CHAPTER VII

EVALUATION OF EXPORT FEASIBILITY

In accordance to the conceptual framework in chapter 2, all 7 components of the framework were described and analyzed in previous chapters. This chapter starts with cost-benefit analysis. Then, the results from cost-benefit analysis, Hedonic Price Model and Suggested Price of Thai Mangoes (in Relation to Consumer Characteristics Model will be put incorporated in SWOT analysis. The feasibility study of the potential to export Thai mangoes to Kunming city employed cost-benefit analysis and SWOT analysis. The incorporation of quantitative analysis to SWOT analysis leads this study more precisely and more reliable conclusion.

7.1 Cost and Benefit Analysis.

The cost includes farm gate price of mangoes, post harvest cost (i.e. steamed water treatment, packaging cost, etc.), transportation cost from a storage to Chiang Rai port and to the Kunming port, certificate from the Thai Plant Quarantine, and tariff rate imposed by Kunming government. The domestic cost includes farm gate price of mangoes, evaporated treatment, cost of getting a certification, and domestic transportation cost (by truck). Note that the cost of certification was based on an evaluation per one orchard per time (no matter how large an amount of mangoes will be, the cost depends on hours that an official spent to evaluate the whole orchard). Nevertheless, the fixed cost of certification combines inspection time cost and fee charge (table 7.1).

Table 7.1 Domestic Cost of Exporting Mangoes

Lists	Price/ Cost (Baht)
Mango's price at an orchard (1999)	8-10 / kg
Domestic Cost	
1. Cost of certification[12] (inspect at a farmer's orchard by an officer from Plant Quarantine)	❑ Inspection / time = 300-500 ❑ Fee charge/ time = 50 ❑ Time cost ❑ First hour = 80 /hr. ❑ Next hours = 20 /hr.
2. Evaporated Treatment	9 / kg
3. Domestic transportation cost by truck	❑ Chiang Mai – Chiang Rai At price < 0.50/ kg.

In addition to domestic cost, transportation cost from the domestic port to Kunming port were classified into different prices according to 4 trade routes – road, river, air, and railway (see more details of trade routes from chapter 4 and appendix C). The road transportation from Thailand to Kunming has 10 routes according to ADB project (appendix C). Those pass through Lao PDR, Vietnam, and Myanmar. However, trade route from Mae Sai through Myanmar and Xishuan Banna was only one channel that the transportation cost was investigated (table 7.2).

Apart from this, transportation via Mekong river is another trade route used for many years (Osothsapa, 1995). According from Upper Lanchang – Mekhong River

[12] Service charged by the Plant Quarantine Office (Chiang Mai Provicne) includes price of inspection, fee, and time cost. Note that inspection and fee charge are not variated by the amount of mangoes.

Table 7.2 Road Transportation Cost from Mae Sai through Myanmar and Xishuan Banna

Routes	Distance (km)	Length of time to destination	Cost (Baht/ton)
Mae Sai-Yong(Myanmar)-Xishuan Banna-Kunming City	240	16 hours	Na.

Source: Osothsapa, 1995.

Navigation Project, there are thirteen ports all together. Those include Simao, Jinghong, Menghan, Guanlei, Bansai, Xiengkok, Houay Sai, Luangprabang, Wang Jeng, Wang Pong, Chiang San, and Jing Khong. For a river transportation, different season causes a difference of river depth; accordingly, a limitation of the shipping size, transportation time and differently. Drought season starts from January through April. Since a river depth is approximated at 1.5-2 meters, the maximum weight for transportation is not more than 80 tons. From May to December, the river depth is averaged 2-4 meters, thus the maximum weight accepted for shipping is yield at 150 tons. The distance from the port in Chiang Rai to the port in Yunnan is totally 440 kms. That is Jeng Khong to Xiang San takes 70 kms, Xiang San to Jeng Rung takes 380 kms, and Jeng Rung to Simao takes 90 kms. Price charge is adjusted following a weight changed and difficulty of floating along the river (table 7.3).

Airplane is the most convenient in terms of loading and takes short time (approximately 100-120 minutes from Chiang Mai to Kunming). With reference to the price charged rated by Thai International Airways, it costs 19 baht per kg for container sized larger than or equals to 100 kg (table 7.4).

Table 7.3 River Transportation Cost via Mekong River

Size	Cost (1 Yuan = 5 Baht)			Days*	Months
	Yuan	Baht	Baht / ton		
150 tons	35,000-40,000	175,000-200,000	1,167-1,333	3	May-December
	35,000-45,000	175,000-225,000	1,167-1,500		December-April
80 tons	30,000-32,000	150,000-160,000	1,000-1,067	3	May-December
	35,000-40,000	175,000-200,000	1,167-1,333		December-April

Source: Amorntheerakul, 199 (**takes three days for the tide turns)*

Table 7.4 Transportation Cost by Air from Chiang Mai to Kunming International Airport.

