Value Chain of Rice Exported from Thailand to Sweden

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Abstract

Thailand is a leading rice exporting country that exports rice for one-third of world’s export volume. Rice from Thailand is exported to markets in every part of the world including Sweden. Thai rice products are available to be accessed by Swedish consumers in supermarket generally. The purposes of this study are to analyze the entire chain of rice starting from farm in Thailand to consumers in Sweden. Stakeholders in the chain are examined and value-added by each stakeholder is defined. Role of governance in the chain is analyzed to underline the governance relationships and interaction of actors. Moreover, roles of government institution are examined to describe its impact on the chain. Data for the analyses are collected through two activities which include a review of relevant literature and gathering from government offices of Thailand and international institutes.

The results of the study reveal that there are at least twelve actors involving in the value chain of rice exported from Thailand to Sweden which include farmers, local collectors, farmer’s organization, central market, millers, brokers, wholesalers, retailers, exporters, International rice traders and brokers, Associated Marketing Services (AMS), Swedish importers and Swedish consumers. Rice from producers is taken through numbers of path before it’s reached to consumers. Value of rice is raised along the chain it is taken through according to the costs incurred and marketing margin of each stakeholders. Profits are shared largely to stakeholders who have high bargaining power which are millers and exporters. The governance in domestic rice market goes forth and back along the chain. Prices of rice are influenced by local supply and demand of both local and international consumption.

The policy measures adopted by Thai government create affects to the rice value chain to some extent; anyhow the chain typically adjusts itself by the market mechanism of demand and supply. Swedish government applies EU legislation in the country since Sweden has become the member of the European Union in 1995. Further to EU legislation, there are non-legislative requirements developed by market itself that rice exporters must be aware.

Keyword: Thai rice, value chain, value-added, export, Swedish market, EU legislation
Acknowledgements

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My deeply gratitude extends to European Commission that provides me scholarship under EM EuroAsia program for ten month studying at the University of Borås.

Special thanks go to Meen who always encourage me in everything.

Lastly, I am heartily grateful to my parents and auntie Kaew for their love, kindness and encouragement in number of ways. I would not have been as I am without their supports.

Borås, May 2011
Chanerin Maneechansook
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Chapter I
Introduction

1.1 Background

With the development of technology and global dispersion of production and distribution system, people today are able to access to various foods from all over the world. Jasmine rice exported from Thailand is generally available in supermarket for Swedish consumers in their home country. In order to distribute rice from Thailand to Sweden, there are many actors involving in the rice’s value chain; for example, rice producers, collectors, millers, traders, retailers, exporters and end consumers. Therefore, the value chain of rice is complex and multifaceted.

Rice is the world’s most important staple foods. Over 50 percent of the world population depends on rice for about 80 percent of its food requirements (FAO, 2002). The table 1.1 shows volume of rice production in the world by continents in 2000-2009.

Table 1. World Rice Productions in 2000-2009 (Million Ton)

<table>
<thead>
<tr>
<th>Continent/Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>545.5</td>
<td>544.6</td>
<td>515.4</td>
<td>530.4</td>
<td>547.6</td>
<td>574.1</td>
<td>580.8</td>
<td>598.8</td>
<td>622.6</td>
<td>611.7</td>
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<tr>
<td>America</td>
<td>32.0</td>
<td>32.2</td>
<td>32.0</td>
<td>32.0</td>
<td>37.2</td>
<td>36.3</td>
<td>33.8</td>
<td>33.4</td>
<td>36.0</td>
<td>38.2</td>
</tr>
<tr>
<td>Africa</td>
<td>17.5</td>
<td>16.7</td>
<td>17.6</td>
<td>18.5</td>
<td>19.0</td>
<td>20.3</td>
<td>22.0</td>
<td>20.8</td>
<td>23.6</td>
<td>24.4</td>
</tr>
<tr>
<td>Europe</td>
<td>3.2</td>
<td>3.1</td>
<td>3.2</td>
<td>3.3</td>
<td>3.5</td>
<td>3.4</td>
<td>3.4</td>
<td>3.6</td>
<td>3.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Oceania</td>
<td>1.1</td>
<td>1.7</td>
<td>1.2</td>
<td>0.5</td>
<td>0.6</td>
<td>0.4</td>
<td>1.0</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
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<tr>
<td>World</td>
<td>599.4</td>
<td>598.3</td>
<td>569.5</td>
<td>584.6</td>
<td>607.8</td>
<td>634.4</td>
<td>641.1</td>
<td>656.8</td>
<td>685.9</td>
<td>678.7</td>
</tr>
</tbody>
</table>

