Potential Market for Chestnut in Cao Bang

Final Report
(Draft)
September 2004

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Chapter 1  Introduction

1.1  Context of chestnuts production in Cao Bang

- Chestnut trees have been planted long time ago in Cao Bang province and they seem meet the climate and weather condition. Chestnut also create many benefit to the local people as well as environment benefit in that high far area.
- Cao Bang is one of the far, high mountainous provinces where the economics is underdeveloped, the production is natural and mostly focus on resolving the local food program, and this is why Cao Bang has not paid attention on developing the commodity trees. Thus, in the recent years, Cao Bang has been supported not only by the Vietnam government’s developing projects but also by international projects. The projects supported by international organization choose chestnut trees to resolve multi-target in the local provinces’ developing programs such as: cover treeless hills and mountains, create jobs for local people, improve local life. Most of the project focus on improve chestnut garden, expand the chestnut areas though program PAM, program 327,...

Moreover, some researches have pointed that:

- Supply for chestnut in Cao Bang has increased for the next some coming years due to the improvement in technology of taking care the chestnut garden. Moreover, many the chestnut gardens planted recent years start to give the first crop.
- Chestnut market is still small and local nature, meanwhile the producers have not yet family with producing the product to meet the market demand. They just sell a part of their product to the market beside part used for their family, thus the supply per each family is still small, the quality is not asymmetrical, product has no trade name and has not passed any processed.
- From the producer and local people’s point of view, although Cao Bang chestnut has good flavor, smell, color, easy to peel and has advantage in local market, but it is competed by china chestnut by its quality and price. One answer for this disadvantage competition is that, there is no way to differentiate the Chinese chestnut and the Cao Bang one.
- Previous researches mostly have focused on the “supply” aspect of the Cao Bang chestnut, but it is lack of information about the chestnut market demand in general and Cao Bang market demand in particular. It is very hard for the objects in consumption channel (producer, processor, consumer) to give short term plan and long term plan on producing, processing, and consuming to meet the domestic market demand and tend to export. Moreover, the plan would help to compete to international chestnut, especially Chinese one.

With the above reasons, researches have been carried out to meet the following objectives:
- Study the chestnut category (half processed, processed chestnut) in the domestic market.
- Analyze the opinions of the domestic chestnut entrepreneur and processor to predict the domestic chestnut demand and chestnut demand for exporting.
- Analyze the competition between Cao Bang chestnut and other chestnuts.
- Recommendation for expanding the domestic market and export.

Specific recommendations to build up an medium term action plan for Cao Bang chestnut.

1.2 Research methodology

To meet the proposed requirements, research has used some market evaluation methods like directly interview to stakeholders in the market, researchers, administrators, project officers and specialists. Research the field, using current products to introduce, to collect the comments, evaluations of the studied subjects. In additional, collecting the information through other secondary sources such as: reports from chestnut specialists, local administrators, domestic and international researches.

The subject for the semi-structure interview is designed in such a way to collect the information accurately, fully, and systematically. Of course, the research is certainly realistic nature, not academic one. Information is both qualitative forecast as well as the personal recommendation which is studied and discovered from the producers to the consumers.

The limitations of this research methodology are: researches carried out do not fit the crop and consumption season, consumption channel system is not clear enough, no statistic data for each product.

Researches were taken place in Trung Khanh, Cao Bang, Lang Son town, Hanoi city and its surrounding town.
Chapter 2  Domestic market

2.1  Characteristics of Cao Bang chestnut products and other types of “chestnut”

On the domestic markets, particularly on Hanoi and its neighboring markets, consumers, processors and businessmen all recognize three types of chestnut in practice, they are “large sized” chestnut (Cao Bang chestnut), “small sized” chestnut (sized as peanut) and “smilling” chestnut (named pistachios). None of them is considered daily foodstuff, but pricey. Main consumption normally takes place in winter, especially during Tet time or wedding events. Also, major consumers reside in urban areas and large towns.

“Smilling” chestnut is consumed biggest amount, follow is “small sized” chestnut and Cao Bang chestnut accounts the modest market share. The two former are consumed under the form of roasted and dried chestnut. Time of “small sized” chestnut consumption could last from 4 to 6 months while “smilling” chestnut is consumed the whole year. Particularly, “smilling” chestnut is traded popularly in wholesale and retail restores, and supermarkets. Whereas, “small sized” chestnut is processed and consumed at smaller scale. It appears in almost all traditional markets or small shops on main streets, for instance Bac Qua market, Dong Xuan market, To Tich street, Nga Tu So market, Hom market, Mo market, Cua Nam market, etc. Among them, Bac Qua market is the biggest. “Smilling” chestnut and “small sized” chestnut mainly sourced through importing via border gates of Lang Son province and Singapo company which is a monopoly distributor in the Northern and Middle market. Middle areas are also a source of “small sized” chestnut. “Smilling” chestnut even though has appeared for some recent years, its consumption has been witnessed at a gradual increase and a falling trend in retail price.

Ranking on pricing basis, “smilling” chestnut is most pricey fluctuated around VND100,000 per kilogramme, while per kilogramme of chestnut is priced some VND20,000 to VND30,000 for “large sized” and VND5,000 to VND10,000 for “small sized” categories.

For particular size, a major of “large sized” chestnut consumption is under the form of chestnut roasted after being hard-boiled. The “large sized” chestnut however popularlizes on markets within a pretty short time, about 45 to 60 days despite its envisaged increasing amount. Few “large sized” chestnut is processed in traditional manners to become local delicious dishes such as chestnut stewed with pork leg, chickens, etc. According to some fresh chestnut dealers in Ha Noi, during seasonal time, some “luxury” restaurants also buy fresh chestnut to produce soup which will be served foreign clients, mainly Korean and Japanese people. On that thought, consumption under this way of process only accounts for a modest amount on local markets.

Processors and dealers of chestnut processed in the above manner rank them among group of squash and melon seed. They reason for less consumption of chestnut in comparision with squash and melon seed that chestnut is unlikely to be preserved in long time due to...
its dependence on season. On the other hand, its hard cover offers inconvenience for women when consuming it while men don’t taste it as delicious as peanut. Some even think that roasted chestnut is solely for decoration purpose or inviting guests during Tet time.

Canned chestnut products include chestnut stewed with pork leg, chickens and salt chestnut. They are all brand new on markets and under the pilot production in Cao Bang province (see relating project reports for details). According to officials in Cao Bang, they are pilot products which are mass produced on modern technology. Their operations however mainly focus on technique and technology, attention to market research is still weak. We therefore implement a study at two exhibiting establishments of Cao Bang in Ha Noi which sell these pilot products. We used two canned products bought in Cao Bang as “exchange tool” during interview with stakeholders including chestnut dealers, processors and supermarkets. In essence, these products are at the early stage of piloting and introduced as speciality at trade fairs or on show at some other places. Owners of show shops state that the best seller is chestnut soaked in salt, follow is chestnuts stewed with chickens. In their opinion, clients want to taste new products and Cao Bang chestnut on a trial. Chestnut stewed with pork leg is on the shell as its full cholesterol level does not fit the taste of Hanoians. Sometimes they only can sell one tin after several weeks. The first launch was of good quality hence could be sold up, while the second launch was failed and returned to production place. Fresh chestnut is not sold in shops as it is difficult to preserve, its high price distracts clients interest (during a show stage, each kilogramme is sold at VND50,000 and each can of chestnut is sold at VND28,000 then reduced to VND25,000).

Some chestnut processors and dealers comments that in spite of their modest knowledge of tinned products market, canned chestnut products are priced quite high while its model is not so well designed to be “eye-catching” to clients. Alternatively, tinned chestnut products are also uneconomical to wise buyers compared to self-processing. Given current income of massive buyers, selling these products is admittedly difficult. While tinned products of other foodstuff are often more economical than fresh form, for instance tinned pork, tinned fishes and tinned beef. From their point of view, these products are suitable for selling at supermarkets and restaurants to serve high-income custommers. More importantly, they also stress that if these product are of poor quality, they could never be sold the second time.

Officials at supermarket remark about tinned chestnut products that it is named attractively and really brand new to them. Its model however is not very good looking. Experience shows that this kind of products should be noticeable to draw custommers’ attention. Moreover, expiry date is too short, only 6 months which is not enough for selling up to customers due to its new appearance. Expiry date is not posited in right place and in regulated manner. Its consumption will substantially increase if it is charged at lower price (about VND15,000 per tin).