Route	Size	Baht/kg	Baht/ton	Hours
Chiang Mai-Kunming	More than or equal to 100 kg.	19	19,000	2

Source: Amorntheerakul, 1999.

Regarding the last trade route, railway, according to the ADB transportation project report some, of them are ongoing. The routes pass through Vietnam and Lao PDR. The transportation cost from Chiang Rai through Vietnam could be estimated in table 7.5.

Table 7.5 Railway Transportation Cost from Chiang Rai through Hanoi and Heu Keow.

Routes	Distance (km)	Length of time to destination	Cost (Baht/ton)
Chiang Rai - Hanoi(Vietnam) – Heu Keow – Kunming City	Na.	Na.	1,875*

Source: Osothsapa 1995.

In comparison, transportation cost per kilogram by river is the cheapest one, which ranged from 1-1.5 baht/ kg; followed by railway (approximately 1.875 Baht per kilogram). The most expensive one goes to airplane, which demands at 19 Baht per kilogram. It is obvious that transportation via Mae Kong River is the cheapest way to distribute fruit commodities to Kunming port. Table 7.6 and figure 7.1 presents a classification of cost for exporting mangoes from Chiang Mai to Kunming City by River.

Table 7.6 Cost of Exporting Mangoes from Orchard to the Kunming Port (including import tariff charge and value added tax)

Cost items	Unit	Baht
Fixed Cost		
1. [13]Cost of getting a certification from Chiang Mai Plant Quarantine Office		
❑ Inspection	One time	300-500
❑ Fee charge	One time	50
❑ Time cost		
❑ First hour	Baht/hour	80
❑ Next hours	Baht/hour	20
Total fixed cost	Baht/kg.	0.008/ kg
Variable Cost		
3. Farm-gate price of mangoes (Choke Anan variety)	Baht/kg.	9/ kg
4. After harvest cost		
❑ evaporated treatment		9[14]/ kg
❑ Packaging		2.5[15]/ kg
5. transportation cost from Chiang Mai to Chiang Rai	Baht/kg.	Less than 0.5/ kg

[13] Surveyed 1999

[14] Production Development and Pest Control for Exporting Fruit, 1999.

[15] Mengrai Banjuphan Ltd. December 1999.

Table 7.6 (continued)

Cost items	Unit	Baht
6. Cost of shipping by river from Mae Sai to Kunming	Baht/kg.	1-1.5/ kg
7. Cost of shipping by air from Chiang Mai to Kunming	Baht/kg.	19/ kg
8. [16]Tariff (30% plus VAT 7%)	Baht / kg.	5-10/ kg (or 8 in average)
Total variable cost (by river)	Baht/kg.	30/ kg
Total variable cost (by air)	Baht/kg.	38.5/ kg
Total cost (by river)		31/ kg
Total cost (by air)		47.5/ kg

The potential to make profits from exporting Thai mangoes to Kunming markets was drawn through profit calculation. Retail and wholesale price spread are useful information to discover the proper ranges of the farm-gate price and the export price. Steps 1 and 2 are to probe the wholesale and retail price spread. Since the retail price spread of mangoes was not available, it was estimated from the marketing margin of other fruit categories. The wholesale price spread was illustrated in step 3. Step 4 makes use of wholesale price spread, estimated from step 3, to clarify the extension of the farm-gate price assuming various export price spreads.

Step1: Wholesaler price spread

The prediction of wholesale price spread was based on figures from table 5.11. Export and wholesale prices of Ying Zui, Xiangya, and Sanlian variety were used as an information to forecast the price spread. Calculated spread are shown in table 7.7. Apparently, wholesale price spread ranged from 50-60 %. Next step is to calculate for retail price spread.

[16] T.P.I. Intertrade Co., Ltd.

Table 7.7 Export prices (yuan/ kg), wholesale prices (yuan/ kg), and the wholesale price spreads (%)

Varieties	Export prices	Wholesale prices	Wholesale price spread (%)
Ying Zui	5	8	60
Xingya	4	7	60
Sanlian	4	6	50

Step2: Retailer price spread

By following the same methodology in step1, retail price spread calculation based on information in table 5.7. Table 7.8 presents ranges of the retailer price spread. It was found that the average retail spreads ranged from 32.25-45.38 %.