Source: FAOSTAT, 2010

Rice is produced all over the world particularly in Asian region which it plays significant importance in both production and consumption. The seven top rice producing countries are China, India, Indonesia, Bangladesh, Vietnam, Thailand and Myanmar (FAOSTAT, 2010). However, the major rice exporters are not the same as the rice producers because many countries produce enough only for domestic consumption but has no surplus to send off. The major seven rice exporting countries are Thailand which exports 38 percent of the total export volume follows by Vietnam for 15.3 percent, United State of America for 11.5 percent, India for 10 percent, Pakistan for 7.2 percent, China for 3.4 percent and Uruguay for 3.1 percent respectively.
Thailand, the biggest rice exporter, exports rice to every region of the world. In 2008, 10.01 million tons or 51.33% of total milled rice production was exported and generated $6 billion revenue to the country (Thai Rice Exporters Association, 2009).

1.2 Problem Statement

Rice is a dominant crop production of Thailand’s agricultural sector and has long been a significant source of export earnings. Domestic rice consumption is channeled for household and as raw material for agro-industry. Additionally, rice continues to be a major export crop. International demand of rice has been increasing since 1977. Thailand has a potential of exporting rice because Thailand is able to maintain its principle export market as well as to expand to new market continuously (Pimprooa, 2000).

Scandinavian countries are one of the target markets since all consumed rice in these countries are imported (Ministry of Foreign Affair of Thailand, 2009). Sweden is the largest export market for Thai rice in this region. In 2008, Sweden spent $14.196 million to import 15,890 tons of rice from Thailand. There is a likely to be a continued increasing trend of import rice from Thailand due to an increasing number of Thai restaurants and also Chinese restaurants that cook by using Thai rice. In addition, there are lots of travelers from Sweden visiting Thailand and most of them have known and tried Thai foods to some extent (Department of Export Promotion of Thailand, 2009).

As facing strong competition from other rice producing countries and strong weather trend, the major challenge to rice sector in Thailand is to sustain its dominance in the world rice trade, lower cost, expand return to stakeholders along the market chain, and improve productivity and increase value added along the chain (Agrifood Consulting International, 2005). Questions concerning actors in the rice value chain and its influent functions need to be clarified. However, there is less research being conducted to meet these challenges particularly a value chain of exported rice from Thailand to Sweden, the potential target market. Rice research in Thailand is conducted intensively to improve rice breeds and to develop stronger rice varieties (Ministry of Agriculture, 2010). Therefore, it is important to study value chain of rice in order to analyze the current situation and to be used as supportive information for develop an appropriate strategy for the further development.

1.3 Purpose of the study

1. To examine all the value-added steps in rice production, marketing and export from Thailand to Sweden
2. To define the value added by each stakeholder to the rice value chain
3. To analyze the role of governance of the rice value chain
4. To describe impacts of government institutions on the rice value chain
1.4 Data Collection

Value chain analysis requires dealing with all actors along the value chain. Data for the analyses will be collected through two activities;

1. A review of relevant literature
2. Gathering and analyzing data and statistics from government offices of Thailand including the Office of Agricultural Economics, The National Statistical Office, The Department of Foreign Trade. Data from private and international institutes are also sourced such as data from Thai Rice Exporters Association, FAO and annual report of dominant rice importers. Some data, in addition, are collected from reliable internet sources.