We have tested final consumers’ reaction to tinned products of chestnut stewed with chickens, pork leg, even at a small scale (family members and relatives or friends). Respondents’ initial impression for this product is not positive due to its unattractive appearance and untrustful expiry date (wrong position, ball pinked). Two few chestnut, full of water, some even in dark color make them looks like deteriorated products with
unattractive taste. Producers should pay proper attention to customers’ reaction prior to deciding trading this product officially.

A point worthy note here on the side of marketing, what elements within products should be placed an emphasis on, chestnut or meat (chicken, pork leg) or both. In our opinion, this is “high ranking” products, hence its potential clients are middle up class people in the society. If producers emphasize on meat element, this products will fail to conquer its target clients who are presumably consuming meat at reduced level. Hence emphasis should be placed on the possible substitution of chestnut with various types of meat while it still ensures nutrition intake or fat reduction, high blood pressure reduction, etc.

Findings from our field study with some private owned enterprises in Ha Noi and some sweets corporations such as Hai Ha, Kinh Do shows that there is no chestnut product in the form of flour. Neither is their intention to process from chestnut. As far as we know, Kobayashi’s company is the sole producer who plans to produce about 10 tonne of chestnut flour. It is estimated to consume in Ha Noi market some 1 to 2 tonne. His company has not yet indicated his trading partners or usage purpose of chestnut flour. He has just presented ideas and experience of Japanese people to use chestnut for stuffing of cakes. In our conception, with price of about VND100,000 per kilogramme of chestnut flour, it is too expensive to use chestnut flour to make cake. It is only presumed to serve high-income customers and demand for this material, if it exists is not considerable.

There have been no other forms of chestnut products in Ha Noi market and northern province markets lying outside those mentioned above. We have contacted with Central silvicultural products import-export company and Central General Company of import-export vegetables and been known that they do not import any chestnut-originated products. We have been informed that Singapo is the sole company to date that has signed to be monopoly distributor of chestnut products in northern and middle areas. The company regretfully refused to meet us for discussion. We however found out from other source that their import products are “smilling” chestnut.

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2.2 Sources of chestnut for domestic market

Chestnut supply for domestic market is from two main sources which is domestic production and import. Sources of domestic chestnut are mainly produced in Cao Bang province in which the biggest amount supply is at Trung Khanh district. In general, it is probably said that the domestic chestnut is not really a mass production, its characteristic production is only small scale, planted as extensive farming, not only low productivity but also unstable in quality and quantity when it is turned out to the market, although chestnut trees were planted in Northern Mountain areas in 1940-1945 and recently having projects by PAM and 327 with purposes to widen area and improve the old planted chestnut areas. However, the difficulty faced is the source of breed which has high productivity and good quality. The main source of chestnut is imported from China through two directions in Lang Son and Cao Bang’s frontier pass. At Cao Bang town, according to estimate of retail and wholesale households of chestnut, the amount of chestnut in Cao Bang province like Trung Khanh, Quang Uyen, Ha Lang,… only account for one third of total chestnut amount consume at Cao Bang Town, while the amount consume in Hanoi is from Lang Son. In conclusion the main supply of chestnut for domestic market is from China. We have not mentioned to quality and price here.

2.3 Competitiveness of domestic chestnut and imported chestnut

To exam the only “big” chestnut which has two main sources of production one is of domestic production other is imported from China.

In amount term, according to the opinion of business household of chestnut the amount of China chestnut is consumed higher than the domestic chestnut. Even at the local market that produces the largest amount of chestnut.

In term of quality, although almost international experts and local people at planted chestnut areas said that the Cao Bang chestnut in term of form is more beautiful than China chestnut, in term of showy, colours and size also the flavour is better not only China chestnut but also New Zealand chestnut. This question also was discussed with interviewees and found out that only local people and life experienced people can distinguish while fresh chestnut, but when processing like boiling, roasting it is difficult to recognize.

Some of wholesale households of farming products at Cao Bang town said that chestnut as well as other fruit like orange, apple, peach, plum,… in Vietnam market has better quality than China’s fruit, however China’s fruit is always superior in amount in the market and price is often lower and suitable with majority income of Vietnamese.

Other opinions said that Vietnam’s chestnut in the market has small in amount and it is believed that “litter is more precious” In fact, it is clearly that Trung Khanh chestnut mainly uses as special present and sell for tourists who have higher income. Logically found out that on the synthesis side of all cost, Cao Bang chestnut has an advance in comparison with market access over China, cost for circulation is less than import from China, but why the price is higher? In our opinion, the main reason why the price of Cao Bang’s chestnut is higher is its speciality and fame. Otherwise, people said that we are planting chestnut in form of extensive farming, low productivity often has higher quality
than mass production; invest in intensive farming with high productivity but quality of product is not the same. Especially, nowadays we have tendency to plant breed of Chinese chestnut, will we have higher quality of chestnut in future? Of course this comparison only concern to fresh chestnut, but after mass processing or manual processes the final product will change, it is difficult to distinguish between Cao Bang and China chestnut.

On the other hand, chestnuts for processing are required uniform in size. Chinese chestnuts have advantage over Cao Bang chestnuts in this aspect. Interview with traders in Hanoi reveal that they do not much concern with chestnuts origine, and they think that all “large size” chestnuts are from Trung Khanh Cao Bang. Nut size is also not concerned by a processor of chestnut flour. Promotion of Trung Khanh chestnut trademark without price and quality control will not bring about an effective result.

As far as we know, Chinese chestnut industry developed significantly from agricultural production to process and commercial industry (see more details in international market). E-commerce is utilised to promote selling and marketing. Various types of chestnut products are advertised widely in web sites. We, however wonder why Chinese chestnut product exported into Vietnam is only fresh chestnut but not processed forms. We think of three possible explainations. The first one is taste of Vietnamese consumers. They prefer traditionally processed chestnuts. The second one is the relative high price of processed chestnut to average income level in Vietnam. The last one is Chinese fresh chestnut easier borrow the Cao Bang “traditional trademark” to be sold in Vietnam market. If the last explaination is the reason, it is necessary to have solution of quality improvement, lower price and having trademark for Cao Bang chestnut to succesfully compete with Chinese chestnut in domestic market.

The concerned question is that if Cao Bang chestnut can compete with other chestnut in domestic market once the output increase? What are the solutions to dominate domestic market with the existing comparative advantage?

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</tr>
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<td>Quantity</td>
<td>More expensive</td>
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<td></td>
<td>Difficult to determine</td>
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2.4 Demand of chestnuts and chestnuts products

Although we do not directly interview domestic consumers, through interview with producers, collectors, wholesalers, processors and detailers, it is clearly shows that domestic market of chestnuts is seasonal. The demand of chestnuts grows when the whether is colder and harvest is starting.

Chestnuts are more expensive and supply quantity is less compared to other popular nuts in Vietnam such as cashew nuts, coconuts, squash and melon seeds. Therefore, target consumers of chestnut are often in towns and urban areas where income is higher than
average level. That is also the reason for the concern on quality, form of packaging as well as selling place when processing and selling chestnut products.

All wholesalers and retailers asked confirm that there is no constraint in demand quantity in domestic market. When the harvest comes, the chestnuts quantity brought onto market gradually increase by year. Particularly, good crop and lower price of chestnuts last year promoted most of households in To Tich street in Hanoi involve in processing and selling chestnuts. Some households participate in the interview informed that they sold an average of 15 tons of chestnuts last season. None of them complained on constraint in selling chestnuts but only a disadvantage in preservation of fresh chestnuts. Therefore, they often order an enough amount of chestnuts for processing and selling for each 2-3 day periods.

According to our observation, traditional chestnuts product, for example roasted chestnuts, should be targeted at the moment beside new products currently tested in the market by Cao Bang province. The important things concerning these new products are processing technology, packaging and product standard. They should be improved to be able sold in super market (details on this issue presented in action plan).

2.5 Consumption channel of chestnuts in domestic market

Different channels of chestnuts consumption is presented in figure 1.

Channels (1) and (2) are mostly in the cultivating areas for instance Trung Khanh, Quang Uyen and Ha Lang in Cao Bang (for more details see Anna and Klinac reports). Following this channel, chestnuts are directly sold to neighbours in the same village and to other retailers or travellers in commune and district markets.

Chennels (3) and (4) are often in bigger markets such as provincial and interprovincial markets. At harvest time, collectors come to village and local markets to gather chestnuts. Then they sell to wholesalers in Cao Bang or from other provinces such as Thai Nguyen, Hatay, and Hanoi. Chestnuts are then sold in fresh or processed forms to customer from retailers.

