trees was rather high (11%) compared to total production value of other trees, only second to cereal trees (80%). The statistics report did not show a concrete figure for the production value of vegetables, but according to the report from the Department of Agriculture of the city of Cần Thơ 2004, the production value of vegetables of Cần Thơ in 2004 only attained 83,446 million đồng, controlled a low percentage (3%).

3.3 Output

3.3.1 Fruit trees.

According to a report from the Agriculture Department of Cần Thơ, the surface and output of fruit trees of Cần Thơ showed an increase of various products from 2002-2004 (see chart 4,5), specially segmental fruit trees. Ranking first was oranges, lemons and mandarins with output of 60,930 tons, controlling 49%, next was bananas with 16,910 tons at 14%, mangos with 5% and melons 5%.

Table 4: Main fruit trees Cần Thơ 2004:

Products	Surface (ha)	Output (tons)
Fruits	17,612	123,315
- Orange, lemon, mandarin	6,358	60,930
- Banana	1,646	16,910
- Mango	2,475	6,042
- Longan	1,644	5,661
- Rambutan	201	497
- Pomelo	669	4,730
- Water Melon	1,252	14,995
- Others	3,367	13,550

(Source 2, appdx 1)

Chart 4: Market share of fruits output of Cần Thơ in 2004

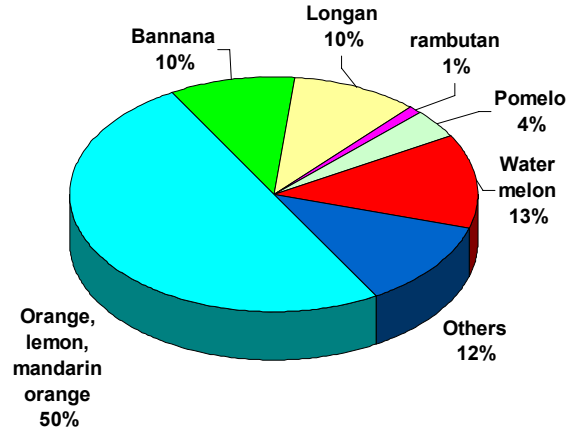


Chart 5: Speed growth of fruits output of Cần Thơ from 2000-2004

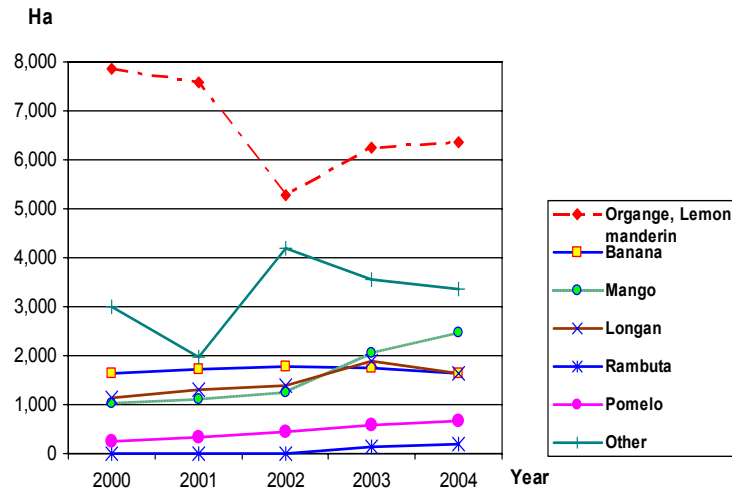


Chart 5 showed that from 2002-2004, excluding oranges, lemons and mandarins that had significant output increase (from 42,968 tons to 60,930 tons) 19% growth, the speed growth of other fruits in Cần Thơ was only about 2-3 %/ year. This is normal due to the fact that the surface planting segmental fruit trees covered 1/2 of surface of fruits trees. (source: statistics report of Cần Thơ 2004)

3.3.2 Vegetables.

As mentioned above, the vegetables and roots of Cần Thơ compared to fruits were not equal in respect of surface and output value. If it was excluded from watermelon and beans/peas (for seeds), the real surface of vegetables and roots only covered 3,791 ha (about 1,43% total cultivation surface). (according to table 2).

Details of some vegetables of the city in 2004.

Table 5. Main vegetables of the city of Cần Thơ 2004

Products	Cultivation surface (ha)	Productivity (100kg/ha)	Output (tons/năm)
Total	3,791	774.44	43,893
1. Cucumber	252	107.43	2,556
2. Water morning glory	174	107.41	1,869
3. Cabbage	71	120.14	853
4. Onion/garlic	85	122.71	1,043
5. Tomato	59	48.98	289
6. gourd, calabash, loofah gourd	254	152.40	3,871
7. other vegetables (salad, daisy sprout, long green cabbage...)	2,896	115.37	33,412

(Source: Report of vegetable situation of 2004, No. 5, appdx 1)

Different from Đà Lạt, in Cần Thơ trees for roots have low ratio, most are vegetables of various species including vegetables for fruits (gourd, cucumber, tomato...), vegetables for leaves (water morning glory, salad, daisy sprouts, field green cabbage, cabbage pickles...). And spices (coriander, basil, garlic and onion etc.). Among trees for fruits, gourd, calabash and loofah gourd have highest output 9% out of total vegetables and roots, next is cucumber (5,82%), water morning glory (4,3%).

In Cần Thơ, all vegetables and roots could be planted around the year, most favoured is in Autumn-Spring season from the end of October to February.

In 2004, the farmers of the city had planted 6,490 ha of vegetables (in general) increased nearly 1,200 ha compared to the same time of previous year, output estimated to be 68,000 tons (increased 27.3%); 10- 15% of this surface farmers planted with safe vegetables according to safe production process (source10, appdx 1). Until now, beside the results obtained from this program, such as upgrading perception of farmers in regard to species, techniques of safe vegetable cultivation, raising vegetable productivity, there's still been difficulties occurred from objective and subjective reasons such as farmers capacity is low, the watering system not implemented, no treating process for products after harvest etc...However, this is the direction for development that has been concerned by all levels of authorities of Cần Thơ in an effort to find proper solution to enlarge the surface for safe vegetables with high output and high quality. (Source 14, appdx 1)

3.4 The situation of local consumption and export.

Local vegetables and fruits in Cần Thơ have been mainly consumed directly (fresh vegetables and fruits) without going through early process. In 2005, The farming plantation Sông Hậu had a contractual consumption of about 5,000 tons of vegetables and fruits of all kinds. In addition, supermarket Metro also consumed certain amount of safe vegetables in the district of Bình Thủy (source10, appdx 1)

The export value of agricultural processing industry of Cần Thơ in 2004 attained 93,08 million USD. Its export was conducted through main channels for vegetables (mainly canned mushroom 90% and salted mushroom 10%) to the markets of Taiwan, Italy, Spain, Europe) and for fresh fruits (rambutan, longan, mango...) to China, canned mango to Europe. Export under small channels was made for mainly fresh fruits to Campuchia. The farming plantation Sông Hậu exported corn beans to Japan. (Source 9, appdx 1)

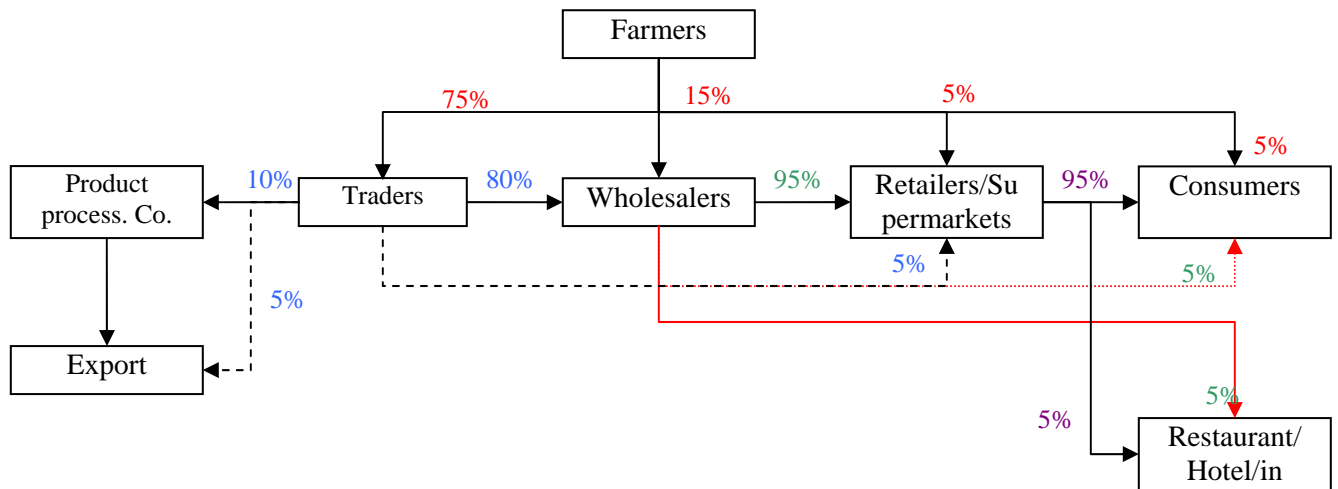
In 2005, four enterprises: The farming plantation Sông Hậu, The Foods Processing Enterprise Meko, The Agriculture Technical Material Company and Cửu Long Fruit Garden Company had exported 2, 000 tons of cool preserved vegetables and fruits, attaining a turnover of 1,7 million USD. The enterprises had also profited by the advances of rich sources of materials in the zone of Mekong delta, to renew equipment, increase consumption, process new product lines such as the juices of oranges, lemons and pine apples without sugar to export to Singapore. (source 9, appdx 1)

Until July of 2005, the enterprises of the city of Cần Thơ had proceeded a consumption of nearly 4,500 tons of canned vegetables and fruits, most of them were mushroom, young corn, pine apple and rambutan, increased 67% compared to the same time of previous year, attaining a value of 57 billion đồng (source 9, appdx 1)

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III- THE VALUE CHAIN OF VEGETABLES, ROOTS AND FRUITS OF CẦN THƠ

Chart 1: The value chain of vegetables, roots and fruits of Cần Thơ



General point

In the value chain of vegetables, roots and fruits of Cần Thơ, Farmers are partners who do the distribution of products to almost other partners, and play a very important role consequently. A number of farmer households participate regional cooperatives of safe vegetables, while the majority of them do the cultivation and sell products by themselves. When they sell to traders, they sell in bulk because of its convenience compared to retail. (see details below).

Traders in Cần Thơ are of medium and small scales, most traders in the city of Cần Thơ purchase and sell products in the region, nearby provinces and HCMC. Cooperatives purchase safe vegetables in Cần Thơ, acting the same role of a trader and sell them to Metro supermarket and some other places. But Cooperatives have not fully played their roles in planning and allotting cultivation of certain vegetables.

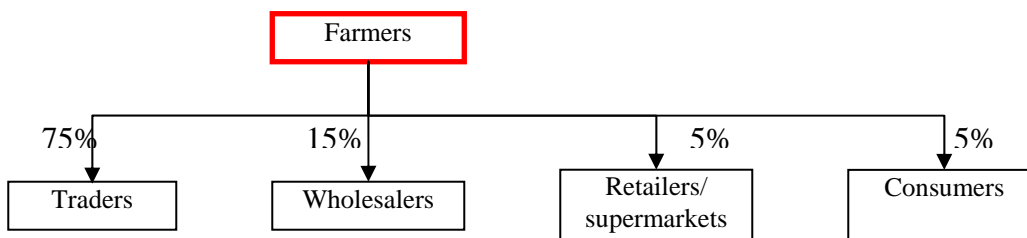
Compared to some provinces in the Mekong delta, private enterprises of processed products of Cần Thơ have had rather good business with increasing export of canned products of vegetables and fruits. Moreover, they know how to profit by the rich sources of materials in the zone of Mekong delta in order to diversify export product lines originated from nearby provinces.