The outline of the research report is organized into 6 chapters. After the introduction, chapter 2 presents a review of literature regarding theoretical concepts of value chain. Chapter 3 presents a methodology for studying and analyzing rice value chain from rice producers in Thailand to consumers in Sweden. Chapter 4 presents an overview of rice production industry in Thailand and Swedish rice market. Chapter 5 presents an analysis and discussion of rice value chain and role of each stakeholder. The last chapter contains the conclusion and recommendation of the study.
Chapter II
Review of Literature

The methodology of value chain is a tradition developed from two literature strains. First strain is the business literature on strategy and organization by Porter (1985). The term “Value chain” was first used to define value-adding activities of a firm. The chain model is illustrated below.

![Figure 1. Michael Porter’s Value Chain Model (1985)](source: Institute for Manufacturing, University of Cambridge)

Porter’s approach highlights actual activities within and around an organization and relates them to an analysis of the competitive advantage of a firm. Each activity is evaluated the value added to products or services of an organization. A firm’s activities are distinguished into two types which are primary activities and support activities according to Porter’s model. The primary activities are group into five main areas including inbound logistics, operations, outbound logistics, marketing and sales, and service which concern directly to the production and delivery of products and services. While the support activities are group into four main areas of firm infrastructure, human resource management, technology development and procurement. The support activities are linked to primary activities in order to help to improve their efficiency and effectiveness. As the term “Value chain” is define based on pricing strategy and cost structure, the term “Margin” in the model implies that profit margin of an organization depends on its performance to manage the linkages which are about seamless cooperation and information flow among all activities in the value chain. Porter argues that the ability to perform specific activities and to manage interdependent linkages between these activities is a source of value creation for a firm.

The global commodity chain (GCC) which promoted by Gereffi and Korxeniewicz (1994) is the second strain of literature and later becomes developed and formalize in numerous studies.
during the mid- to late 1990s by the modification and application of value chain idea. The approach predominantly focuses on the relationships and linkages between firms along value network, rather than solely look at value creating functions within a firm as Porter’s model. The global commodity chain (GCC) analysis further underlines governance relationships and interaction of actors along the value chain. Two types of value chains have been specified according to the role of governance.

- Producer-driven chain refers to those who produce the product control networks within a chain.
- Buyer-driven chain refers to groups that market the product control chain’s networks.

Kaplinsky (2000) has defined value chain as “the full range of activities which are required to bring a product or service from conception, through the intermediary phases of production, delivery to final consumers, and final disposal after use”. The Institute of Development Studies at the University of Sussex, United Kingdom, follows Kaplinsky’s concept and further classifies the value chain analysis into four main components,

- Systematic map the actors that take part in the production, distribution, marketing and sales of a particular product in order to characterize actors, cost and profit structures, chain’s flow of goods, employment characteristics, and domestic and foreign sales’ volume and destination.
- Highlight value chain’s governance in order to address the form of relationships and coordination mechanisms between actors in the value chain.
- Examining the effects of upgrading within the chain which involve with an improvement of product and process, capability and profitability of actors as well as information on constraint that currently present.
- Identifying the benefit’s distribution of actors in the chain by employing the analysis of value-added within the chain. Therefore, one can determine actors who benefits from participation in the chain and actors who could benefit from increased support or organization.

In conclusion, Kaplinsky and Morris (2001) argue that “a major benefit of value chain analysis is through the identification of the nature and extent of barriers to entry along the chain. As a result, such an approach is amenable to explain many of the distributional outcomes that occur in the course of globalization as well as the evolution of such relationships over time”.

5
Chapter III
Methodology

3.1 Research Framework

The study of rice value chain is designed to analyze the entire chain from farm level to consumer. The framework of the study is illustrated in the figure 2. Through such an approach, actors in the chain and its characteristics can be described. The nature of the chain and potential areas for improving are able to be identified. Entire picture of rice chain is also provided and allowed to identify the strengths and weaknesses in the chain for appropriate improvement.