Channel (5) describes the way of imported chestnuts from China to Vietnam market. Chestnut import takes place mainly through border gates in Cao Bang and Lang Son through various traders. Therefore, there is no official statistics on Chinese chestnut export to Vietnam. According to traders, chestnut import in Cao Bang was estimate as large as 2-3 times of provincial production. The possible reason for importing Chinese chestnut is that it has some similar features with small difference in colour and flavour. The advantages of Chinese chestnut are the larger and uniform size that attract customers, as well as availability of supply and the most important thing is 10% lower price than Vietnamese chestnut. It also has longer season that begin earlier and end later than crop of Vietnamese chestnut (Anna, 2003).
**Box 1: Import of Chinese chestnuts in Cao Bang**

In Cao Bang, chestnuts are imported mainly through Tra Linh, Ta Lung and Ha Quang districts. Wholesalers from Cao Bang order Chinese traders and receive product after 2-3 days in Chinese-Vietnamese border markets. Chestnuts then are sold to retailers in Cao Bang or wholesalers from Hanoi and other provinces. Chinese chestnuts are imported during 4 months every year with the estimate of total amount of 20 tons (Anna, 2003).

Based on estimates of other wholesalers in Cao Bang, who are regular importers of Chinese chestnuts, imported chestnuts from China account for 2/3 total supply quantity in Cao Bang market. One participated wholesaler told that Chinese chestnuts are often purchased at the end of chestnut crop in Trung Khanh. He went to Nam Ninh, China, about 300km far from border, to buy chestnuts. In 2003, he took 20 trips to Nam Ninh for 2-2.5 tons of Chinese chestnuts each time.

Some retailers in Cao Bang mix Chinese and Trung Khanh chestnuts and sell with Trung Khanh chestnut price to get a higher profit. According to Anna (2003), there are two reasons for that: one is the surplus demand of Trung Khanh and another is higher price of Trung Khanh chestnut than Chinese one. Traders in Cao Bang also told that most of chestnuts transported to Hanoi are from China. Only small amount of “real” Trung Khanh chestnuts were carried to Hanoi through some local wholesales in Trung Khanh as present.
Box 2: Import of Chinese chestnuts in Lang Son

(Through wholesalers in Cao Bang, it is known that chestnuts are imported into Vietnam not only in Cao Bang but also in Lang Son). According to a businessman in Hang Trung market, Lang Son, chestnuts are imported into Vietnam by a Chinese vegetable company. Vietnamese traders go to China and directly deal with this company and get chestnuts transported from cold storage in China to Lang Son. About 20 bags of chestnuts, weighted 80kg each, was imported everyday by each trader. There are 3 types of chestnuts: first class with large size (shiny, black or purple), second class is smaller, less shiny and brown; third class is the smallest and as large as lotus seed. They have little storage, and thus little loss due to preservation, due to a large amount of chestnuts sold up everyday.

Selling manner in Vietnam can be described as following: wholesalers and traders mostly sell chestnuts to retailers in market and in Lang Son town and to travellers. A smaller amount of chestnuts is sold to a trader in Ha Tay province in Tet holiday. Chestnuts are purchased for final consumption or presents. Chestnut season is from October to February and early March. In Hang Trung market, there are 5 stores with large capacity to distribute to retailers. Hang Trung market is the main distribution place of Chinese fruit imported in Lang Son.

Traders from Hanoi often do not purchase chestnuts in Lang Son but buy in Tan Thanh or imported directly from China. Traders in Lang Son told that there were Cao Bang chestnuts sold in Lang Son two years ago but not in current time. And the price was quite high.

Interview with a carrier who transport exported agricultural products to China reveals that there are Vietnamese chestnuts export to China. He has no idea about the driver behind this fact. And we assume it is because of high quality that Cao Bang chestnuts are exported to China while a large amount of Chinese lower quality chestnuts are imported into Vietnam.

2.6 Analysis of stakeholders in the chestnut consumption channel

2.6.1 Chestnut producers

Most of the domestic and international specialists have presented about the condition of the land and climate in Cao Bang, particularly in Trung Khanh, as the potential conditions for the growth and development of high quality and productivity of the chestnut. These well known features are also advantages of Trung Khanh chestnut when comparing with chestnut from China and New Zealand. Chestnuts were shown to be in Cao Bang long time ago, and the producers there have gained a lot experiences and techniques of planting and preserving chestnut quality (from project document). There have been many projects concerning to the expansion of the chestnut areas and improvement of the soil. Fresh chestnut production in general, and chestnut producers in particular, however, has the following basic features:

\[\text{\footnotesize 1 see details on report of Project consultants}\]
➤ Low productivity and output. Chestnut volume to the market is small and not stable.
➤ The chestnuts to the market have specific features of the color and flavour but not uniform in both nut size and quality since there is no insert prevention method and production technology is extensive farm and lack of investment for study in chestnuts production.
➤ Chestnut tree is special in Cao Bang but it is not the cash crop product. There is a shortage of specified chestnut tree areas.
➤ The chestnut trees are planted and managed by the farmers with limitation in production resources, technologies and marketing as well as natural production manner.

Without the external financial and technique support, the chestnut production industry in Cao Bang cannot exploit the potential of the above natural conditions.

Consumption from producer view has no limitation. It is also shared in reports from project specialists who work directly to the farmers. There is no evidence on consumption obstacle, for example: too much chestnut production; no buyer or no preservation means when too much production; many producers, not many buyers thus dominate price....

If, in the reality, most of the farmers faced these above difficulties, the supporting solutions such as: establishing the producer co-operative, building up preservation facilities (cold storage) would help to bring the practical benefit to the producers. If it is not the case, it is too early to implement these above solutions. Actual evidence showed that, during chestnut crop, buyers from Trung Khanh or even from Cao Bang town compete the others to collect directly chestnut from producers. Some buyers have their own policies to attract the producers to sell their products at Trung Khanh town. It is worried about how to have raw materials for the chestnut manufacturers and processors once they begin to operate.

2.6.2 Chestnut traders

Due to the market demand, there exist traders to connect production and consumption market. Their participations into this consumption system have an important role. In current production and consumption situation, trade activities are quite effective and they create the competition between Chinese and Vietnamese chestnut which in turn create the economic benefit for themselves as well as the producers and consumers.

These traders are not specialised in chestnut business, but involve in many other farm products. Of course, from the market view, there are different levels. For example: wholesalers in both Hanoi and Cao Bang who are specialized in fruits business or fruits transportation between Hanoi and Cao Bang, when the chestnut crop comes, they do not need to establish a individual chestnut consumption channel, but chestnut is a supplement product to their already existing consumption system. However, the market closed by the producers and final consumers is a bit different. For instance, when the crop come, at Trung Khanh and other towns, not only fruits traders do business with chestnut, but also, other the people could joint local chestnut market as retail or wholesale dealers to get more income for the family. That is the same with the local retailers and processors.
people in Cao Bang and Hanoi, e.g. in Hanoi, during the chestnut crop, there are some streets specialized in chestnut roasted and chestnut retail.

The second feature of the chestnut business system is that chestnut transport volume scale each time over each trader is small. Maximum is 2-2.5 tons for the importers from China, 200-300 kg for the wholesaler, and 5-20 kg for the retailer. The reason is that the quality of fresh chestnut falls quickly.

When the chestnut crop comes, beside some importers who are specified in chestnut from China, most of the other domestic traders work with chestnut as an extra farm product, which is attached with other products and transported, to Hanoi because of small chestnut quantity. Some traders even use the public transport means to carry chestnut to Hanoi or flat provinces.

These product features and the consumption methods of the present traders requested a project which guide to establish an cooperative and preservation store. On the one hand, this is positive when the fresh chestnut quantity is enough to preserve, so, it is actively to adjust the market demand. On the other hand, the establishment of this new factor or new consumption channel is needed to put into account the replacement of the old factor or old consumption channel, and this will create market competition. In free trading condition without administrative barriers, factor which works more effectively will remain. The factor supported by external forces (financial, human resources) in a certain period of time that not self-sufficient will not remain when the support is cut.

**Box 3: Chestnut traders in Cao Bang town.**

Huong’s family specified in doing business with fruits at Xanh market, Cao Bang. When the chestnut season comes, her family usually go collect chestnut to sell to other kiosks. Five family’s members go to collect chestnut directly from the producers or some small retailers at three town Trung Khanh, Quang Yen Ha Giang. Then, rent a car to carry chestnut to sell to retailers in Cao Bang. Moreover, from 3 to 4 days, they send car to Thai Nguyen town, to sell chestnut to the two retailers there, each one has 3 to 5 bags, which bag corresponds to 70kg.