Table 7.8 Wholesale prices (yuan/ kg), retail prices (yuan/ kg), and retail price spreads (%)

Fruit categories	Wholesale prices	Retail prices	Retail price spreads
Pineapple	0.50-1	1-2	50
Peach	1.50-3	3-4	33-66
Grape	24-26	28-30	15-17
Lychee	12	16	33
Longan	18-28	23-32	14-28
Plum	1.8-2.5	2.80-3.50	40-55
Pear	2-2.50	3-4	50-60
Red Fuji Apple	6.50-13	10-15	23-54

Step 3: Trace back the retail prices to wholesale prices and export prices

Step 3 is to apply the wholesale and retail price spreads, obtained from steps 1 and 2, to quantify expected wholesale prices and retail prices for the Thai mangoes. Table 7.9 shows results of 3 different scenarios. Regarding scenarios 2 and 3,

wholesale market channel was omitted (the short channels) since supermarkets import fruits directly.

Table 7.9 Calculated wholesale prices and export prices (Yuan/ kg)

Scenario	Retail prices	Wholesale prices	Export prices
1) Retail price from the fresh markets	12.00[a] (60.00)	8.28-9.10 (41.40-45.5)	5.34-5.88 (26.70-29.40)
	32-45 % retail price spread	*50-60 % wholesale price spread*	
2) Retail price from the supermarkets	20.00[a] (100.00)		13.80-15.15 (69.00-75.75)
	32-45 % retail price spread		
3) Suggested price by the households	16.50[b] (82.50)		11.38-12.50 (56.90-62.50)
	32-45 % retail price spread		

( ) = Baht per kg at the exchange rage 5 baht/ yuan

a = actual prices reported in the survey; b = raw data of suggested price offered by the households

Step 4: Calculate for exporter profits for unit given various price spread

In order to quantify the exporter profits, types of transportation and price spread were taken into account. As a result from Hedonic Price model, supermarket was the proper place for selling mangoes to obtain relatively high price. By ignoring

scenarios 1 and 3, export price from scenario 2 (supermarket retail price), therefore, was used for the profit estimation in 4.1 and 4.2.

4.1 Air transportation

Referring to the total cost (47.5 baht/ kg) of exporting mangoes by air (see table 7.6), profit per kilogram is a deduction of the cost from export price (69.00-75.75 baht/ kg) that the profits extended from 21.5 to 28.25 baht/ kg [price spread (%) = 31.16-37.29]. Nevertheless, this profit counted the farm-gate price at 9 baht/ kg. Table 7.10 illustrates various exporter profits given various price spreads and farm-gate prices.

4.2 River transportation

The estimation procedure for exporter profit from shipping by river is the same as in 4-1. Due to the total cost of 31 baht/ kg, profits wandered from 38.00 to 44.75 baht [price spread (%) = 55.07- 59.08]. Diverse exporter profits and farm-gate prices are presented in table 7.10.

Table 7.10 Exporter profits (baht/ kg) and diverse farm-gate prices (baht/ kg)

Trade routes	Exporter profits	Price spread (%)	Farm-gate prices	*Increasing value of farm-gate price**
Air	**21.50-28.25**	31.16-37.29 (1)	**9**	*1.07-1.41*
	20.43-26.84	29.60-35.43 (2)	**10.07-10.41**	*1.02-1.34*
	19.41-25.50	28.12-33.66 (3)	**11.09-11.75**	*0.97-1.27*
	18.44-24.23	26.71-32.00 (4)	**12.06-13.02**	
River	**38.00-44.75**	55.07-59.08 (5)	**9**	*1.90-2.24*
	36.10-42.51	52.32-56.13 (6)	**10.90-11.24**	*1.80-2.13*
	34.30-40.38	49.70-53.32 (7)	**12.70-13.37**	*1.71-2.02*
	32.59-38.36	47.22-50.65 (8)	**14.41-15.39**	*1.63-1.92*
	30.96-36.44	44.86-48.03 (9)	**16.04-17.31**	

Note: from (1) to (2), (2) to (3), and (3) to (4) are evenly 5 % reduction, as well as (5), (6), (7), (8), and (9); * this is equivalent to reduction of profit accrued to exporters

In short, by tracing back the retail price to wholesale price and to export price, various exporters' profits were estimated logically. Corresponding the farm-gate prices were varied by different percentage of exporter price spreads. By reducing the price spread, farm-gate price increases. Therefore, exporting the mangoes directly to supermarkets, both by air and river, would generate profits to the Thai mango exporters. Obviously, profits could be transferred to the farmers by trimming the

price spread. As show in table 7.10, shipping by river, though farm-gate price increases from 9 to 15.39 baht/ kg, exporters still receive the price spread at 50.65 %.

7.2 SWOT Analysis.

7.2.1 Strength.

1. Quality of Mangoes.

High quality of Thai mangoes has been known widely for a long time. Particularly, Nam Doc Mai and Nang Klang Wan are two most popular varieties among importing countries. Sweetness, sour, and juicy are conditions, which do match with Chinese preference and are found in Thai mangoes. Obviously, Thai exporters have strength on the quality of product relative to the competitors (i.e. Myanmar, Vietnam) products. Moreover, according to the Quality and Health Consciousness Model, those who offer high price to Choke Anand variety of mango have probability of quality consciousness of 0.1259. It implies that, Thai mangoes have good image in foreign market.