The wholesalers and retailers of Cần Thơ have similar characteristics of other places (in previous analysis of value chain).

Details below:

1. Farmers

Chart 2: Farmers and direct relationship.



Fruits: According to result taken from groups seminars conducted by Axis in Cần Thơ in 12/2005, Fruits popularly planted are: Oranges, Mangos, Pomelos, Longans, Surians, Star apples....these are the trees that shall give fruits within 2-5 years from planting time. According to them, the selection of which fruit trees to plant depends on “*market demand or on their own initiative experience for selection of fruit trees that seem to have best potential in market*” (source: farmer group seminars conducted by Axis 2005). However, according to us, the market evaluation of farmers here is not well enough, the cultivation seems still rely on their own experience because they don’t have a close watch on market demand. (more analysis below).

The source of tree species is also various. Farmers usually get tree species from the Southern Institute of trees study, farming plantation companies, the University of Cần Thơ, Cooperatives ..., or from gardens owners who have comparative good tree species; and also a big number of tree species from floating markets. Price of tree species from species raising gardens is highest at 10-15,000/ tree, cheapest from floating source (about 3,000-5,000/ tree).

Vegetables. As mentioned above, most farmers in Cần Thơ have now developed planting safe vegetables, but surface for vegetables now is very small compared to that of fruits (see part 1), there has been no plans for large zones. According results from indept interviews, the average surface for planting vegetables of each household is 200-500m². In addition, according report from the Department of Agriculture and the University of Cần Thơ, the ratio of farmers who have experience in farming is low, only certain groups that have from 1-5 years of experience, **it seems that vegetables from these farmer households did not attain the standard of safe vegetables until the end of 2004** (No. 15, source 1)

According to source from farmers seminars in Cần Thơ conducted by Axis, the notion about safe vegetables of farmers have been noted as berlow:

- Outlook, even and nice
- Planted in nethouse
- Chemical used with proper dosage

- No virus/ small content of nitrate
- No chemical fertilizer, only organic fertilizer
- Clean water source
- Fresh longer than normal vegetables
- More strictly cultivation process (3 day crop)

So, just like in some other cities (such as Hồ Chí Minh, Đà Lạt..) farmers in Cần Thơ know well the requirement for planting safe vegetables. But in order to apply strictly these requirement, they must be very confident of the outlets because they have to pay costs and investment (nethouse, fertilizer etc....) while there's not many purchasers, shops that sell safe vegetables for product consumption (like in HCMC) or no exports with big quantity (Đà Lạt) that's why safe vegetables have still been produced at small quantity, mainly for the demand of supermarkets in the city (Metro, Coopmart, Citimart).

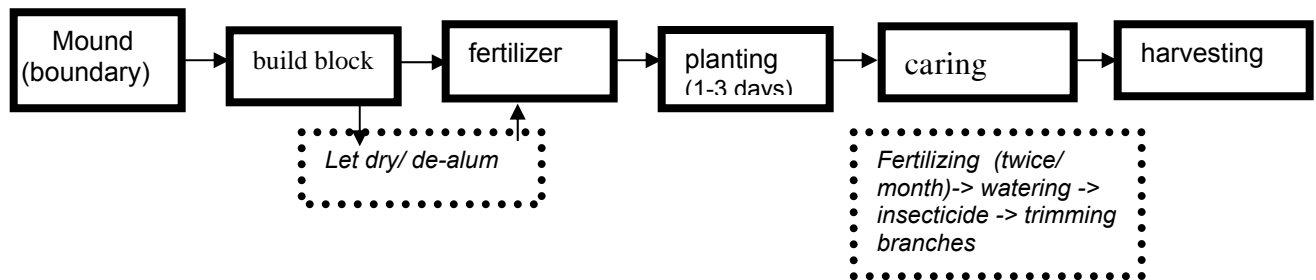
As mentioned in part 1, farmer households in Cần Thơ now are planting vegetables for leaves, spices (coriander, long green cabbage, basil, salad, daisy sprout etc....) and vegetables for fruits (loofah gourd, gourd, cucumber, lemon, tomato etc...) Except for certain kinds like tomato, French beans etc..., that have been planted on reserved land, while others have been planted alternatively with paddy (2 paddy 1 additional produce). Each year, farmers plant alternatively on the same surface 2 to 5 kinds of vegetables, with a recurrence of about 1 month (for leaves), sometimes 2-3 months (for roots, fruits) (source: indepth interview by -Axis)

Việc thu hoạch rau trong một năm của nông dân Cần Thơ trung bình từ 3 đến 6 lần/năm (tùy loại rau trồng), tập trung vào tháng 3-4 và tháng 8-9 Âm lịch. Lợi nhuận đạt trung bình từ 2-3 triệu đồng/1,000m².

Process of vegetables and fruits cultivation.

Actually, each kind of vegetable or fruit shall undergo a different planting process in respect of method, caring and harvesting time etc. But, in the scope of this study, we try to present a general process applicable for fruits, vegetables as below:

Chart 3 : fruit tree process (pictures 1,2,3, appdx 4)

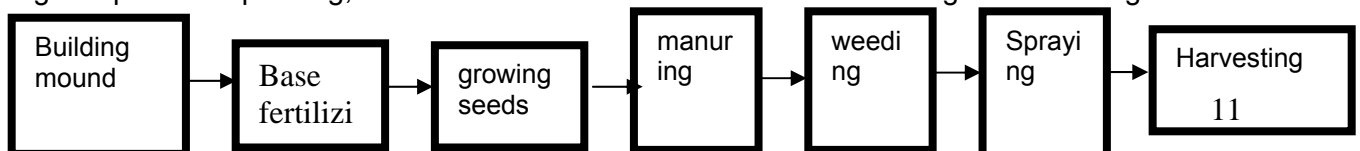


Note: Planting process of fruits from building mound to harvesting takes an average time of 2-3 years (per kind of fruit).

Chart 3 : Vegetable process (pictures 1 - 6, appdx 3)

Note: Period of time for a vegetable planting process is about 30 days.

During the period of planting, most farmers said that the most difficult stages are raising mound



and growing due to manual work that take too much time, they just rely on their experience. Sometimes, stages could be shortened or switched or left over (example: tree species taken from species garden must be transplanted before making block in order to avoid damage) (source: indepth interview conducted by Axis)

Personnel: in addition to members of family to do farming work, personnel could also be hired to do the work of raising mound, fertilizing, planting, harvesting (specially with household that has large scope of work). These stages shall be performed manually, without machinery equipment to be used.

1.2 Harvesting process.

As mentioned above, each kind of fruit or vegetable requires a proper harvesting process. However, this process in Cần Thơ looks rather simple and depends on how the product shall be consumed (sell in kg or in bulk) and consumers (farmers or traders).

If farmers do the harvesting themselves, the work shall be performed as follow:

Pick/pull up → early process (vegetables) → classification → packing → storing/preserving → handling

Below is general process for vegetables and fruits (in general) in Cần Thơ :

	<i>Vegetables</i>	<i>Fruits</i>
<i>pick/pullup/ early process</i>	<ul style="list-style-type: none"> - vegetables pulled up shall be put into basket to carry over to early process. - early process composes of: at the field, cut root, put away young leaves, re-arrange (per kind of vegetables), clean, tie in bundles. For tomatos and cucumbers, put into basket, do a selection again then packing. (pictures 6,7 appdx 3) - After early process, vegetables suffer big loss about 20% (leave roots and old leaves away...); as for vegetables for fruits (cucumber, beans) loss is about 5% 	<ul style="list-style-type: none"> - pick fruits and put into basket the bottom of it shall be laid with banana leaves, then pass them over for classification. . Early process work performed (only for retailing and by farmers) as below: after picking down, fruits shall be laid on banana leaves for de-hydate (or display under the sun for drying – for mangos), then put into packing or carton. (pictures 4,5, appdx 4) - Fruits, from start of planting to caring stage, before harvesting, shall suffer a loss of 10-15%, products left overnight after harvested shall suffer a loss 4%

Classification, packing, labeling, trademark	<ul style="list-style-type: none"> - Classifying and packing vegetables is more complicated compared to fruits because vegetables are easy to be crushed and damaged. After early process, vegetables shall be placed into square baskets of 50kg/ each for transportation (picture 5, appdx 3) - The majority of farmers in Cần Thơ have been familiar to the process of planting and producing safe vegetables that have also been sold to Metro. However, even those vegetables sold to Metro have no package or trademark (except some cooperatives). 	<ul style="list-style-type: none"> - When sold in bulk to traders who then do the harvesting and classification at the garden. As for retail, farmers do the harvesting and classification in their houses. - Farmers usually classify fruits into category 1, category 2 and poor category (see more on pomelos of Vĩnh Long). Some of the poor quality could be sold away to traders and the rest for retailing. - According to farmer group seminars in Cần Thơ, until now there are no fruits of Cần Thơ that obtain trademark certification. Only certain fruits that have been known for their quality and their names link to the region names such as Oranges Phong Điền, Surians Phong Điền, Cherries Dâu Hạ Châu, Star apples Cà Na etc.
Storing and preserving	<ul style="list-style-type: none"> - After harvesting, vegetables shall not be kept long in natural environment, they shall lose water and freshness, should be consumed in the same day. - But recently some vegetables have been preserved to preclude damage for delivering to customers like water morning glory (vertical placement and no washing); Coriander, daisy sprout, salad (keep with ice after washed) ; Tomato, cucumber (put into basket with fresh leaves underneath or into bag of 10kg).. (Pictures 10, 11, appdx 3) 	<ul style="list-style-type: none"> - Because the number of fruits is too large, farmers have no space for preserving other than their own houses. - Normal method for fruits preservation is to lay banana leaves underneath. But this way will not last long as fruits could be damaged due to unaided (heat). - For farmers, keeping fruits on trees is normally applied. (see more on part 1 – pomelos of Vĩnh Long) So they badly need storage for better preservation.

In short, the harvesting process of vegetables and fruits of farmers in Cần Thơ depends on how they sell their products (in bulk or in kg – see below). This is the time they meet with certain big loss, specially with vegetables (loss average about 20-25%), while prices are not stable, prices shall be dictated by traders when in season “products abundant” and changing temperature => are the difficulties for farmers in their harvesting time.

1.3. Consumption.

As other places, bulk sale is popular (90%) in business transaction of farmers in Cần Thơ. (See bulk sale page 10.)

Sale in kg: It’s different from fruits (see part 1, page 10), farmers come to traders and notify them the amount of vegetables of the day. If traders agree farmers shall harvest and put the crop into square baskets. Each square basket could hold an average of 50-60kg. (picture 11, appdx 3)

For farmers in Cần Thơ, bulk sale is a way farmers like most because all their products shall be sold at one time, no matter what the quality of products is. (source: farmer group seminars conducted by Axis 2005)

1.4 Customers and relationship.

According to the chart of value chain (chart 1), main customers of farmers are traders, mainly they have long relationship, professional, prestigious “*buy products as they are at proper prices, prices could be agreed upon, warranty of products consumption and payment on time*” (Source: farmers group seminars in Cần Thơ- Axis, 2005). In addition, farmers also sell to strange traders with a deposit. The problem farmers don't like when dealing with strange traders is that they usually press the prices when marketprice is changing, even in case of advance agreement (verbal).