Her family do not preserve chestnut, but sometime with the chestnut remained, they place it onto the ground, so chestnut could be preserved 5 to 7 days more. Each day, collecting average 3 to 5 bags. Chestnut is split into 2 kinds, a bigger one is 10,000-12,000 per kg, and smaller one is 16,000-18,000 per kg. Collection period lasts 2 months.

At the end of the crop, they leave for Lang Son, to buy Chinese chestnut (15-20 next days, and 100kg per each day). Huong said, there is not many chestnut passes the Lang Son port. Most pass Po Tau, Phuc Hoa ports.

She also said, amount of chestnut consumed rises each year, and so does the number of traders
2.6.3 Retailers and processors

So far, chestnut processing industry in Vietnam is old format and traditional technique and technology except some quite up to date processing lines (Technology department of Cao Bang), or a line in the beginning of the project (chestnut flour processing line at Mr Kobayashi company).

Basic features of traditional processor technology in each family like: boil, roast, and stew with chicken or pork. The most popular form is that the chestnut is boiled before roasted and these processing are done by the retailers themselves. There are two ways of roast such as: chestnut is roasted in the pan and chestnut is spin roasted. Spin roast is performed when the chestnut is put into a small pot, and the pot is spin on top of fire(like roasted popcorn). Using pan to roast the chestnut interests more end user, since its more tasty and delicious but spin roast is performed faster and no burn risk. Roasted chestnut is then kept warm, packed into a small bag without any label then sell directly to the end consumer. In some other case, the consumer can buy chestnut in a small plate at tea shop.

The question were raised up are that, why the small retailer do not roast the chestnut in a large scale when the chestnut crop is coming, and keep to sell after that since the roasted chestnut can be kept longer. The answer is that, because the consumer prefers hot roast chestnut since it is more tasty and delicious. Thus, the question is that, can we produce such similar product, which is preliminary treated to keep longer, and this product is warm up before selling to the end consumer.

Some surveys in Hanoi and the nearby provinces show that, the fresh chestnut is boiled and then roasted before selling to the consumer is the most popular formats. Some streets are specified in roasting chestnut when the crop comes such as To Tich street.

Thus, is there any processing technique in large scale which can replace the traditional technique? And this processing stage moves from the end consumer to the producer in the consumption channel but still keep the traditional features of the product. Of course, packaging, designing, trademark of the product also are set up and developed. If those things could be resolved, the difficulties of maintaining and exploiting the prestige can be resolved.

The problem now is that, there is still no signal from farm product processing enterprises in both domestic and international area to show that they are interested in investing in chestnut processing industry. Questions are what do we lack of, processing technology or output market, or raw material, or any missing investment sources?

2.6.4 Transportation and preservation

In most cases, chestnuts are transported by coach with average weigh from 200-300kg attached to other products from production place to retail market. Only in impot cases, when the load of chestnuts from 2-2.5 tons, chestnuts are carried by small struck. This fact is the result of small scale of production and easily deteriorated feature of fresh chestnut. Thus the distance for transportation of chestnut is often not very long. Destinations of Cao Bang and Chinese fresh chestnuts are located mostly in the North, very small amount to the South and in type of presents, not as a good.
With the current manner of production and consumption of chestnut, preservation is the biggest obstacle of chestnut industry. Interview with traders in Cao Bang found that it is possible for the fresh chestnut to be in good condition for 5-7 days. In Hanoi and other province the period is shorter, from 3-4 days since it takes from 1-2 days for transportation. In fact, most of traders do not apply any preservation technique; they just try to sell out as soon as possible. In seldom cases, they use simple method (e.g: spreading chestnuts on floor and keep chestnut ventilated by fan) to preserve chestnuts for one or two more days.

Thus, for both processing and consuming fresh chestnuts, it is necessary to apply cold storage for chestnut preservation once production scale is increase. Planning, locating and managing strategy obviously depend on the scale of material zones, storage capacity, main market, location of processors. This preservation solution should take into account economic effectiveness in addition to advantage of technique. It able to prolong season for fresh chestnut that in turn stable the market price. However, the longer time of preservation, the higher cost per unit. Then the price may still high to cover the preservation cost. It should be further considered since in Vietnam marketing margin of agricultural product is low.

**Box 4: Chestnut Market and Preservation issue**

Interview with a trader in Son Tay town shows that she often purchase chestnuts from Hanoi, Cao Bang and Lang Son. The price of Cao Bang chestnuts is from 20,000 to 25,000 VND/kg. And she often order chestnut accompanied with other goods. Chestnut consumption amount in Son Tay is not large, mainly due to the high price as noted by her. Average income in Son Tay is not high, thus only rich people in town can buy. In addition, fresh chestnuts are hard to keep in good quality long time then she just order a small amount. Sometimes she is required for chestnut but it is not available.

According to her, the fresh chestnuts are able kept from 3-4 days for selling, after that they change colour, become darker and starting deteriorated and cannot be sold the next days. If chestnuts have abnormal smell, she has to try selling them within the day or lost all after that. She also notes that other traders have failed to preserve chestnut even with air conditioning.

As a result, her maximum order amount is 500kg, regularly 200-300 kg even she is the most successful seller of chestnut in town. Her buyers are retailers and consumers. They often buy about 3-7kg each time.

Thus, for both processing and consuming fresh chestnuts, it is necessary to apply cold storage for chestnut preservation once production scale is increase. Planning, locating and managing strategy obviously depend on the scale of material zones, storage capacity, main market, location of processors. This preservation solution should take into account economic effectiveness in addition to advantage of technique. It able to prolong season for fresh chestnut that in turn stable the market price. However, the longer time of preservation, the higher cost per unit. Then the price may still high to cover the preservation cost. It should be further considered since in Vietnam marketing margin of agricultural product is low.
## Table 3  Function of different stakeholders in chestnut consumption channel

<table>
<thead>
<tr>
<th>Marketing function</th>
<th>Producers</th>
<th>Collectors</th>
<th>Wholesalers</th>
<th>Retailers</th>
<th>Consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchase from</td>
<td>-</td>
<td>Producers</td>
<td>Producers, collectors</td>
<td>Producers, collectors and wholesalers</td>
<td>Wholesalers and retailers</td>
</tr>
<tr>
<td>Sell to</td>
<td>All</td>
<td>Wholesalers and retailers</td>
<td>Retailers and consumers</td>
<td>Final consumers</td>
<td>-</td>
</tr>
<tr>
<td><strong>Physics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Preservation</td>
<td>In short period of time</td>
<td>In short period of time</td>
<td>In short period of time</td>
<td>In short period of time</td>
<td>In short period of time</td>
</tr>
<tr>
<td>Processing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Assistance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market information</td>
<td>About wholesalers and retailers</td>
<td>Other collectors and wholesalers</td>
<td>Other wholesalers</td>
<td>Other wholesalers and retailers</td>
<td>From other retailers and consumers</td>
</tr>
<tr>
<td>Risk facing</td>
<td>Insect, easy to be deteriorated</td>
<td>Easy to be deteriorated</td>
<td>Easy to be deteriorated</td>
<td>Easy to be deteriorated</td>
<td>Easy to be deteriorated</td>
</tr>
<tr>
<td>Classification and Standardization</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Little</td>
<td>-</td>
</tr>
<tr>
<td>Financial</td>
<td>Needed</td>
<td>Little</td>
<td>Little</td>
<td>Little</td>
<td>-</td>
</tr>
</tbody>
</table>
Note: (-): do not take the function
2.6.5 Pricing

Above analysis implies that Chinese chestnuts have comparative advantages to Cao Bang chestnuts in terms of price in both wholesale and retail market in right Cao Bang’s production area (see details in reports from projects). Our question is that what is the base for pricing in Cao Bang and other provinces? If the base of price or cost items in price is known, it is possible to cut it down to improve competition of Cao Bang’s chestnuts. Previous studies related to chestnuts production in Cao Bang did not provide this information. Pricing chestnut is estimated lower than Chinese price due to the production cost is mainly collecting and transporting chestnut while it is much higher in Cao Bang market with Chinese one.

Thus price is assumed market determined. There are no substitution goods for chestnuts found then the assumption of pricing based on substitution goods can be exclusive. Finally, we assume that it is Chinese chestnut price the base of Cao Bang chestnut price with some adjustments of market and product features. Based on that, Cao Bang chestnut price was determined from buying price in China plus transportation costs. The higher the price of Cao Bang chestnut is resulted by small supply and “unofficial traditional trademark” in domestic market. If our hypothesis is hold, it has important role in building strategy for competitive price of Cao Bang to Chinese chestnuts. If production and transportation costs of Cao Bang chestnuts are calculated, Cao Bang chestnuts may have comparative advantage in price to Chinese chestnuts in domestic market.