2. Cost of Transportation.

Cost of transportation from Chiang Rai to Kunming is relatively cheap compare with the far land such as South Africa.

3. All - year - round

Choke Anand mango is all- year- round variety; therefore, it can fulfill the market demand during the low season.

7.2.2 Weakness.

1. Poor technology of packaging
2. Fruit fly disease

7.2.3 Opportunity

1. Geographical Advantage

As mentioned that Yunnan is located in the north farther from Thailand. Geographically, Kunming is approximately 800 km far from Chiang Mai Province. This benefits transporting commodities from one to another. Maekong River, moreover, provide an opportunity to transport commodities along it. Therefore the short distance contributes a relatively low cost. Not only will exporters get benefit from less cost of transportation, but also can reduce the possibility of the fruit damage and non-freshness of fruits due to long journey.

2. Regional Cooperation.

According to the regional economic cooperation in Mae Kong River basin, member countries agreed to build pave ways and railways to connect the whole region together to encourage more international trade. This project

has been financed by Asian Development Bank (ADB) and World Bank (WB). Therefore, Thai exporters will have more alternatives of trade routes. Thus, they would find the best way to ship their commodities in various situations.

3. Huge Market.

Kunming is crowd by 4.7 million size of population. This implies a high market demand for food. Additionally, it is found that food consumption is still unsaturated in China (DEP, 1998; Hong Kong Trade Development Council Research Development, 1992).

4. Market Place Expansion.

Refer to the interview with the sales managers at the supermarkets, they have projects to import more foreign fruits and expand the fruit corners. By the same token, wholesale market manager will enlarge the business by distribute the fruits to other provinces.

5. Relationship Building Between Kunming and Chiang Mai

In March 1999, Chiang Mai government officials were invited to visit Kunming Foreignm Affair Office in order to build a relationship. They signed up as trading partners. Because of this close connection, it will ease to make a trade negotiation between them.

6. A mission of MOFTEC

China Ministry of Foreign Trade and Economic Cooperation has policies to encourage more foreign investment. Here are some important policies:

1. Opening up in all directions and expanding foreign trade in all forms.
2. Deepening the reform of the foreign trade and economic cooperation regime and, with the momentum of the reform, promote the sustained, rapid and healthy development of the foreign trade and economic cooperation sector.
3. Policies on International Trade and Economic Cooperation.

7. WTO.

Chinese government has a strong intention to be a member of WTO. The regulation for WTO members will relieve the tariff and tax rate imposed by Chinese government as a barrier of trade.

8. Profits.

Exporting Thai mangoes directly to the supermarkets would generate profits to Thai exporters and farmers (Table 7.10).

9. Ranking of Mango Preference.

Due to the Ranking Preference of Mangoes model, there is a certain level of probability (0.39) for consumers to prefer mangoes as the 1st and 2nd

fruit choice. Moreover, supermarkets provided the probability of 0.30 to purchase mangoes first. Besides, for those consumers who have quality and health consciousness have probability of 0.32 to prefer mangoes as the first fruit choice.

10. Quality and Health Consciousness.

Refer to the quality and health consumer group mentioned in 9), the probability to be health consciousness is 0.33, while 0.48 goes to quality consciousness group. Customers, particularly, received bachelors' degrees or higher tend to have health concern at the probability of 0.12.

7.2.4 Threat.

1. High import tariff (30% plus VAT 7%)
2. Plant Quarantine restrictions of imported fruits
3. Relatively low price of mangoes available in Kunming market, particularly fresh market, would reduce degree of competitiveness.

7.3 Marketing Strategies.

The best strategy to make profit in selling Thai mangoes in Kunming market is to focus on supermarket as the main target market place. For target consumers would be those who prefer to go shopping at the supermarkets with health and quality consciousness. Besides the usefulness of ranking preference that generates some marketing strategies, Quality and Health Consciousness and Ranking Preference Model also reveal useful implications for the sales managers. It indicates

that for the customer group who tends to concern about health as a prior factor before making decision on expenditure are the high education (bachelor's degree or higher) customer group. Therefore, the sales manager is suggested to promote on the mango nutrition by list all detail about the nutrition, which directly affect human's body.

7.4 Summary

According to the cost-benefit analysis and SWOT analysis it is concluded that there is a potential to make profits from exporting mangoes. In addition to the excess profits, market size in Kunming is very large which is more than enough to absorb Thai mangoes. By selling at the supermarket to selected target group would be the marketing strategy. Accordingly, it is feasible to export Thai mangoes to Kunming.