Beside traders, there are also regional cooperatives that consume products for farmers* mainly sell vegetables to supermarket Metro. As order placement from Metro is small, while farmers do a lot of planting, this sometimes leads to a situation that supply is over demand (example: grow 100 tons of water morning glory and sell only 30kg). So a big quantity of vegetables must be sold in retail at lower prices**.

A small amount of vegetables and fruits have been sold by farmers in Cần Thơ to dealers for retailing and farmers must do the delivery.

In addition, farmers also sell in retail their vegetables to consumers but with a small amount and prices are not high.

1.5 Trademark, label

According to seminars among farmer groups conducted by Axis at the end of 2005, the products sold to Metro until now still don't have a label. Vegetable products of farmers now still carry the trademark of Metro. This is also difficulties for farmers growing safe vegetables in Cần Thơ. They want to have their own certified label in order to easier control product prices, run better advertisement and get fully trusted from consumers. (source: farmer group seminars conducted by Axis)

As for fruits, there have been 2 labels certified by the Office of Intellectual Ownership, they are Berries Dâu Hạ Châu-Phong Điền and Mangoes Hoà Lộc-Sông Hậu. The establishment of trademark and label for export have been proceeded by enterprises (such as Farm Sông Hậu, Product processed enterprise Meko, Agriculture Company of technical equipment and material, Cửu Long Fruit Garden – see more on processing section below). As for farmers and Cooperatives in Cần Thơ until now there have been no certificate or trademark for vegetables.

For export, until now farmers don't directly export vegetables and fruits. Just a small quantity through small channels handled by traders to neighbouring countries like Campuchia, China.

1.6 Contract and payment.

Contract and method of payment of farmers are not different from those mentioned in our previous research relating to vegetables and fruits of other provinces and cities, but the realization of these has little difference as mentioned below:

**In order to enter into Cooperatives, farmers must buy a stock of about 500.000đ/person and must work as directed by cooperatives.*

*** As a member of a cooperative that has business contract with Metro, farmer households shall be obligated by agreement to deliver various categories, but during season some kind could be planted some could not, this cause difficulties for farmers.*

	Vegetables	Fruits
Contract	Verbal contract with traders Written contract with Cooperative	Verbal contract with familiar traders (base on prestige) and written contract with strange traders (certified agreement or deposit)
Payment	- Traders pay on time as agreed with farmers (pay when harvest completed) - Cooperatives pay farmers within half of a month or 1 month, late but Cooperatives give an advance as required by farmers.	Traders pay farmers within 5 – 6 days after sale.

1.7 Fees and incomes.

	Vegetables	Fruits
Fees	- Fees for hiring manual workers in planting stage is very high (difficult to use equipment due to terrain) - investment for one season on surface of about 1000m ² /1 season (2months) is <u>1,5 million</u> , of which fee for mound (200,000) + base fertilizer (100,000) + Grow seeds (100,000) + manuring (300,000) + weeding (200,000) + insecticide spray (150,000) + harvest (300,000)	Total investment for planting is about 5-6 million/1000m ² including fees for mound to block, growing and caring (fertilizer, insecticide..)
Incomes	Average income for vegetables about <u>3 million</u> /1000m ² .	Income (average for all categories) is about <u>3 –5 million</u> /1000m ² .

1.8 Difficulties and direction for support.

The majority of difficulties of farmers in the Mekong delta is about the same, including objective reasons (species, soil, weather, season, techniques, markets...) and subjective reasons (habit, perception, sense, responsibility...). Of them the subjective reasons are very important, it's necessary to have concern and action from agencies and organizations and time. (see more on part 1, page 12 on problems of vegetables and fruits). For vegetables, problems and support shall be summarized below:

Problems	Support
- <u>Tree species</u> : now farmers in Cần Thơ don't have stable source of species. They buy from many floating sources. Good species with high prices are not suitable for many household pockets. - <u>Clean vegetables</u> : although this has been developed 3 years ago, but until now the result is basically fulfilled, beside the reasons of random cultivation, farmers don't know perfectly the process and techniques due to poor knowledge, capability, high investment (building nethouse, caring), moreover, the <u>outlet</u> is	->The tree species garden of the institute of the southern trees study, the university of Cần Thơ to consider better program for broad announcement of a more profitable use of good tree species for high quality and result for farmers. -> Enlarging and planning grouping area for safe vegetables, encouraging planting on large surface along with organizing models for training to help Cooperatives and farmers with outlets (such as coordinate with supermarkets, export enterprises.) ->Train workforce, specially skilled cadres in

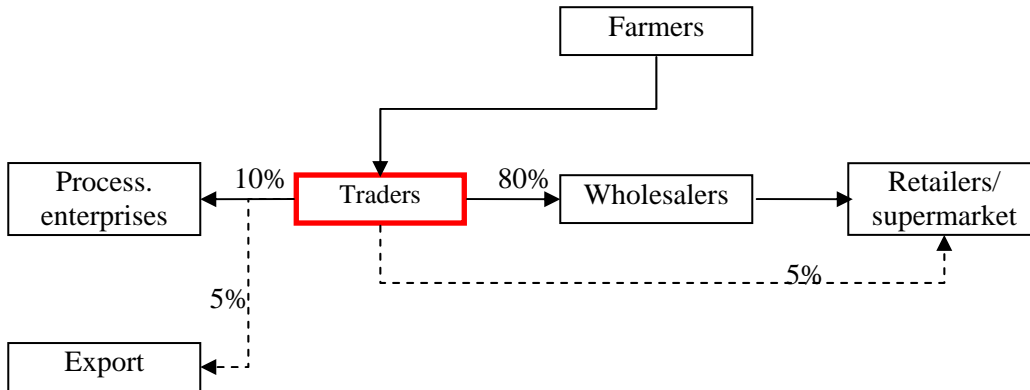
<p>not stable for safe vegetables in Cần Thơ that make farmers not really interested in planting safe vegetables.</p> <ul style="list-style-type: none"> - Beside, <u>participation in Cooperatives</u> raises a contractual obligation, no plan for output of each tree category for each household shall lead to supply over demand and this worry farmers. - <u>Production process</u> is primitive, manual, farmers don't use much of equipment and don't operate machine to its full capacity (even the machine they rent) - There's no <u>storage</u> and means for <u>preserving</u> products, while those vegetables not sold in the same day shall be thrown away. - <u>Contract and payment</u>: easy to be violated due to verbal contract and forced prices by traders. - Lack of <u>capital investment</u>, loan procedure is still difficult. 	<p>agriculture with knowledge, management and fast treatment of problems to support farmers in many ways – For farmers, it's necessary to open training courses about warranty of hygienic safety of foods for their consumers and the roles and profits of planting safe vegetables.</p> <ul style="list-style-type: none"> -> Mechanizing production, the department of Agriculture should help Cooperatives and individuals who follow the cultivation requirement by the Encouragement Center and Agriculture Department, to rent machines and necessary equipment. -> Preserving and storing vegetables is a dilemma, it could not be solved immediately. The Sub-Institute of post cropping should help with more <u>knowledge relating to processed products</u>, reducing significant loss due to late preservation process of vegetables and fruits (example: tomato/ salted cucumber, pickles etc...) and also help with proper method of preserving products in natural condition. -> Training courses for farmers to know how to do business on written contracts with obligation and responsibility of both parties in order to preclude breaking contracts. -> Help farmers to easily approach capital sources through banks, Cooperatives and credit funds..... Functioning agencies should help them to get loans (for a period of time of 5-10 years), consume products, provide safe tree species for farmers to stabilize outlets.
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Beside above supports, Metro should help with outlets for vegetables and fruits right at Cần Thơ (Metro Bình Phú, Cần Thơ). Certain vegetables and fruits of Cần Thơ could be transported to other outfits in HCMC and exported through Metro.

To proceed the establishment of trademark, Metro should contact suppliers to make labels (source of products), and help these labels to be exposed in the supermarket network of Metro. Last, governmental agencies should help farmers to get feedback information from consumers relating to subject products. (and products expected), and huge effects of safe vegetables on health of community, environment living wherein are the farmers and their families.

2. Traders.

Chart 5: Traders and direct relationship.



2.1 General characteristics.

Traders in Cần Thơ and other provinces have the same scope of work in small operation, simple, mainly purchasing from farmers and sell to wholesalers in the region or other provinces. The Cooperatives in Cần Thơ also play the roles of traders in purchasing safe vegetables from farmers. This is a model now being encouraged and favoured by all levels of authorities in Cần Thơ.

Traders in Cần Thơ usually buy vegetables and fruits from farmers, mainly in bulk. Purchasing times usually occur in the morning at about 6-7h for timely transportation to other provinces (majority). A small amount shall be sold to small dealers in the region or exported through small channels to Campuchia, Laos and China.

Business capital requirement for traders is from 1- 4 million dong/ day. In favourable season, medium trader could handle a consumption of 1 ton/ day for fruits and about 500-700kg/ day for vegetables.

In general, traders in Cần Thơ work by themselves with support from family members, if need be, they shall hire 1-2 persons according to seasons. Infrastructure is still primitive. Some traders live on boats where also are the places they do business and early process of products. Very few traders have got enough condition and performed properly the process of post harvest in order to guarantee the quality of safe vegetables and fruits.

2.2. Vegetables and fruits process after harvest.

As mentioned in the section of farmers, most traders come to farmers' to buy products. Therefore, they also participate in the work of cutting, trimming, classifying, packing, labeling and hauling as below:

2.2.1. Early process and classification (picture 8, appdx 3)

a. Traders do the harvest.

After purchasing vegetables from farmers, traders have to redo early process. They almost don't have private area to do this, they have to do it at home or at the business transaction areas (usually on boats).

- For fruits, early process is more simple than vegetables, just get rid of bad fruits and trim leaves. Loss ratio is about 2-3%, mostly fruits crushed.

- For edible leaves vegetables, this is to leave out old and bad leaves, or trim for equal length. And for edible *roots/ fruits* vegetables, (cucumber, tomato, amaranth, onion and tomato), traders have to leave out bad roots and fruits then classify them to sizes and weights (as required by customers). Loss after early process is about 5-10%. But species and salads have highest loss ratio 10%

b. Traders to haul products to traders.

Most vegetables and fruits have been classified by farmers (per quality) in the process of harvesting (see farmers section).

c. Classification basis (pictures 8, appdx 3; picture 7 appdx 4)

Traders do the classification on basis of fruit weights (pomelos), or sizes (big/ small, like oranges), or quality (mangos...) in order to determine prices. Buyers (wholesalers) usually request traders to reclassify the products after they have got them from farmers, and prices shall be increased about 10% consequently.

Vegetables and fruits of all kinds in Cần Thơ are abundant. But in floating seasons from September to November the quantity of products reduces. From January to July, the quantity of products is most stable. (source – traders interview in Cần Thơ conducted by Axis.)

2.2.2 Packing, labeling, certification (picture 10, appdx 3)

a. Packing.

Just like early process, it depends on business form (in bulk or in kg) that the packing process shall be done by farmers or traders. Even in bulk deal farmers also participate in the packing (about 20% of products).*

Generally fruits shall be put in big baskets (picture 9, appdx 4), an average of about 60- 70kg/ basket/ category. In addition fruits have also been held in big plastic bag (few), and piled on boats (many) (picture 7, appdx 4)

Vegetables have also been kept in big baskets or metal bags (pictures 10, 11, appdx 4), in bundles piled on one another to prevent damage. Like fruits, roots have also been piled on boats for delivery (pictures 16, 17, appdx 3).

b. Label.