If our hypothesis is hold, it has a role in building strategy for competitive price of Cao Bang to Chinese chestnut. If production and transportation cost of Cao Bang chestnut are applied, Cao Bang chestnut may have comparative advantage in price to Chinese chestnut in domestic market.
Chapter 3  International Market

3.1 Chestnut products in market

In many countries, chestnuts were used for eating raw, boiled or roasted. The nut is very flavourful and sweet. It can be used as an ingredient in turkey stuffing, sweet breads, cakes, soups, stir fry, cereals, and ice cream. Candied nuts, marrone glace, are prized in Europe. Dried nuts can be ground into flour and used in diets for people with allergies to grains. In countries where chestnut culture is well established, chestnuts are used as a staple food.

There are different types of chestnut products traded in market. Chestnut products are used for intermediate use or final consumption. It can be categorised into fresh and processed chestnut.

3.1.1 Fresh chestnut

Chestnut has a Latin name of Castanea. There are four main species along with several minor ones worldwide. They are Japanese Chestnut (Castanea crenata), Chinese Chestnut (Castanea mollissima), American Chestnut (Castanea dentata) and European Chestnut (Castanea sativa). Each species has different characteristic that will influence the price as well as the type of consumed product of chestnut. The most important quality characteristics are:

- Nut size
- Degree of burr separation from the shell
- Ease of pellicle removal
- Flavor

General, each species has specific characteristics, but these characteristics are also different when planted in a different soil and climate conditions. Chestnut in Cao Bang Vietnam belongs Chinese chestnut species. It is evaluated to have better flavor than chestnut from Chinese (with the same species) and New Zealand (European species). And the nut size is not uniform and smaller when comparing to current imported types of chestnut into Vietnam. An example of comparison of different chestnut species features in the table below:

<table>
<thead>
<tr>
<th>Species</th>
<th>Common name</th>
<th>Height in feet (m)</th>
<th>Nut size nuts/kg</th>
<th>Nut flavor</th>
<th>Blight resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. crenata</td>
<td>Japanese chestnut</td>
<td>40–60 (12–18)</td>
<td>varies</td>
<td>fair</td>
<td>some</td>
</tr>
<tr>
<td>C. dentata</td>
<td>American chestnut</td>
<td>60–100 (18–30)</td>
<td>small 77</td>
<td>excellent</td>
<td>none</td>
</tr>
</tbody>
</table>
Fresh chestnut is in the most common use. They attain a rock-like hardness if dried to a moisture content below about 15%, and useful only for grinding into flour. For the various ways of using, they are stored fresh. According to reports on requirements for US chestnut Industry, chestnuts were successfully stored for 13 weeks in both air and controlled atmosphere storage, but fungal deterioration was lower in the controlled atmosphere.

Fresh chestnuts can be eaten raw or cooked after peeling. Peeled chestnuts can be cooked in a wide variety of ways - boiled, roasted, steamed, microwaved, pureed, soups, stuffings, sweet desserts and so on. Chestnuts are very diverse in their culinary uses and many classic recipes are popular worldwide.

### 3.1.2 Processed chestnut products

Chestnuts are readily processed into a wide range of user friendly long life products that are designed for everyday consumption, and are available from the supermarket shelves. Continued emphasis on processing (versus export of fresh nuts) is expected to continue. Processed products include peeled frozen free flow, canned whole peeled chestnuts, vacuum packed whole peeled chestnuts, sugared confectionery, purees, ice-cream, baby foods, chips, yoghurts, dried whole chestnuts, flour for bread and biscuits etc. Since chestnuts are proven to be a healthy food, many products are sold on the health market for premium prices. It also be produced chestnut mash in comestic industry.

*Marrone glacé* is another processed chestnut product. *Marrone glacé* is a chestnut that has been preserved with sugar liquor to a candied consistency. A box of *marrone glacé* chestnuts is more expensive than a box of fine chocolates.

By developing a range of processed products, chestnut industry avoids the over reliance on a single market type (for example fresh nut) which could become over supplied at some stage thus crashing grower's returns. However, the most important problem in processing is peeling the pellicle of the chestnut. About 80% of the labor in processing is used in the peeling process, which is mostly done by hand using a knife. This causes the high cost of chestnut confectioneries. Thermal blast peeling is a process which holds promise for chestnuts (Harris and Smith 1988).

### 3.2 World chestnut production

According to FAO statistics, current chestnut production worldwide is more than 1 billion tons, table 2. China dominate the world production of chestnut with more than 60% of total, followed by Korea with around 10%, and then Italy, Turkey, Bolivia, Portugal and Japan about 4% each; and Russia, Greece, France and Spain about 1%
each. It is also very evident that the worldwide production of chestnut increase by time from nearly 900,000 tons in 1999 to more than 1,000,000 tons in 2003.

Table 5  Worldwide Chestnut Production (Metric Tons)

<table>
<thead>
<tr>
<th>Country</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>534,631</td>
<td>598,185</td>
<td>599,077</td>
<td>701,684</td>
<td>715,000</td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td>95,768</td>
<td>92,844</td>
<td>94,130</td>
<td>72,405</td>
<td>72,405</td>
</tr>
<tr>
<td>Italy</td>
<td>52,158</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Turkey</td>
<td>53,000</td>
<td>50,000</td>
<td>47,000</td>
<td>47,000</td>
<td>48,000</td>
</tr>
<tr>
<td>Bolivia</td>
<td>33,603</td>
<td>34,400</td>
<td>34,500</td>
<td>34,500</td>
<td>35,000</td>
</tr>
<tr>
<td>Portugal</td>
<td>30,969</td>
<td>33,317</td>
<td>26,118</td>
<td>31,385</td>
<td>28,000</td>
</tr>
<tr>
<td>Japan</td>
<td>30,000</td>
<td>26,700</td>
<td>29,000</td>
<td>30,100</td>
<td>25,100</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>15,000</td>
<td>16,000</td>
<td>16,000</td>
<td>16,000</td>
<td>17,000</td>
</tr>
<tr>
<td>Greece</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
</tr>
<tr>
<td>France</td>
<td>12,563</td>
<td>13,224</td>
<td>13,032</td>
<td>11,230</td>
<td>9,710</td>
</tr>
<tr>
<td>Spain</td>
<td>10,580</td>
<td>9,230</td>
<td>9,510</td>
<td>9,510</td>
<td>9,510</td>
</tr>
<tr>
<td>World</td>
<td>894,715</td>
<td>951,002</td>
<td>945,116</td>
<td>1,029,019</td>
<td>1,036,178</td>
</tr>
</tbody>
</table>


According to table 2, there is no big change in the market shares of producers. China is keeping its monopoly power in chestnut production, and the production share is increasing (from 59.8% in 1999 to 69% in 2003). Not only be the biggest producer, China is the lead country in chestnut export, table 3. China is the low-cost producer that sets the market price in Asia. Chinese uses chestnuts in many dishes. Most of the nuts are consumed fresh or roasted in October, November, and December when they are first available. The popular Dragon-Boat Festival around May uses up most of the dried chestnuts. According to Paul Vossen, approximately one-third of China’s chestnut production and approximately 40 percent of Korea’s production is exported to Japan. Japan is a large chestnut producer and consumer as well as the biggest chestnut importer. Japan’s domestic production is chilled fresh and consumed throughout the winter, especially around the New Year.

Table 6  Worldwide chestnut export (metric tons)

<table>
<thead>
<tr>
<th>Chestnuts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports - Quantity (Metric ton)</td>
</tr>
<tr>
<td>China</td>
</tr>
<tr>
<td>Italy</td>
</tr>
<tr>
<td>Korea, Republic of</td>
</tr>
<tr>
<td>Turkey</td>
</tr>
<tr>
<td>Portugal</td>
</tr>
<tr>
<td>Spain</td>
</tr>
<tr>
<td>France</td>
</tr>
<tr>
<td>Austria</td>
</tr>
</tbody>
</table>

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### 3.3 World's chestnut import

Considering world chestnut demand, Korean people consumed the highest level of chestnut per year, which is more than triple to per capita consumption from other countries (1.8 versus 0.5 and lower).

![Table 7](http://apps.fao.org/page/collection?subset=agriculture)

**Table 7  World per capita consumption of chestnuts, 1987**

<table>
<thead>
<tr>
<th>Country or region</th>
<th>Approximate annual per capita consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb</td>
</tr>
<tr>
<td>Korea</td>
<td>4.0</td>
</tr>
<tr>
<td>Japan</td>
<td>1.2</td>
</tr>
<tr>
<td>Europe</td>
<td>1.0</td>
</tr>
<tr>
<td>China</td>
<td>0.5</td>
</tr>
<tr>
<td>United States</td>
<td>0.1</td>
</tr>
</tbody>
</table>


However, the biggest importer is not Korea, but Japan. The amount of chestnut imported to Japan was 33,250 metric tones in 1998, which was equal to 34.45% of total world’s imported quantity; and it reduced to 29,073 metric tones in 2002 (27.46%). The next biggest importer was France in period 1998-2001, with total imported quantity ranging from 12,900 metric tones in 1998 to 11,654 metric tones in 2001. However, in 2002, China became the second biggest chestnut importer with total imported amount of 13,571 metric tones, which is equal to 12.82% of total world imported market.

![Table 8](http://apps.fao.org/page/collection?subset=agriculture)

**Table 8  Worldwide chestnut import (metric tons)**

<table>
<thead>
<tr>
<th>Chestnuts</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worldwide Imports - Qty (Mt)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>33,250</td>
<td>34,726</td>
<td>37,384</td>
<td>31,695</td>
<td>29,073</td>
</tr>
<tr>
<td>China</td>
<td>6,135</td>
<td>6,083</td>
<td>9,972</td>
<td>9,327</td>
<td>13,571</td>
</tr>
<tr>
<td>France</td>
<td>12,900</td>
<td>9,413</td>
<td>11,232</td>
<td>11,654</td>
<td>9,290</td>
</tr>
<tr>
<td>Italy</td>
<td>3,892</td>
<td>2,671</td>
<td>4,892</td>
<td>6,643</td>
<td>8,791</td>
</tr>
<tr>
<td>United States of America</td>
<td>5,100</td>
<td>4,722</td>
<td>4,428</td>
<td>4,885</td>
<td>4,979</td>
</tr>
<tr>
<td>Germany</td>
<td>4,487</td>
<td>3,847</td>
<td>3,432</td>
<td>3,246</td>
<td>4,300</td>
</tr>
<tr>
<td>Austria</td>
<td>3,058</td>
<td>3,377</td>
<td>2,081</td>
<td>2,114</td>
<td>4,029</td>
</tr>
<tr>
<td>Spain</td>
<td>1,675</td>
<td>2,722</td>
<td>2,707</td>
<td>2,749</td>
<td>3,217</td>
</tr>
<tr>
<td>Hungary</td>
<td>2,521</td>
<td>2,991</td>
<td>3,020</td>
<td>3,136</td>
<td>3,156</td>
</tr>
<tr>
<td>Switzerland</td>
<td>2,779</td>
<td>2,813</td>
<td>2,758</td>
<td>2,773</td>
<td>2,913</td>
</tr>
<tr>
<td>Lebanon</td>
<td>1,468</td>
<td>1,849</td>
<td>1,713</td>
<td>1,921</td>
<td>2,322</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1,861</td>
<td>2,245</td>
<td>1,914</td>
<td>1,629</td>
<td>2,202</td>
</tr>
<tr>
<td>Canada</td>
<td>1,900</td>
<td>1,988</td>
<td>1,793</td>
<td>1,834</td>
<td>2,074</td>
</tr>
</tbody>
</table>

*Source: FAOSTAT Agriculture, Food and Agriculture Organization of the United Nation, (http://apps.fao.org/page/collection?subset=agriculture).*
Except the increasing demand for chestnut from China, there is not much changes in demand for chestnut of other big market such as USA, Europe. While all the big importers reduced their chestnut imported quantity, the total demand for chestnuts increased slightly, from 96,512 metric tones in 1998 to 105,881 metric tones in 2002. However, the demand was fluctuated sharply, such as the year 1999 and 2001. It illustrates the unstable demand for chestnut of the world.

Considering the East- South East Asia chestnut market, the trend is also similar. Total imported quantity of the whole region has increased 5.7% per year, from 4,206 metric tones in 1998 to 5,154 metric tones in 2002. However, there is also the unpredicted reduction in imported volume. For example, the amount suddenly reduced to 3,905 metric tones in the year 2000, which is 10% compared to 1999.

### Table 9  East - South East Asia Chestnut Import Quantity (Metric tons)

<table>
<thead>
<tr>
<th>Chestnuts</th>
<th>Year</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td></td>
<td>886</td>
<td>817</td>
<td>1,133</td>
<td>1,354</td>
<td>1,665</td>
</tr>
<tr>
<td>Singapore</td>
<td></td>
<td>1,493</td>
<td>1,600</td>
<td>1,478</td>
<td>1,398</td>
<td>1,435</td>
</tr>
<tr>
<td>Thailand</td>
<td></td>
<td>599</td>
<td>562</td>
<td>622</td>
<td>741</td>
<td>1,116</td>
</tr>
<tr>
<td>Korea, Republic of</td>
<td></td>
<td>200</td>
<td>178</td>
<td>76</td>
<td>231</td>
<td>459</td>
</tr>
<tr>
<td>Philippines</td>
<td></td>
<td>969</td>
<td>1,095</td>
<td>550</td>
<td>773</td>
<td>408</td>
</tr>
<tr>
<td>Indonesia</td>
<td></td>
<td>46</td>
<td>11</td>
<td>30</td>
<td>29</td>
<td>55</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td></td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>East &amp; South East Asia</td>
<td></td>
<td>4,206</td>
<td>4,278</td>
<td>3,905</td>
<td>4,536</td>
<td>5,154</td>
</tr>
</tbody>
</table>


Three biggest importers of East – South East Asia are Malaysia, Singapore and Thailand. In 2002, total imported volume to these countries were 81.8%. Philippine used to be the second biggest importer in 1998-1999, with total imported chestnut of 23-25% total. However, the quantity imported to the Philippines has been reduced after that. In absolute term, the Singapore market is very stable for importing chestnut, with total amount of import ranging around 1,450 metric tones. However, Malaysia and Thailand have shown to be the most attractive market for chestnuts in this region, with very substantial increase in amount of import. Malaysian and Thailand firms have doubled their imported quantity from 1999 to 2002 (886 to 1,665 and 599 to 1,116 metric tones, respectively).

Looking at the second important import market – the Europe, the picture of demand for chestnut is not very promising. Total imported amount is very fluctuated, reducing unpredictedly in the year 1999 to 20%, and increasing gradually from 2000 to 2002 by 9.5%.

### Table 10  European Chestnut Import Quantity (Metric tons)

<table>
<thead>
<tr>
<th>Chestnuts</th>
<th>Year</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td></td>
<td>3,058</td>
<td>3,377</td>
<td>2,081</td>
<td>2,114</td>
<td>4,029</td>
</tr>
</tbody>
</table>
France is the biggest customer of chestnut in Europe. In 1998, it imported 42.4% of total amount, but there was also the reduction trend in demand for chestnut of this country, from 12,900 metric tones in 1998 to 9,290 metric tones in 2002. Italy, Germany and Austria were the important importers in Europe after France, and Italy was the most promising market for chestnut. The imported quantity of chestnut to Italy was increasing steadily from 1998 to 2002, from 3,892 metric tones in 1998 to 8,791 metric tones in 2002, which became the second biggest importer in France. The other emerging market is Belgium, with total imported amount was from 0 to 669 metric tones in 2002.

From understanding the world import and export market of chestnut, the opportunity for chestnut production is obvious in long term, because the demand for chestnut increases. However, in short- and medium-term, it is not really the case. Vietnam has to prepare carefully in analysing the current and potential markets, and has to face with a very strong export competitor – China. It is even more difficult if Vietnam could not join WTO soon.
Chapter 4  Recommendations

4.1  General comments on Cao Bang chestnuts

<table>
<thead>
<tr>
<th>Strength</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Experience in planting chestnuts</td>
<td>- Increasing demand of chestnuts</td>
</tr>
<tr>
<td>- Experience in processing traditional chestnut products</td>
<td>- Attracting many projects supported by the State</td>
</tr>
<tr>
<td>- Advantage in natural conditions</td>
<td>and International organization.</td>
</tr>
<tr>
<td>- Unofficial traditional trademark</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weakness</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Small scale of production</td>
<td>- Severe competition with imported product</td>
</tr>
<tr>
<td>- Backward technology and low productivity</td>
<td>- Lack of appropriate processing and preservation technology</td>
</tr>
<tr>
<td>- Lack of experience in cash crop production</td>
<td></td>
</tr>
<tr>
<td>- Deal with fresh product only</td>
<td></td>
</tr>
<tr>
<td>- Traditional processing and preservation technology with small scale</td>
<td></td>
</tr>
</tbody>
</table>

4.2  Recommendations for medium term action plan (2-3 years)

4.2.1  General objective

Due to the fact of chestnut industry in Vietnam in general and Cao Bang in particular as analysis above, the medium term action plan aim at: Transfer the industry from small scale, low technology, value, non-stable to production with high added value by applying high technology, meeting the domestic consumer’s requirements, and enhancing the competition capacity to imported product.