Traders don't have labels for their products (vegetables and fruits), mainly due to habits and partially there's no requirement from buyers (wholesale/retail). There's a reality that most fruit trees that have been planting in Cần Thơ come from the sources of nearby provinces like mangos Hòa Lộc (Tiền Giang), Pomelos Năm Roi (Vĩnh Long), King oranges (Bến Tre). **In the near future, the establishment of trademark for vegetables and fruits of Cần Thơ badly needs support from enterprises and cooperatives (Example: when selling vegetables to Metro Cần Thơ, the cooperatives of districts or villages should ask Metro to label these products as clean vegetables of Bình Thủy, or Phong Điền etc..., to create a new look of professionalism in building trademark in the long run.)**

* This is free of charge (Source: indepth interview by Axis 2005)

2.2.3 Storage, preservation (pictures 11,12 appdx 3)

Vegetable is nearly sold in the same day or in the next morning. So they are not subject to storage or preservation (or display them on the ground or on boat in open air until the next morning, either sell or get rid of them.).

Fruit could be kept longer for many reasons (either not consumed or not ripe enough) they shall be kept in big baskets with fresh banana leaves underneath to prevent damage (bananas), while other fruits with segments (oranges, mandarins) shall be piled in open air (with leaves cover on top), or in boat compartments (other kinds).

2.2.3 Transportation (pictures 16-18, appdx 3, 11-13 appdx 4)

When traders come to farmers and transport products to wholesalers and retailers, they use boats of their own (this is a special feature in the provinces of the Mekong delta).

Traders also transport products by using pickup truck, motor-bicycle, that depends on destination as required by wholesalers.

Transport by boats influences the business transaction of traders because it takes times and also risks may happen when there's big flood, some traders may have to hire means of transportation that they have to pay additional fees (fuel).

2.3 Consumption and contract.

(see traders in Vĩnh Long)

2.4 Income.

The consumption of vegetables and fruits of traders changes everyday. It depends on the quantity ordered by wholesalers and retailers. The difference of buy price and sale prices is about 25%-30%. (example: buy price is 2000đ/kg – saleprice is 2500đ/kg for long green cabbage; buyprice of water morning glory is 2000đ/kg – sale price is 3000đ/kg).

Average income of vegetables sellers is 5 -10% out of daily business turnover 1-2 million. For fruits sellers, the income is higher (about10-20%).

Compared to the years of 2003 and 2004, the demand for vegetables and fruits increased and according to evaluation of traders in Cần Thơ, the income of 2005 increased about 10-20%, even 50% (according to the business scope of traders and products involved (source: indepth interview by Axis 2005).

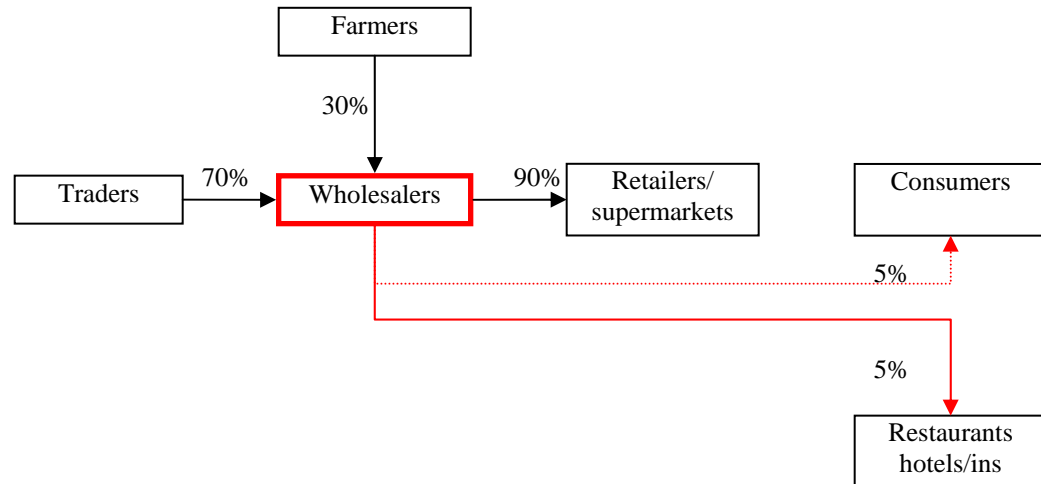
2.5 Problems and support.

As farmers, traders also have the same problems such as preservation and transport of vegetables and fruits, no legal contracts, no capital support and no market information. Beside, traders also have problems with output and quality of products from farmers. In this section we talk about problems relating to vegetables. (see more on pomelos of Vĩnh Long (part 1, pages 20,21) about problems of fruits of traders.).

Problem	Support
<p><u>Early process and preservation:</u> Traders of Cần Thơ don't have <u>private places for early process</u>, they do it at business places (in garden, on boats, on the ground...). So the early process and preservation of vegetables after harvest is simple, mainly on their experience.</p>	<p>- Metro could help <u>to build central points of early process</u> and train this process techniques, store and preserve vegetables according to quality required by Metro, reduce loss for products.</p>
<p><u>Transportation</u></p> <ul style="list-style-type: none"> - Due to special feature of waterways, traders of Cần Thơ do the transportation by boats, junks etc..., so they could not avoid <u>the affects of weather</u> in rainy and floody seasons and risks from old boats (old engines, out of order...) - Road transport costs higher because truck rental fees are rather high compared to other means of transportation. - In addition, the awkward arrangement of vegetables also causes big loss when it arrive HCMC or other provinces. - Capital to buy new means of transport or to repair of boats is also a problem of traders. 	<ul style="list-style-type: none"> - Metro should train how to make <u>scientific arrangement</u> for each product on each means of transportation . - And the <u>support of capital</u> to renew means of transportation for traders should be considered by GTZ and the Department of Agriculture and associations.
<p><u>Consumption</u></p> <ul style="list-style-type: none"> - <u>price</u> not stable, sometimes wholesalers from other regions force the prices, also traders do the same to farmers. - Short of <u>market information</u> and no exchange of information with customers. 	<ul style="list-style-type: none"> - It's necessary to establish a liaison between associations of traders, farmers, and wholesalers..., in order to hold market prices for more stable -> obligation to enter associations (with member card) shall reduce spontanous changing of market prices for the benefits of partners in the value chain and for traders in particular. - If the coordination of associations is set and well administered, things shall become easier with the establishment of information center or technical training courses etc...
<p><u>Contract & payment</u></p>	<p>Similar to the section of farmers (see paage 16)</p>

3. Wholesalers.

Chart 6: Wholesalers and direct relationship.



3.1 General characteristics.

Similar to traders, *wholesalers* purchase and sell vegetables planted in Cần Thơ. In addition to purchasing from traders (about 80%), the wholesalers here also buy directly from farmers in the district of Cái Răng (about 20%). (source: Indepth interview by Axis).

Average quantity purchased by a wholesaler is about 100kg -300kg/ day (most are long sweet cabbage).

Capital for doing business of a wholesaler is about 3- 4 million dong/day. Generally, beside the wholesaler himself there shall be 1-2 laborers working full time (family members)

Customers of wholesalers are retailers in the region (70%). In addition, there's a distribution network of safe vegetables of Cần Thơ, through cooperatives a large quantity of safe vegetables have been distributed to regional supermarkets like Coopmart Cần Thơ, Citimart, Metro... Metro is a modern wholesaler, part of its activity is like a vegetable and fruit company, the rest is operated like a supermarket. (See 'wholesalers' section in the report of value chain of safe vegetables in the city of Hồ Chí Minh, Axis Research, 12/2005). The rest of the products farmers sell to hotels, restaurants (about 5%) and directly to consumers (about 5%).

Similar to wholesalers of vegetables, *the wholesalers of fruits of Cần Thơ* purchase fruits mainly from traders (70%) and farmers (30%). The business capital of a wholesaler of fruits is about 5-7 million dong/ day. Beside the wholesaler himself there shall be 3-5 assistants to work full time.

The average quantity purchased by a wholesaler varies in respect of the kinds of fruits such as oranges, longan, mangoes, guava etc..., they usually buy in kg (from 200kg -300kg/ deal). Some fruits purchased in the ten or dozen (14 fruits), like pomelos about 280 fruits/ ton.

Customers of wholesalers of fruits are not only the retailers who live in the region but also come from other provinces (70%), among them are the network of supermarkets: Coopmart, Citimart, Metro..., and consumers.

3.2 Early process.

When buying vegetables from traders and farmers, the wholesalers must do the early process for some kinds of vegetables that are easy to be crushed like salad, spices etc...

Wholesalers usually do the early process at their shops (market, supermarket)*. Loss ratio is about 3%-5% even higher at supermarkets. This early process is also simple like Wash -> Trim away rotten or crushed leaves -> cut some more roots -> tie them up -> arrange in categories.

When selling to wholesalers, traders or farmers have already arranged vegetables into categories, mainly into bad/ good vegetables. Bad vegetables are those slightly damaged or crushed, shall be sold away in kg with 50% prices of normal ones. (example: good salad is 6,000 đồng/kg while bad one only 3,000 đồng/kg).

For fruits, no need early process, just arrange them into categories for pricing, same as with vegetables, it depends on fruits that shall be arranged into bad or good ones or into sizes...for customers who are retailers or consumers, wholesalers shall redo the arrangement for quality as requested by customers.

3.3 Packing, labeling, storing and preserving.

As most wholesalers haul products to retailers (except supermarket) they just only have to load them as required by customers: put into big baskets, cartons, plastic bags (pictures 7,8 appdx 4)**.

Until now, vegetables and fruits sold to wholesalers, retailers or consumers have not yet been labeled with trademark or quality certification, as those products bought from traders and farmers have also no label or trademark => **as mentioned above, this is a weak point for circulation of vegetables, roots and fruits in the territory of Cần Thơ and for these products of Cần Thơ as well, specially for export.**

The method of preserving and storing vegetables and fruits of wholesalers looks almost the same as of traders, just one thing is wholesalers store products at their house and not on boats.

3.4 Transportation and loss.

Retailers usually come to wholesalers to buy products. The wholesalers put products into big baskets or cartons an amount of about 40-50kg (for retailers), retailers then haul the products to their shops by 3-wheel cart, hand-push cart, trailer-bicycle, motorcycle. With big quantity of products (for supermarkets, big retailers), the wholesalers transport products by trucks, motorcycle, (Coopmart, Metro.)

Loss in transportation of fruits is not much. Just vegetables easier damaged suffer a loss about 5-10%, while fruits about less than 5%

3.5 Method of payment and contract.

For suppliers (traders, farmers) wholesalers usually make verbal agreement on how payment should be made (based on prestige and acquaintance). As a regular customer, overlapping payment could be made (just pay for the previous purchase) or payment within several days, strange customers shall pay at once.

*Because farmers did not wash earth (just shake), so the wholesalers have to wash them again and trim off bad leaves. Some of the roots have to be cut again. Sometimes, wholesalers sell and do the early process at the same time (source: indepth interview by Axis)

** Packing of products shall be done by farmers and traders, in big baskets of 50 – 80 kg (picture 8, appdx 4). So wholesalers don't have to pack them again, except when requested by retailers (source: indepth interview by -Axis)

As for retailers, payment occurs rapidly, in cash at delivery of products, with a small quantity about 50-60 kg vegetables/ person. .

3.6 Income.

Income depends on business scale of wholesalers.

According indepth research, average income of a wholesaler is about 7-10 %.

(example: buy price of cabbage from traders is 5,000 -6,000 VND /kg, sale price to retailers is 5,500 - 7,000 VND/kg plus transport and loading fees about 200 -300 VND/kg., income of wholesaler is about 300 – 700 VND/kg).

Income details of certain vegetables and fruits in Cần Thơ follow::

Table 6: Income of some vegetables and fruits in Cần Thơ:

Product	Average qty sold/ day	Buyprice VND/kg	Saleprice VND/kg	Difference VND/kg	Fees VND/kg	Income VND/kg
Green cabbage	250kg	1,800	2,500	700	300	400
Sweet cabbage	300kg	1,800	2,500	700	300	400
Salad	150kg	4,000	5,000	1,000	300	700
Water morning glory	80kg	1,800	2,500	700	300	400
Chinese cabbage	150kg	3,000	3,500	500	300	200
Spices	60kg	3,000	4,000	1,000	300	700
Coriander	30kg	5,00	1,000	500	300	200
Mango	250kg	8,000	9,500	1,500	200	1,300
Longan	250kg	2,500	3,500	1,000	200	800
Rambutan	500kg	2,000	4,300	2,300	200	2,100
Pomelo	280kg	8,000	10,000	2,000	200	1,800
Apple	200kg	2,500	3,500	1,000	200	800

(source: indepth interview by -Axis, 2005)

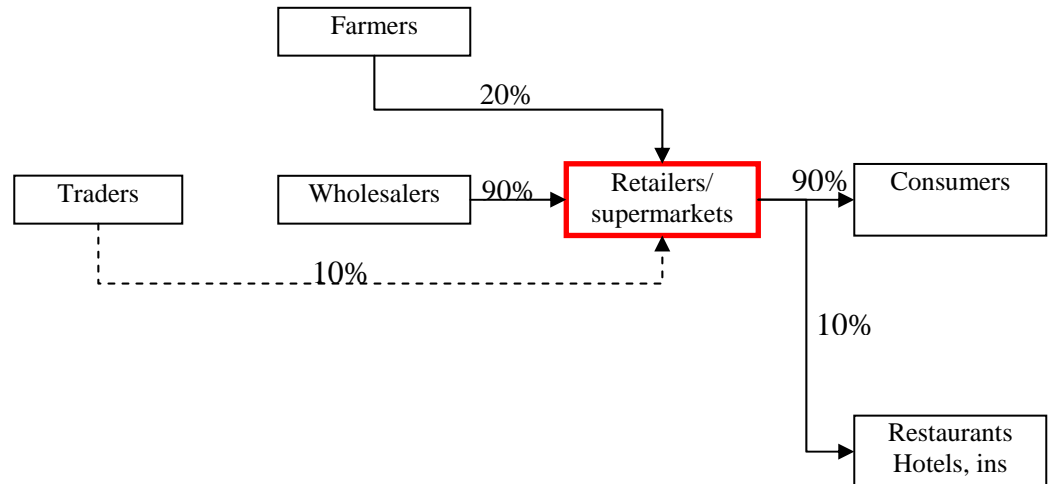
Compared to 2 previous years, income of a wholesaler increased 10%-20% due to the demand for vegetables, roots and fruits increased. (source: indepth interview by -Axis 2005)

3.7 General problems and supports.

Similar to problems in traders section, specially on packing, preserving, contract and capital (see pages 19,20).

4 Retailers.

Chart 7: Retailers and direct relationship.



4.1 General characteristics.

Retailers of vegetables and fruits in Cần Thơ generally do their business in the market of Cần Thơ. They do their business around the year, buy products from wholesalers (70%), and from farmers and traders in the region (30%). Some people do the farming and sell their products by themselves (farmers), but not many. In addition, the supermarkets in the city are also modern retailers (Coopmart, Citimart..)

The retailers around the year in market of Cần Thơ have small scales of operation, they run the business by themselves or with the assistance of 1-2 persons of their family. They sell various kinds of vegetables and fruits, so they have to buy products from different wholesalers, farmers and traders for diverse categories of products. They come to wholesalers to buy products and do the transportation by themselves. Average buy of each product category of retailers is about 50 - 60kg/ day.

The retailers as supermarkets: Supermarkets usually get products from wholesalers/dealers, Cooperatives and farmers. Supermarkets contact sellers in advance for quantity of products (by phone calls), then come for the products (farmers' houses) or sellers (wholesalers/deales) deliver the products to supermarkets. Total operation capital of supermarkets (big/small) in Cần Thơ for egetables: about 1.5 million dong/ day, and fruits: 3 million đồng/day. (source: indepth interview by - Axis)

4.2 Preliminary treatment

Retailers at market/ small shop.

For vegetables, they have to re-do preliminary treatment and suffer a loss from 3%-10%, most of the loss comes from insufficient weight (such as salad: one bundle is 2kg but weighs only 1.9kg). With fruits, additional early process is not necessary after the products bought from wholesalers', because retailers have already selected the products at the wholesale stalls. (the early process shall be done as required for certain products, as for longan: leave out young fruits or damaged ones etc...). Loss is not much (less than 3%).

Supermarkets: supermarkets in Cần Thơ have their own places for preliminary treatment, that's their warehouses. As vegetables coming from farmers have not been clean, method of placing and preserving products is not proper and hauling is not so good that vegetables shall easily be crushed, so it takes times to do the early process.

For fruits, there's almost no need for preliminary treatment, just clean and pack (for fresh sale) or rapid cutting process (peeling, separating segments) for pomelos, jack-fruits, ivy fruits etc.

4.3 Packing, labeling and certification.

Retailers in markets/ shops: retailers don't have to do the packing of products, just weigh and put product into plastic bags for customers.

Supermarket: products in supermarkets shall be packed into weights (kg) or on display for customers to choose.

The majority of fruits and vegetables of retailers at markets or supermarkets did not have labels or trademark because they said they just resell products for profits. Labels and trademarks belong to the responsibility of original suppliers (source: indepth interview by Axis). Those safe vegetables being displayed for sale in supermarkets have been planted by chosen farmers according standard dictated by supermarkets. Some of these safe vegetables sold to supermarkets (Coop-mart, Metro Cần Thơ) have been certified by the Office of Health Provision for their insecticide remnant within approved degrees, anyway, labels still belong to the supermarkets.

4.4 Storage and preservation.

As the characteristics of vegetables is withered so that retailers don't store products: they buy and sell in the same day. .

Some small retailers sometimes could not sell all their products in the same day, they have to keep them overnight, these vegetables shall then be placed vertically against the wall. Vegetables left overnight shall easily get withered and trimming process is required in the next morning. Loss in this case may be over 20-30%.

In supermarkets, only fruits enjoy better preservation because they sell late. In order to keep them fresh some methods could be applied, such as mandarins could be placed in fresh compartment of a fridge, to prevent pomelos from being withered, put them into big baskets and cover them with newspapers, time of storage could last from 1-5 days. For vegetables, if they could not sell all in the same day, these vegetables should be kept fresh for another day, or shall be thrown away (Metro) if they loose quality (about 30%). Some people process or cook them up for the benefits of their personnel. (source: Indepth interview by -Axis)

4.5 Transportation and loss.

For retailers at markets/ shops, if they buy from wholesalers they'll take care of transportation, their means of transportation is by junks, motorcycles, trucks... as required by quantity of products.

When buying products from farmers, supermarkets must haul them by trucks; If from wholesalers or dealers who shall deliver products to supermarkets by trucks. Sometimes supermarkets return products to sellers because these products don't meet quality standard, or the quantity of products delivered is in excess of order, mixed or bad outlook etc. (source: indepth interview by -Axis)

When selling to restaurants and hotels, it depends on their requirement that supermarkets have to do the delivery of products. Supermarkets usually use motorcycles or trucks for delivery. Customers usually make a phone call to place order of products and time of delivery. Products (vegetables and fruits) shall be placed in plastic bags and put into metal box with lock of supermarket, so there shall be no loss.

4.6 Consumption and contract.

Retailers at market or shop: *verbal agreement still prevails.* Delivery and payment occur at the place of business transaction. Except some instances of business acquaintance, retailers could not pay at once, wholesalers then let them settle by overlapping payment.

For customers as consumers, payment shall be made on the spot.

Supermarket: when doing business with farmers, traders, dealers/wholesalers, it depends on the quantity of products that determines the method of payment. With farmers, the quantity of products is not much, supermarket shall pay at once. (Coopmart Cần Thơ), or with traders/wholesalers, supermarket can pay overlapping or within half of a month (Metro, Maximart Cần Thơ).

Consumers are main customers of supermarket. In addition, the group of Horeca (Hotels, restaurants, café) also places order of vegetables and fruits from supermarket, about 10 -30% of products (like Golf Hotel and restaurant 38 Hòa Bình of Coopmart).

When doing business with restaurants and hotels, supermarket Coopmart usually signs contract with provisions on current prices applicable, product quality, times of delivery, quantity etc....while Citimart, with quantity of products not much, just makes a phone call to place order (verbal agreement) on quantity, prices, delivery times and official invoices.

4.7 Income.

Income of a retailer of certain vegetables and fruits in Cần Thơ.

Table 6: Price, fee and income of some vegetables and fruits in supermarket of Cần Thơ

Product	Average qty sold in kg/day	Buy price VND/kg	Sale price VND/kg	Difference VND/kg
Green cabbage	15	2,500	3,500	1,000
Sweet cabbage	15	2,500	3,500	1,000
Amaranth	15	2,500	3,500	1,000
Water morning glory	30	2,500	3,500	1,000
(Mồng tơi) Malabar nigheshade	15	2,500	3,500	1,000
Spices	17	4,000	5,000	1,000
Salad	5	3,000	4,000	1,000
Orange	40	8,000	10,000	2,000
Mango	30	18,000	24,000	6,000
Green dragon	15	8,000	10,000	2,000
Surian	30	22,000	26,500	4,500

Difference of buy and sale prices vegetables of retailers is about 500-3000 đồng/kg, the difference for supermarkets is 1000 - 6000 đồng/kg of vegetables (source: Axis – in-depth interview)

at markets and supermarkets in Cần Thơ). However, supermarkets have to pay other kinds of fees (air cond. Storage and laborers).

4.8 Problems and support.

Problems of retailers could be divided into 3 kinds as follows:

1. Objective, from suppliers.
2. Objective, from consumers.
3. Subjective, from retailers themselves.

Among 3 groups of problems, the subjective one is from sellers who just want to sell as many products as possible for better benefits, this is a one-way marketing concept (sell what they have), no comments and feedback information toward suppliers. In addition, about safe and normal vegetables, they could not introduce the sources where vegetables come from and this is a problem that influences directly their income.

About consumers, as they are free to do selection of products and that's what makes vegetables or fruits easily crushed, or they leave out the outside leaves as they want and that also causes loss to sellers.

About suppliers, their problems are biggest (unavoidable), most difficult to change is Quality of products: quality from sellers is usually not stable, it's crushed, damaged and not clean, that takes much time to do early process => increasing loss (specially at supermarkets). It's because of this reason that the sale prices of retailers raise (or not stable), consumers have to suffer loss.

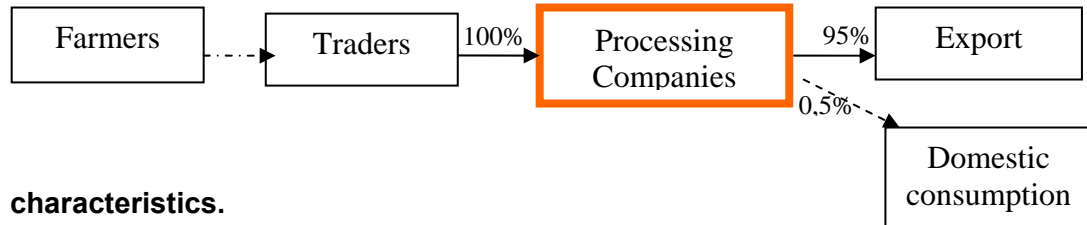
Beside above problems, lack of market information is a permanent problem, not only for retailers but also for other partners in the value chain and this is necessary to overcome soon (see more on section of Farmers, Traders...)