4.2.2  Recommendations for target market

The main market for Cao Bang chestnut is domestic, in which the target consumers are medium and higher income including long term settled foreigners or foreign tourist. Expansion of domestic chestnut market is not only within provinces in the North, but also to middle and southern of Vietnam.

4.2.3  Recommendations for product plan

This part focuses on two main product groups: fresh chestnut, processed chestnut. These two groups must have following detail improvements:
To the fresh chestnut group:

This product is sold mostly during the crop, thus extend the crop by biology methods like artificially ripen as planning or by physics methods as keep cool preservation. This recommendation aims at traditional consumption method which has low investment, low risk for producing new products when the chestnut supply to the market is still low. However, it is need to change the packing, wrapping techniques and product trade name so that, avoid confusing with Chinese chestnut. Chestnut would be packed by nylon or reticule into 500grams, 1000grams 2000 grams or 5000 grams each pack.

To the processed chestnut group:

In the next coming two , three years, we should focus on two main products such as: roast chestnut or canned chestnut. These two kind of products are picked by their traditional orientation with packing and processing technology improvements.

Roast chestnut is the most popular product in domestic and international market. The chestnut was processed for the end users and this processing technology is not traditional but need to have a considerable investment but still keep the flavor of the traditional roast chestnut with its special taste and attractive packing. (reference some kind in the world, drawing)

Canned fresh chestnut is a semi finished product, and it is used as material, stewed with meat, soup, ... in the restaurant and in family.
To be able to get these two products, it is need to have a significant invest in machines and equipments as well as marketing strategy. These products are sold mostly in super market, restaurants, big towns, cities to medium end user and above.

4.2.4 Recommendations for competition strategy

Competition strategy focuses on two main competitive products: imported product and other substitute products.

Competition with imported chestnuts:

As mentioning in the previous chapter, Chinese chestnuts has advantage in supply availability, lower price and uniform in nut size. Therefore, in the following 2-3 years, if Cao Bang chestnut supply increase twice or three times in quantity, together with lower price and quality improvement using intensive production and insect control methods, it still far meets the domestic demand. These improvements should be realised by domestic customers with clear presentation of Cao Bang chestnut origin in each package.

Competition with other substitute products:

There are several kinds of product in market that can be substitutions for roasted or dried chestnut, e.g: cashew and coconut. Thus, to improve competition with substitution, Cao Bang chestnuts should be different to other products in form and flavour. Currently, among other substitutuions of chestnut in Vietnam, pistachio nuts are
the most expensive but still in good consumption. Therefore, it is hoped that products from chestnuts will have a good perspective.

With canned chestnut products, there is almost no substitution. So, if there is good marketing strategy, these products will be well consumed. Notice that, its good to emphasize the nutrition aspects of this product such as: Good replacement to fat, protein so, its good to high blood pressure people,... Especially, its recommended to show the origination source, quality of the product and expiry date should be two years.

4.2.5 Recommendations for price strategy

For the few next coming years, strategy to pricing the chestnut product or products originated from chestnut is not aim to raise the profit and improve the income of producers as well as the processors, but the price strategy is aim at imported chestnut product and aim to expand the market. However, pricing includes production fees and transportation fees, or at least, enough to compensate exchange fees. Researches on economics analysis in which focusing on analyzing the benefit and fees in the transportation, procession, and production phases are applied to figure out illogical fees and reducing the price methods on the final product, as well as methods which ensure the mutual economics benefits of each factors in the market, especially economics benefit of chestnut planters.

4.2.6 Recommendations for marketing strategy

Due to the Cao Bang chestnut position in the current market, we suggest the “pull and push “ strategy. Push could be simply understood as delivering the products to the customers, and pull is the way to attract the customers. Customers are not only the end user but also middle users in the consumption channel, especially the processor.

To the middle users: So far, there is no national significant processors who are interested in Cao Bang chestnut, even traditional small processor as presented above. The main reasons, as we knew is: Chestnut supply quantity is not yet large enough for one industrial processing line, meanwhile the chestnut crop lasts too short and chestnut preservation is difficult. There is no hope to the investor to invest in a material region. Thus utilize the state and international developing programs to build up an attractive chestnut tree region, as well as issuing attractive policies by which encourage the investors invest in exploiting these material regions. Although, currently there are projects such as PAM, 327 Program,... which create the chestnut material regions, but still not yet have chestnut output to attract customers to Cao Bang.

To the small scale processors equipped by traditional methods, price and origination of the products are factors to pull the customers come to Cao Bang. The comments from small scale processors in Hanoi and surroundings are wish to have lower price.

To the chestnut end user: market strategy is applied by processors and delivers themselves. Some aspects need to taken into account to attract the customers such as: clean, natural product with special flavor, low pricing, and rich nutrition content.

To the processed product: Need to have attractive pack, impressive logo of Cao Bang chestnut as well as product ingredient parameters like: processing technology, nutrition
content, expiry date,... and the products shall be sold in supermarkets, restaurants, or hotels.

4.2.7 Recommendations for organization and institution

Organization and institution of the market as well as cooperation and coordinate mechanism of factors in the market have a significant meaning to the chestnut industry in general and to farm product in particular in Vietnam. This is also the weakest and most difficult thing to develop the business in Vietnam. This is not new and was proposed previously by researchers and in fact Cao Bang province has invested in building up trial processing shop, has supported to establish cooperative for planters and has joined market programs. To our opinion, these activities are not enough to produce the real product to the market, and even block the development of Cao Bang chestnut industry.

One important factor which has not yet mentioned and encouraged to get involved are private enterprises. In fact, they are seen in negative ways as the price dominators to occupy profit from farmers in the chestnut market. Thus, farmers should be united into “cooperative” to create “strength” of producers in market.

Processing unit invested by Cao Bang province under DOSTE’s management is one example of business unit since it produces and sells chestnut product. However, the production is not based on any market research on type of product, feasibility business plan, target market as well as price, it is reasonable to be created with the purpose of pilot processing chestnut.

It is noted that chestnut industry is different in market structure and business development history to tea industry in Northern mountain. Market structure of chestnut market have just shaped in which private trader is an important link in consumption channel. While private sector is not strong enough to actively doing business and to be encouraged to get involved in chestnut industry, the establishment of new actors in market like “cooperatives” or non private “enterprise” are likely early that create more competition within such a newly born industry. As the result, it is hard to exist and develop the two at the same time. There is evidence of marketing system creation in chestnut industry in which private sector play the key role in chestnut consumption process (as in above analysis).

In our opinion, relating to organizations and institutions in chestnut market, there should be a consistence in point of view about actors and their function concentrating on support three main stakeholders: farmer, private trader and the state. Of course, other factors including research and social organizations also have their role in promoting chestnut industry development through three mentioned key stakeholders. The State should not be involved in investment of direct business units but should focus on support in infrastructure, policy that encourage the other two main stakeholders.

Creating a favour business environment, providing support in credit, land and institutional condition to enterprises both Vietnamese and foreign will encourage private sector to engage in chestnut industry in Cao Bang. They not only develop new chestnut products but also develop market through their existing relations, market of similar
market as well as their distribution system. Particularly, they have experience in business and technique that will save time and resources in establishing a market for chestnut products.

There are a range of model to successfully link producers vertically and horizontally. The first model needs no intermediate between producer and processor if production scale is large enough and the distance from producer to processor is not too far. Thus, processor is able to sign a direct supply contract with producer. This model was drawn from the experience of tea, sugar cane and milk industries in the North. The second model includes an intermediate like “cooperative” that currently applied by the project. This model has advantage if there are many small scale producers, they are quite far from processing location and have high spirit of voluntary cooperation. However, to have a successful application of this kind of model, the important thing is to realise necessary and sufficient condition objectively. It will not work effectively if it is imposed passively to the producers to get external assistance in finance and other resources.