Some proposals to overcome.

1. Retailers should be updated with market information, they should know how to feedback information from consumers to functioning agencies and suppliers.
2. Information about the source of safe vegetables, about trademarks and fast reception of products are very useful for retailers as they can be proud of and explain the benefits and prestige of quality products that they sell.
3. Support that requires for retailers (retailers at markets, shops, personnel of supermarkets etc...) composes of knowledge of foods safety, sale techniques, products preservation, selection of standard of quality products and the way to get market information.
4. Encouragement: (under various forms such as gifts, congratulation certificates or free charges for certain short training courses etc...) to stimulate retailers to contribute their efforts into the value chain of vegetables.

5. Products processors – Exporters. (picture 25, appdx 11)

Chart 8: Products processors – exporters and direct relationship.



5.1 General characteristics.

Now in Cần Thơ the vegetables and fruits processed products are for export (90%), only 10% of them are for domestic consumption, in the region and in other provinces and cities like HCMC. The export turnover of vegetables and fruits controls only 0.5% of total export quantity of Cần Thơ (chart 1, page 3).

There are about 10 enterprises processing agricultural products for export, mainly canned vegetables and fruits, famous are Farm Sông Hậu, Foods processing company Meko, Agricultural Technical Equipment and Material Company, Mekong Fruits Garden company, Private Enterprise Trần Minh, Hưng Phát, Southern Stock share foods processing company etc. (see listing of agricultural processing companies of Cần Thơ- appdx 5).

Among vegetables, mushrooms have been most processed for export. Mushrooms have been exported under two forms that are canned (90%) and salted (10%). Usually about 100 kg raw material of mushrooms could turn out 50 kg of processed products. Example: Private Enterprise Trần Minh, exporter of mushrooms, each year use about 6,000 tons of raw material of mushrooms but get only about 3,000 tons of processed products (Source: Indepth interview by - Axis 2005).

The products of canned and salted mushrooms have been mainly exported to markets like Taiwan, Hồng Kông, Japan, Italia and Spanish.

For processed fruits now in Cần Thơ, there are some enterprises that produce canned fruits and freezing for consumption in the country and for export like Farm Sông Hậu, Mekong fruits garden company, Foods processing company MeKo. The fruits processed for export of Cần Thơ are mainly pineapples, rambutans, oranges, lemons...under form of cans (80%) or freezing. Some enterprises have applied rather modern manufacturing chains, they are Farm Sông Hậu, Mekong fruits garden company..., they export through official channels and small ones to Taiwan, Italia, Singapore, Spanish and some other countries in Europe.

5.2 Raw material and processed products.

Mushroom raw materials and other fruits come from various sources, from regional farmers and nearby provinces like Sóc Trăng, Tiền Giang, An Giang, Hậu Giang, Kiên Giang, Đồng Tháp etc..., through traders in the region.

Now there have not been a statistics report of processed vegetable products and fruits for export, but as mentioned in the export value of vegetables and fruits of Cần Thơ (page 3) until 7/2005 the product processed enterprises of Cần Thơ consumed 4,500 tons of canned vegetables and fruits, among them 4 enterprises had exported 2,000 tons of vegetables and fruits, obtaining 1,7 million USD.

5.3 Product quality and certification.

Most processed and salted mushroom products, when exported, have not been certified of quality because they all are raw materials. Some product processed companies labeled their canned

mushroom products for local consumption. But other companies sell their processed products abroad under the label of imported companies (source: indepth interview by –Axis)

5.4 Transportation and loss.

Transport from garden to processing company::

- Traders buy products from farmers and transport them to processing outfits by junks or boats...For Mushrooms, traders hold them in big cans (20 litres) with salt water to keep them fresh longer (source19, appdx 3). For fruits, depending on which kinds that they hold in big baskets or in plastic bags and load on junks and boats. Loss in transportation is about 10-15% for fruits (crushed, damaged...) and about 15-20% for mushrooms. (Source: indepth interview by –Axis)

Transport of processed products from companies to imported countries:

Products are usually transported on waterways, ships (container) and also airplanes. Each trip takes about 10 days for neighboring countries, or longer (Europe). (source: interview with Private enterprise Trần Minh by Axis)

5.5. Contract.

The method of payment for farmers shall be made through traders on verbal contract, the valid agreement is based on acquaintance and prestige (for reference: farmers contract).

With foreign companies there should be written contracts. Payment shall be made within 30-60 days after delivery as mentioned in contract. (source: indepth interview by -Axis)

5.5 Problems and support.

For product processing companies, some problems stay at the quality of products that farmers could not meet (sometimes even the quantity of products that attains quality). However, bigger problem is at the companies themselves: they should have degrees of knowledge and understanding regarding the imported countries, their legal provisions and customs, negotiation of contracts that should not be a disadvantage for their companies (see more of this part in the reports of vegetables and fruits of Đà Lạt, HCMC, green dragon (Bình Thuận) and grapes (Ninh thuận) reported by Axis for the Ministry of Commerce, GTZ and Metro 2005.

6. Consumers

Compared to other provinces, the vegetables and fruits of Cần Thơ are abundant*. For safe vegetables, there are not many permanent consumers of safe vegetables and those products mostly exist in the supermarket network opened in Cần Thơ lately. (Coopmart 2003, Metro & Citimart 2004).

Since the city of Cần Thơ has had supermarkets, many people feel more confident when they buy and use vegetables. We can say that supermarkets have opened a consumption channel for safe vegetables although the price at supermarkets is higher than in markets. However, the number of people who habitually buy vegetables at supermarkets here is not as high as in other cities. Markets are the biggest channel for consumption of vegetables due to long traditional habit of people, because normal markets are near their houses and convenient, easy to choose and bargain. (source: retail study in Cần Thơ, Axis 2004)

**About vegetables, this is an area of rivers and canals, beside normal vegetables there also many other kinds such as water morning glory, cordon sprout (bông điên điển), bitter vegetables, neptunia etc..., for making specialty dishes of local people: soup on stove (lầu), sour soup..., Cần Thơ is also a stall of fruits of the Mekong delta, gathering various special fruits from neighboring provinces. (nguồn)*

Market Cần Thơ is the place most frequented by consumers. Beside traditional markets, the floating markets (Cái Răng, Phong Điền..) have contributed to diversification of markets and made a particular face for Cần Thơ, active and impressive.

Most consumers of vegetables and fruits of Cần Thơ are local residents. But Cần Thơ is a city where many people come for a work tour or as tourists. With many famous stalls of fruits as Phụng Hiệp district of Cái Răng, floating market Phong Điền, tourism fruits garden Mỹ Khánh ...so many local and foreign tourists come to Cần Thơ buy and enjoy fruits here.

Consumers of vegetables and fruits in Cần Thơ almost disregard the sources or trademarks of products, (specially fresh vegetables). They only care for the category of vegetables, fruits like mangos Hòa Lộc, pomelos Da xanh, Năm roi, or berries Hạ Châu, oranges and mandarins of Phong Điền...and the outside looks and not producers (source: retail study in the city of Cần Thơ, Axis 2004)

For vegetables as well as fruits, the factors that determine the selection of products of buyers, beside the sellers themselves (joyfull, friendly), are the products for sale (quality, goodlooking, fresh and reasonable prices). (source: retail study in Cần Thơ, Axis 2004)

Problems of consumers and support.

As other partners of the value chain, consumers also have their problems as they play a very important role: as end-user of products the consumer shall have comments on the quality of products as it affects his family health and himself.

Main problems of consumers are lack of information and feedback. First, they lack information on quality of products in markets (local/ imported). *The safety degree of preservative substances, effect of insecticide remnant (for how long) on health of human being and concerning difficult disease and on environment.*

Second, they lack information on *determination of product quality* (by normal sight, or simple and confident method) and address of reliable units/supply shops.

In addition, recently information feedback has been concerned as there's a complaint center (VINASTAF belongs to the organization of international consumers protection); but Vietnamese consumers still don't have habit of complaining about products of vegetables and fruits as the value of products is not much, the affects not seen right the way like meat, fish, egg and milk etc..

In order to overcome these problems, there's an effective way that comes from the participation from mass media, specially the programs on TV. That's why we would like the TV to have a program for this subject, an occasion for consumers to talk to product suppliers, also to farmers who are the producers of different categories of vegetables and fruits in various regions. This is also a channel to publicize knowledge regarding vegetables, roots and fruits for all partners in the value chain (See more on conclusion and proposal section. Pages 35)

7. The role of organizations on the value chain of vegetables and fruits of Cần Thơ.

In Cần Thơ, there's been planning for certain areas like the districts of Bình Thủy, Cái Răng and Phong Điền to switch and diversify plants cultivation, from planting paddy to vegetables and fruits in coordination with ecological tourism (source: indepth interview by Axis). But compared to fruits, support programs for vegetables are not many.

The People's Committee of the city has organized a place for demonstration of quality species and modern technologies. The Agriculture Department also has had programs for establishment of a specializing cultivation zone of 5000 ha for vegetables and fruits. It also proceeds building trademarks for Berries, Mangos, Oranges... in the city. These are good news. (source: indepth interview by Axis). However, the realization, time and results of these are still a big question. Because long time ago, we've just only solved the end of a problem (announcing the knowledge of cultivation to farmers, then heal the disease when it occurs), rather than from the root of it (the value chain with partners beside farmers and effective administration process). The breakthrough programs like GAP have not been developed synchronously or responded widely.

The Department of Scientific Industry, the Sub-Institute for Post Harvest and the University of Cần Thơ have had cooperation in the study and research of species supply, training for farmers. Until the late 2005, it had conducted certain studies as 'Preservation of pre-crop of mangos Hòa Lộc' (at the Farm Sông Hậu 2000-2005); 'Study measure to keep freshness of pre-harvest of King oranges and Mandarins.

The Department of Science plans to cooperate with the Department of Agriculture to build an industrial zone for production of safe vegetables for the benefits of consumers.(Early 2006-2008) (source: indepth interview by Axis). However, this is still a 'plan' because in order to realize the program, it requires capital, financial sponsor, center for supervision and evaluation; these shall not be done day in day out and also capable staff to proceed on.

Particular the Department of Commerce that includes a number of important offices (such as Plan and Professionalism office, Commerce proceeding Center ...), beside facilitating consumption of products, it also has responsibility to organize fairs and expos for introducing products (annually) and to support enterprises with information and finance for proceeding export, building trademark ... But until now the building of trademark is still at random, most private enterprises take care of these by themselves. The Operation Support Funds for proceeding commerce of Cần Thơ is available annually, but effective use of this budget should be considered so that it could be easily approached by enterprises, Cooperatives and citizens.

IV. ANALYSIS OF WEAK AND STRONG POINTS, OPPORTUNITIES AND CHALLENGES FOR VEGETABLES AND FRUITS OF CẦN THƠ

In the analysis above, we have mentioned a summary of problems and support for each partner of the value chain. In this section we summarize some weak and strong points, opportunities and challenges including some difficulties we have said, along with common problems in the picture of the value chain of vegetables and fruits in Cần Thơ.

1. Strong and weak points.

Core problems	Strong points	Weak points
Species	<ul style="list-style-type: none"> - Institute Sofri, the University of Cần Thơ have studied many tree species suitable with soil and weather of each region, various and abundant tree species, even a capacity of changing colour of fruit skins...(source: Sofri) - Various insecticides to protect plants. 	<ul style="list-style-type: none"> - <u>Sense</u> of farmers not high when some of them still buy floating species outside. Another fact is that there's not enough good tree species to meet demand of farmers in respect of quantity and prices * - in market, there are many kinds of plants protection chemicals coming from different sources with lots of marketing services that is <u>uncontrollable</u>, causing difficulties for farmers in choosing what to buy, as they like to buy the cheap ones, disregarding damages for themselves and for consumers. - In the process of cultivation, some <u>tree diseases difficult to cure</u> also cause bad quality and not safe products.
Earth and weather	<ul style="list-style-type: none"> - The weather in Cần Thơ is moderate, not much of storm, warm around the year, stable with two seasons that is good condition to develop tropical fruit trees and safe vegetables. - the city planning policies of fruits and vegetables cultivation have created new development in the future. 	<ul style="list-style-type: none"> - The fast growth of <u>industrialization</u> programs in Cần Thơ in recent 3 years has somewhat influenced to land capital, land prices and farming environment. - The <u>planning</u> and development programs for fruits and vegetables are not many.

* According to the Institute of Southern fruit tree study, it could, along with the Southeast fruit tree study Center, provide about 350.000 tree species/ year. The species centers or the Farming Encouragement Center of the provinces of Tiền Giang, Đồng Tháp, Vĩnh Long, Cần Thơ... could each provide about 150.000 – 200.000 trees/year, source: <http://www.vietlinh.com.vn>

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Quality of products</p>	<p>It's a stall of high quality fruits that have been selected from neighboring provinces, for sale on floating markets of Cần Thơ (Phụng Hiệp, Phong Điền) and the central market of the city attracts many tourists, local and foreign.</p>	<ul style="list-style-type: none"> - the cultivation of vegetables and fruits is until now still at random, lack of centralization that is difficult to <u>administer and control</u> the quantity, output and quality as well. - Safe vegetables have <u>not been certified</u> of quality, a weak point for circulation into big supermarkets and for export. *. - Fruits now don't have <u>many trademarks</u> in market, except berries Dâu Hạ Châu (Phong Điền), Mangoes Hòa Lộc (Farm sông Hậu).
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Post harvest process</p>	<p>The model of cooperatives have been well organized with grouping of early processing points, transportation by trucks that help to reduce loss in the post harvest.</p>	<ul style="list-style-type: none"> - Except a number of big enterprises and supermarkets that have their own facilities for early process, storage and preservation, most partners in the value chain don't have basic facilities for <u>early processing, packing, preserving</u>, or if they do, these facilities shall not be big, not hygienic. Specially due to poor <u>processing technology</u> and techniques that lead to poor categories of products - Poor hauling and packing techniques still cause high loss through each stage. - Short of source of capable and experienced <u>staff</u> for management.
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Prices</p>	<ul style="list-style-type: none"> - For certain product lines for export, prices are high, more income and value for vegetables and fruits in general. - Payment for safe vegetables by supermarkets is higher than outside. 	<ul style="list-style-type: none"> - Exported vegetables and fruits have been influenced by raising fuel prices, transport fees higher consequently. That lead to cost price higher than that of the zone (fruits of Thailand, China...) - <u>Prices in local markets not stable</u>, specially in rainy and floody seasons when traders are those who confuse the markets. - The cooperatives of safe vegetables has not operated effectively, no guarantee of <u>outlet</u> for products, a number of safe vegetables have to be sold in market at <u>price</u> of normal vegetables, that's a loss for farmers.

* According to electronic report of Cần Thơ 9/2005

Relationship in the value chain	<ul style="list-style-type: none"> - The coordination of 4-model has been applied. This relationship is being build on legal basis with credit obligation, follow books (Coopratives, farmers), some already have written contracts. - The role of concerning agencies (the Department. Of Agriculture & Rural Development, Commerce Dept., Sofri, University of Cần Thơ ...) has been playing more actively than other province.* 	<ul style="list-style-type: none"> - The government still supports farmers through Farming Encouragement Center: technical training, financial support for building demonstration model...<u>Priority policies</u> stimulate other partners of the chain not much and not strong enough. - Lack of <u>cooperation</u> of partners in the chain, specially the role of <u>consumers</u>' – an important element to determine acceptable product quality – is still weak. - The functional agencies have not yet developed their effective operation, lack of a <u>synchronous management</u>. - Lack of participation of <u>press agencies</u> in promoting the use of safe vegetables and publicizing the products, building trademark and supporting with feedback information to partners of the chain. <p>(see more on problems and support above, value chain of safe vegetables of HCMC).</p>
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2. Opportunities and challenges.

	Opportunities	Challenges
Market demand	<ul style="list-style-type: none"> - Market demand for fruits is increasing in respect of quantity and quality of products, not only from abroad but also in local markets. - For Cần Thơ, due to the fact that it becomes a unique city of the Mekong delta and the presence of supermarket network in the city, plus the strength of tourism along with floating markets are big opportunities for fruit and vegetable market here. 	<ul style="list-style-type: none"> - As consumption demand of fruits is high in the country and abroad, there's also a requirement for improvement of farming productivity and high quality of vegetables and fruits.
Products/Competition	<ul style="list-style-type: none"> - The product of fruits in Cần Thơ is various and special in the Western region, they are easily transported from neighboring provinces. - The Institute of Sourthern tree study has come out with new species, that could change colours of fruit skin (green dragons, oranges, mandarins etc.) procures opportunities for new products in market. 	<ul style="list-style-type: none"> - According to AFTA, tax for fruits circulation among Asean countries is now only 0-5% that makes easy for fruits of Thailand and other countries to come into the market of Việt Nam. Cần Thơ as a stall of fruits in the Mekong delta shall go into hard competition with imported fruits, that causes influence to the benefits of local market and of farmers and partners in the chain.

*in 2005, The Department of Agriculture & Rural Development had organized 3 training courses applying IPM on segmental fruit trees for farmers. Each course had 30 to 40 trainees, instructors were members of plant proction of the Department of Agriculture & Rural Development of Cần Thơ, The Southern Center for plants protection, cadres of Agriculture Faculty (The University of Cần Thơ). The training courses also developed training in the fruits garden of farmers in the village of Long Tuyền (Bình Thủy), Thới An (Ô Môn), Nhơn Ái (Phong Điền),(nguồn: Trường ĐH Cần Thơ)

Export	<p>Cần Thơ is a city in the central of Mekong delta, it is a big stall of fruits of the country and shall increase the export of fresh and canned vegetables and fruits products (freezing, canned) with support of functioning agencies of the city, international organizations and local and foreign investors.</p>	<ul style="list-style-type: none"> - The export products are not <u>diverse</u> (only mushrooms and some kinds of fruits), it's necessary to have special certification from hard markets like Europe, America and Japan. - <u>Fees</u> for processing products is going high, mainly due to raising fuel price, the manufacturing chain don't operate to its full capacity that makes cost price increase. - Lack of <u>trademark</u> of products, so that export products have to go under labels of imported countries – it's a loss and challenge for vegetables and fruits of Cần Thơ and Việt Nam in general.
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V. Proposal:

In the above sections, we have had special proposals for each partners, below is a general proposal for the value chain of vegetables and fruits of Cần Thơ, in order to partly increase the effect of this value chain.

1. Organization

- The People's Committee of the city should have a policy to evaluate the planning of the cultivation land and maintain and multiply the models of cooperatives in Cần Thơ, coordinate Gap Sông Tiền, encourage and reward typical units by supporting the installation of net houses, agricultural equipment and machines etc.

- The establishment of central wholesale markets of vegetables and fruits is very good, but in order to maintain and make it a real big business center, it requires support from all levels of Trading Department in order to rent surface and encourage the participation from all business sectors. It's possible to build wholesale market Phong Điền on river and coordinate with tourism and commerce to make it a central wholesale market with a variety of products, this must be well organized and controlled.

- It is necessary to establish association of vegetables and fruits cooperatives, vegetables and fruits businessmen association or club of enterprises processing vegetables and fruits for export etc. .. in the Mekong delta. Cooperation and support from the Department of Agriculture is required in order to keep market prices stable and preclude influence of cheap prices of imported fruits.

- Metro Cash & Carry should play better role in Cần Thơ. Establishment of quality product purchasing system is necessary for farmers and cooperatives here; this will encourage and support the use of trademark and act upon the habit of labeling products and promoting trademark over the market.

- GTZ, Metro and international organization with support from the Ministry of Commerce, should work with VTV, HTV to run a regular program on foods safety for consumers, farmers and other partners in the chain to participate. The program should play like a gameshow (similar to communication safety program sponsored by Honda), with questions, challenges and guests relating to necessary problems, interesting and easy to understand.

-The activity of proceeding commerce through organizations, conferences and seminars is necessary to introduce the products of vegetables and fruits and processed products of Cần Thơ; this should be going on along with the building of trademark for certain products of vegetables and fruits of the city (example: the Farm Sông Hậu or some successful enterprises as models and set up programs for building 10-20 typical units as being done with ITPC in the city of HCM).

- Call for investment and set up programs for granting investment priority for vegetables and fruits processing companies in the territory of the city and it's vital for the Commerce Department and concerning agencies to participate more effectively.

- GTZ should coordinate with the People's Committee of the city, the Department of Agriculture, legal agencies, banks and concerning organizations to help with bank loans to be proceeded easily and fast and send legal specialists to talk and explain legal problems to help all partners in signing contracts.

2. Training:

- For farmers There should be programs following:

- Notify information about species, plants protection chemicals best for products and environment and information about prices.
- Train cultivation and planting techniques, early process, preservation, packing, transport in order to reduce damage.
- Upgrade knowledge, notify new market information, introduce source of information where one can get information about prices, tree species, equipment, machines, etc. (through internet and web)
- Encourage training programs for 'conversation with agencies and associations' when necessary (communication) it's necessary to participate cooperatives and relating obligations.
- Beside, farmers also have to know how their products evaluated by consumers, this will help them to have a sense and responsibility in their cultivation and production.

=> The role of agricultural administrative agencies is very important in the coordination with technical support from experts of Sofri, the University of Cần Thơ, coordinated with GTZ, Metro and other international organizations.

- ◆ Effort to get participation in the chain of vegetables and fruits of Cần Thơ from farmers, traders, cooperatives, wholesalers, retailers and consumers (Restaurants, hotels etc.)
 - A seminar to introduce the importance of coordination among values in the chain of vegetables and fruits, analyse the value of each chain and the role of each partner in the chain. Specially mentioning the benefits of products that attain quality relating to every single partner in the chain and the market trend for these products in the future, opportunities and challenges => *GTZ should coordinate with VCCI to organize free programs for all to participate.*
 - The basic courses for technology of post harvest is very necessary, specially for products and processing methods of vegetables and fruits (see more on vegetables of Đà Lạt) => it requires the participation of the Sub-Institute of post harvest, University of Cần Thơ, to *coordinate with specialists of Metro or of international organizations.*

- Training courses about signing contracts in writing, basic contents, (conditions and provisions, legal problems), solution of violation of contract, specially for export products => *this requires the participation of legal companies, banks with 'typical representatives' . GTZ could be a bridge or organizer, to coordinate with VCCI or WB to sponsor a part of these training courses.*
- Announce and supply source of confident information about new markets regarding products, prices, land rental, taxes and import etc., so that people could know the demand of local market and different export markets of vegetables and fruits (targets and market demand, habit and evaluation of users in regard to vegetables and fruits products of VN and other countries, elements that influence the use of products, vegetables import, market trend etc.)
=> *GTZ could coordinate with Viêtrade and some companies that have experience in this area in each market and with support from the chamber of commerce, embassies and international organizations (example: coordination of Metro & Eurocharm in the research of markets of Europe, Jetro – market of Japan, Amcharm market of America etc.)*

3. Support.

In addition to training and organization and establishment of an effective management system for the value chain of vegetables and fruits, we recognize certain supports that are also very necessary for the value chain of vegetables and fruits of Cần Thơ to attain higher result (reduce damage due transportation and harvest, etc.) as:

- Support capital for farmers and traders to invest in equipment (junks and boats, early crossing points, preservation and storage) improve planting process and post harvest => This support should center around a number of cooperatives that are on the way to involve in safe vegetables cultivation, as model and multiplication of models.
- Encourage agencies, organizations and companies to guarantee consumption of products for farmers (Coopmart, Metro, Citimart, export enterprises ...) to help them from the start to harvest and consumption.
- The Commerce Department supports additional information, partial finance to proceed export, and finance for fair activities, advertises products, build trademark...Beside, international organizations (including GTZ, Metro) should help to get certificates, export certification at lowest fees possible.
- - Support farmers to lend credit with long period of time (5-10 years) easily and rapidly and price protecting policy as necessary (floody season, crop failure..)