In addition, chestnut industry development is not simply the increase in production, processing and consumption but it should be planned by a cross-sector research unit before having promotions put into reality. Therefore, if Cao Bang is considered “land for chestnut” in Vietnam, there should be a research and training center specialised in chestnut. And the current pilot processing unit of Cao Bang DOSTE could belong the center.

4.2.8 Recommendations for processing technology

It is certain that the technology and techniques of chestnut processing is available in the world. What is more important is to analyse about the market for selling the Cao Bang Chestnut, and what kind of products do customers like. We would like to insist that the medium-term strategy for Cao Bang chestnut is domestic market with two products of dried chestnut and fresh-canned chestnut. If the chestnut production increases insignificantly, it is still acceptable for using the traditional technology with renewal in the cover and packaging. When the production volume increases and the capital is adequate, it is necessary to invest in processing workshops and to get the high-quality products.

For the case of investing in modern processing technology, it is important to consider the seasons of collecting chestnuts and the preserve situation. It is suggested that the flexible processing technology should be chosen for the usages of other nuts such as peanuts, cashew nuts to utilize the capacity of the processing units in the whole year.

Another important issue for consideration is the place of the processing unit. For example, in order to set up the processing unit in Trung Khanh or in Cao Bang Town, or in big market such as Ha Noi, the amount of chestnuts, transportation, or preservation are the important factors for consideration.
References
1. Research design and questionnaire

The aims of research tools selection:

- Getting information from individual that engage in the market to conduct market chain analysis.
- Directly interview and recommend Trung Khanh chestnuts to the interviewees if having sample.
- Recommend plan to promote market development basing on the involvement of various stakeholders of market chains.

Primary data collection:

Implementation methods:

Directly interview using semi-structure questionnaires the target actors of market chain and related stakeholders including:
- Producers (this research uses information from previous study provided by the project).
- Traders (wholesales and retails)
- Processors
- Exporters and importer of chestnut products
- Other specialist concerning chestnut products

Selection of the location for survey:

Available information shows that chestnut has some specifics:
- Main local area for production is Cao Bang
- Is one kind of foodstuff but considered the luxury goods both in preliminary and processed products.
- Consumed mainly in town or for export.
- Processing and consumption of chestnut are in the small scale, not very popular in market.
- Actors in market chains are not clearly determined.

Therefore, we suppose that there are some actors in the market and the process of exchange goods and information as following:
The two main research areas are Cao Bang (producer, local processing, local wholesalers and retailers); and Ha Noi and its surrounding area (cross province wholesale and retail, processing and export).

Secondary data collection

- Information from previous empirical work and from specialist in the related field. It will help to analyze the international market for chestnut, mainly in Asia, of which China, Japan and New Zealand are focused.
- Information from researches conducted by the project’s consultants and local reports to provide further information on market channels of chestnut products.

We also suppose that some stakeholders can engage in several stages described in the flow chart. Thus, we will design general direction questionnaires for them by various activity in market. Main information collected and discussed includes:

General direction questionnaires

I. General information on interviewee:
1) Name of interviewee:

2) Address:

3) Which activity you participates in
   - Wholesales
   - Retails
   - Processing
   - Import/export
   - Other

4) Period of doing business?

5) Their main business?

6) General turnover?

7) Turnover with business of chestnut

8) How long he/she does business of chestnut?

9) Reason for doing business of chestnut?

10) Some business conditions:
   - Capital
   - Machine/equipment, workshop
   - Labor

11) Reason for implement such activity related to chestnut

II. **Kind of business activity in chestnut market**

   Buying activity

12) When did you involve in buying chestnut?

13) Where do you buy?
   - Producer
   - Collector
   - Other businessmen

14) Do you buy at your place or the seller’s place?

15) How is product transported?

16) When do you buy chestnut?
   - Anytime of the year
   - In harvest time

17) Do you know the place that grow chestnut?

18) If yes, from who you know about that?

19) Do you know how many regular and irregular chestnut providers?

20) Amount, price of each kind of providers?

21) Amount, price of each kind of product?

22) Amount, price of different time of chestnut product provision?

23) If there are different type of product, can you realise their differences?

24) If yes, how?

25) Can you tell about the similar and different points of each type?(in term of size, color, taste, probability to be broken and mouldy, price, harvest time, etc.)

26) Is it easy to buy chestnut product? Why?

27) Do you make classification when buying chestnut product?

28) If yes, how?

29) Do you have buying contract?

30) If yes, what are the main terms?
31) Why you need a contract for buying chestnut?
32) If no contract, then why?
33) What is your trend in buying chestnut product by time? (rise or fall)
34) How your trend of different types of chestnut product and their prices change?

Preservation

35) Do you preserve your product?
36) The aim of preservation?
37) How do you preserve?
38) Who implement preservation?
39) Means of preservation?
40) How long products are able to be preserved?
41) Cost of preservation?
42) How much area for preservation?
43) Amount of products to be preserved?
44) Undergone loss from preservation?
45) Risk of preservation?
46) Which kind of product is the easiest to preserve? Why?
47) Which kind is hard to preserve? Why?

Processing

48) Do you process chestnut product? When do you start processing?
49) The aims of processing?
50) How to process?
51) What is equipment and technology of processing?
52) Product amount to be processed?
53) What is the product after processing?
54) Which type of chestnut for processing benefit you most? Why?
55) Can your lines and technology be used for other kind of product?
56) Time in year for processing?
57) When is the most and less high pressure time in year? why?
58) What are the advantages and difficulties of processing?

Packing and transportation

59) Do you involve in packing chestnut products?
60) How to pack?
   By hand
   By machine
61) Aims of packing?
62) Who involve in packing?
63) Cost of packing?
64) Weight of product to be packed/ size of package?
65) Do you design your package yourself or having support from others or under order of buyers?
66) Why do you use such design?
67) What are advantages and difficulties of packing?
68) Do you joint in transporting chestnut product? why
69) If yes, what kind of product you transport?
   - Raw material
   - Product for sale

70) The average weight of each time of transportation?
71) Cost of transportation?
72) The distance of transportation?
73) Means of transportation?
74) Your own means or you rent?

Selling

75) When do you participate in selling chestnut products?
76) Why do you joint this activity?
77) What kind of product you sell?
   - Fresh chestnut
   - Processed chestnut
   - Both

78) How many type of chestnut?
79) Do you classify product to sell?
80) If yes, does your classification differ from the classification when you buy?
81) How do you classify?
82) Why you chose that way to classify?
83) Can you tell about the name of different type of chestnut?
84) Who is your regular customer of chestnut?
85) How many regular and irregular customers?
86) Do you have their address?
87) To whom do you like to sell chestnut product?
88) What are their amount of buying?
89) Do you know about their purpose when buying chestnut product? (boil, roast or make cake, etc)
90) What are requirement from customers? Which ones are met? and not met?
91) Could you tell about the trend in price and amount consumed of chestnut product in recent year?
92) Do you know which kind of chestnut product which is most preferred by customers? Why?
93) Do you know how many people also doing business in chestnut product in your area?
94) When selling, do you use contract?
95) If yes, what are the main terms in the contract?
96) What time in a year has the highest sales? Lowest sales?
97) How customer made payment to you?
   - Cash
   - Check/ money transfer
98) Does payment made totally right after deliver or pay by installments?

Export/ import

99) Do you know the situation of Vietnam’s trade in chestnut product?
   - Export
   - Import
Both

100) Export to which country and why there?
101) Can you explain the procedure to export/import chestnut product?
102) The amount export to each country?
103) Kind of export product?
104) Are requirements from importers same?
105) If no, why?
106) Do you know which Asian country export the most? Import the most?
107) Which country consume the most of chestnut product? Why?
108) Do you know those country import chestnut product for what purpose?
109) Do you know about price and demand quantity of different types of chestnut product in international market?
110) What are the advantages and difficulties in export and import chestnut product?

III. General ideas of interviewee

111) Do you intend to do business in chestnut product in coming year? Why? (Will you expand or restrict your activity? Why?)
112) Can you tell something about the potential of chestnut product in domestic market?
   Quantity of chestnut product consumption rise or fall? Why?
   Change in type of product, why?
   Requirement on quality, why?
113) According to you, how to meet the requirement from consumers?
114) What do you think about difficulties of chestnut production in Vietnam?
115) What are comparative advantages of Vietnam chestnut?
116) How is competition ability if Vietnam chestnut in domestic and international market?
117) Other related ideas..................
2. Participators in interview list
3. Product advertisement example