Appendix 1: List of respondents in Can Tho

No	FULL NAME	ROLE IN THE VALUE CHAIN	ADDRESS/ AGENCY
1	Phạm Văn Quỳnh	Deputy director Head of department	Rural & agricultural department Plant protection office
2	Hùynh Văn Diện	Drector	Ivestment promotion center
3	Dương Nghĩa Hiệp	Head of plan department	Commercial department
4	Nguyễn Văn Ngọc	Deputy manager	Science & technology department
5	Ms Ánh	Expert	Encouraging agricultural expansion center
6	Lê Thanh Phong	Deputy dean of agricultural deputy	Can tho university
7	Trịnh Đình Dự	Assistant for Deputy chairman	People committee
1	Đặng Thị Chậm		22/4 Hưng Thạnh ward- Cái Răng district
2	Võ Thanh Hiền	Trader	Phú Lợi , Tân Phú commune
3	Nguyễn Thị Hồng	Trader	5/5 Hưng Thạnh ward - Cái Răng district
4	Hùynh Thanh Điền	Trader	23/3 Tổ 3 Xã Hưng Thạnh
5	Diễm Kiều	Wholesaler	Tân An market
6	Đoàn Thu Liễu	Wholesaler	33/159 Nguyễn Thị Minh Khai street
7	Quách Lượm	Retailer	71 Hai Bà Trưng street
8	Trần Thị Thảo	Retailer	138 Hai Bà Trưng street
9	Phan Thị Kim Chi	Employee	Coopmart supermarket
10	Lê Văn Dũng	Employee	Citimart supermarket
11	Trần Văn Minh	Hau Giang's manager	Trần Minh export enterprise
1	Trương Văn Sua	Farmer	Bất Vàng, Thới Long ward
2	Nguyễn Văn Nô	Farmer	Bất Vàng, Thới Long ward
3	Nguyễn Công Khanh	Farmer	Bất Vàng, Thới Long ward
4	Ngô Văn Luân	Farmer	Long Hào ward
5	Trần Thanh Liêm	Farmer	14/10 Khu Vực 7, Bình Thủy ward
6	Triệu Công Đình	Farmer	Long Tuyển ward
7	Phạm Văn Thiện	Farmer	Long Hòa ward
8	Trần Văn Phương	Farmer	Hưng Thạnh ward
9	Nguyễn Hữu Đức	Farmer	Hưng Thạnh ward
10	Nguyễn Văn Be	Farmer	Hưng Thạnh ward
11	Nguyễn Thanh Xuân	Farmer	Nhơn Ái - Phong Điền
12	Trần Văn Lợi	Farmer	Nhơn Ái - Phong Điền
13	Đặng Văn Sáu	Farmer	Trường Long
14	Nguyễn Thị Hai	Farmer	Nhơn Ái commune
15	Nguyễn Hữu Phước	Farmer	Bình Thủy
16	Lâm Văn Nhơn	Farmer	An Thới - Bình Thủy
17	Dương Hoàng Hùng	Farmer	Long Tuyển ward- BìnhThủy
18	Trần Văn Sứ	Farmer	Tân Phú ward
19	Nguyễn Văn Phục	Farmer	Tân Phú ward

Appendix 2: Documents for reference

No	Article title	Report/Magazine./Website	Date
1	Cần Thơ statistical book	Statistical department	2004
2	Estimated area , output, productivity of daily crop plants in 2004, 2005	Statistical department	2004-2005
3	Report about export turn – over & foreign currency service in Can Tho, 12/ 2004.	Commercial department	12/2004
4	Report about vegetable area in each district.	Statistical department	5/8/2005
5	Agricultural product processing enterprises		
6	General view of Can Tho province	www.vccimekong.com	2005
7	Can Tho 's economy is more & more developing.	http://content.cantho.gov.vn	2005
8	Can Tho “enters in to” new time	http://www.vneconomy.com.vn	2006
9	Cần Thơ: tinned vegetable & fruit for export are highly increasing.	http://www.agroviet.gov.vn/	26/07/05
10	A lots of high economic models about safe vegetable cultivation.	Can Tho electronic newspaper	20/12/2004
11	Cần Thơ: There is only 13% of famers'household having the income of 50 millions dong per ha per year	http://www.agroviet.gov.vn/	03/01/06
12	Mr Pham Van Quynh, Deputy director of Cần Thơ rural & agricultural development : Widely applied IPM technology to plant safe, clean sectioned fruit. (part 1)	Electronic library/Can Tho university http://203.162.41.162	2005
13	Introduce about some places in Can Tho	http://www.vietcombankcantho.com	
14	General view of Can Tho province	http://www.fiditour.com	
15	Báo cáo kết quả triển khai chương trình sản xuất rau an Toàn Tp.Cần Thơ (2003-2004)	PGs.Ts Trần Văn Hai-Can Tho university Ths.Phạm Văn Quỳnh – Agricultural department	2005
16	Safe vegetable : Demand is increasing but production is difficult	Can Tho electronic newspaper	2005
17	Cần Thơ: Sông Hậu farm raise the value of Hòa Lộc sweet mango.	www.agroviet.gov.vn	2005
18	Survey about retailers in Cần Thơ city	Report for “Boom” project, Axis	2004

Appendix 3: Cần Thơ city – Vegetable growing process

<p>Growing processes</p>	<p>1. Setting up frame</p> 	<p>2. Taking care of vegetable</p> 	<p>3. Waterring</p> 
<p>Growing processes</p>	<p>4. Keeping track</p> 	<p>5. Harvesting</p> 	<p>6. Garden in net house</p> 
<p>Preliminary treatment & Classifying</p>	<p>7. At retail place</p> 	<p>8. At trader's place</p> 	<p>9. At supermarket</p> 
<p>Packing & storage</p>	<p>10. Packing by bamboo basket</p> 	<p>11. Storing vegetable at retail's place</p> 	<p>12. Storing in house</p> 
<p>Vận chuyển</p>	<p>16. By ship</p> 	<p>17. By boat</p> 	<p>18. By motobyke</p> 
<p>Các điểm buôn bán rau</p>	<p>19. Transport mushroom to processing place</p> 	<p>20. Retail store at wet market</p> 	<p>21. Seeling vegetable at Can Tho supermarket</p> 

Phụ lục 4:: Cần Thơ city – fruit growing process

<p>Growing fruit</p>	<p>1. Seeding</p> 	<p>2. Taking care</p> 	<p>3. Harvest</p> 
<p>Fruit garden in Can Tho</p>	<p>4. Pomelo garden</p> 	<p>5. Banana garden</p> 	<p>6. Orange garden</p> 
<p>Classifying & packing</p>	<p>7. Phân loại tại ghe</p> 	<p>8. Packed by carton</p> 	<p>9. Packed by bamboo basket</p> 
<p>Transportation</p>	<p>10. By ship</p> 	<p>11. By boat</p> 	<p>12. By trolley</p> 
	<p>13. Wholesale on boat</p> 	<p>14. Retail store in Can Tho</p> 	<p>15. Supermarket</p> 

Appendix 5: List of some mushroom processing enterprises & export value in Can Tho city (August, 2005)

	Output (Ton)	Value (USD)
- Agricultural product and processed agricultural products.		3,628,886
Among them: mushroom	2,511	2, 037,010
1/ Agricultural product export enterprise		6,639,300
- Processed agricultural product		4,830
Among them: mushroom	14	4,830
2/ Sông Hậu farm		1,577,523
Among them: mushroom	1,197	705,526
3/ Commercial Co-operative		546,908
Salted mushroom, other processed agricultural products	414	546,908
4/ Hưng Phát LTD	102	64,045
Salted mushroom	102	64,045
5/ Miền Tây processing jointstock company.		445,260
Agricultural product		445,260
Among them: Mushroom	301	325,980
6/ Meko processing company		990,320
Among them: Mushroom	483	389,721

Appendix 6: Typical processing agricultural products in Cần Thơ

1. Sông Hậu Farm:

Established in 1979, the Farm river Hậu is a business production unit with big potential of materials, high quality. Complex surface is 6.981 ha, over 10.000 workers.

A model of multi-farm and diverse products, active and effective and adjustable to economic market.

It now has become one of three agricultural production areas that have applied modern technologies over the country. Business production is various from breeding foods (chicken, duck, cow....), fishery and forestry products (processed wood) to fresh fruits products, canned and freezing.

About processing fruits, the Farm river Hậu (Cần Thơ) has just established a club of fruit production and service gathering 100 capable members of the farm. The club has supported with technical production, using post harvest technology to create mangos, big, goodlooking and fresh longer during the time of preservation. This is one of the advances of the farm in the process of upgrading productivity, the value of mangos Hòa Lộc, in an attempt to get trademark of "Xoài cát Hòa Lộc sông Hậu" serving export (source 17, appdx 1) .

According scientists from the University of Cần Thơ, here there is a "formula" of preservation for green dragons, pomelos Năm Roi, longans and king oranges. Green dragon could be preserved for 6 months, pomelos, longans and king oranges could be preserved for two months. With a period of time like this, according to Dr. Hà Thanh Toàn, Director of research Institute and Biology Development, the University of Cần Thơ it's possible to initiate time for export of vegetables. (source 17, appdx 1)

2. Private Enterprise Trần Minh:

An enterprise that exports mushrooms under two forms: canned (90%) and salted (10%). It uses annually about 6,000 tons of raw materials to give about 3,000 tons of processed products to export to Taiwan, Italia, Spanish and a number of countries in Europe, very few to be consumed locally. The sources of fresh mushrooms mainly come from farmer households in the nearby provinces such as Đồng Tháp, Sóc Trăng, through regional traders. There are not many in Cần Thơ because the quantity of fresh mushrooms is not much that has been retailed in local markets. The enterprise also do trading some canned fruits like pineapples, rambutans bought from Hậu Giang, Kiên Giang, but the quantity is not much, just for diversifying products. The products mostly have not been certified of quality because most of them are raw materials, fresh. And the mushrooms themselves when canned and exported without a label of itself, the label is of imported company. In the area of waterways, means of transportation is junks and boats, containers. The method of payment to farmers is through traders under verbal agreement. Business has been conducted through confidence and acquaintance. But with foreign company there shall be signing contract. From delivery to payment is: 30, 40 or 60 days according to agreement in contract. The annual business turnover of the enterprise is about 28-30 billion đồng.