![Conceptual framework](image-url)

Figure 2. Conceptual framework
3.2 Data Collection

Data for the analyses will be collected through two activities:

1. A review of relevant literatures
2. Gathering and analyzing data and statistics from government offices of Thailand and international institute as follows:
   - Information both in form of research report and statistical data of rice industry statistics in Thailand are collected from the Office of Agricultural Economics, Thailand
   - Information and statistics of rice exports are collected from the Board of Trade of Thailand
   - Statistics of world rice production are collected from FAOSTAT
   - Information and statistics of Swedish rice market are collected from the Swedish Chambers of Commerce, Export Helpdesk of European Commission, European Market Information at www.ebi.eu and Thai Trade Center Copenhagen, Department of Export Promotion of Thailand

3.3 Data Analysis

This research employed descriptive method which both qualitative and quantitative data were used to describe the actors and their role in adding value to the chain of rice exported from Thailand to Sweden. The value chain was depicted, as well as the government institution’s roles were explained and discussed based on the information and data gathered from various sources.
Chapter IV
Thai Rice Production Industry and Swedish Rice Market

4.1 Rice Production in Thailand

Rice production has always played an integral part in Thai culture and society (Asin BioBusiness Pte, Ltd., 2006) because there has long been producing of rice in Thailand. Rice can be grown all over the country although each region in Thailand has a unique climate and landscape. The largest upland farming areas are in northeastern. The land’s fertility in this region is considered as low because rainfall is unstable and soil condition is mostly dried. Although there are many irrigation projects support in the region, the proportion of irrigated areas to total crop areas is remaining low. Therefore, rice cultivation in this region relies heavily on rainwater. The northern region is the mountainous area where the source of major rivers of the country is there. Cultivated areas are classified into two parts according to geographical condition that are upper north areas and lower north areas. Cultivation of the upper north areas are spread throughout the highlands, while the lowlands that are linked to the central plain region by main rivers are in the lower north areas. These areas have high fertile soil and well furnished with many irrigation projects to support crop cultivation. The central plain, major commercial rice producing areas is the lowland areas that equipped with efficient irrigation systems. There is higher proportion of irrigated area to total agricultural area in this region than in other regions. Therefore, farmers in this region are able to cultivate rice two times annually or five crops in two years. The southern region is the smallest rice farming area of the country. Rice is cultivated only in small lowland areas because its geography and climate conditions are more suitable to plant commercial tree crops such as oil palm and rubber. This region has high level of rainwater as there are six month of rainy season a year. Besides, many irrigation projects are carrying to reserve rainwater for crop planting. Rice production areas divided by region is indicated in the table 2.

Table 2. Rice production area in Thailand by region, 1961-2007

<table>
<thead>
<tr>
<th>Period</th>
<th>Northeast</th>
<th>North</th>
<th>Central plain</th>
<th>South</th>
<th>Total</th>
<th>Growth rate per annum (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961-65</td>
<td>16.20</td>
<td>8.09</td>
<td>13.21</td>
<td>3.19</td>
<td>40.69</td>
<td>1.51</td>
</tr>
<tr>
<td>1966-70</td>
<td>18.85</td>
<td>9.70</td>
<td>13.91</td>
<td>3.55</td>
<td>46.01</td>
<td>3.44</td>
</tr>
<tr>
<td>1971-75</td>
<td>21.95</td>
<td>10.56</td>
<td>14.86</td>
<td>3.53</td>
<td>50.90</td>
<td>3.36</td>
</tr>
<tr>
<td>1976-80</td>
<td>26.94</td>
<td>12.27</td>
<td>15.02</td>
<td>4.01</td>
<td>58.24</td>
<td>1.19</td>
</tr>
<tr>
<td>1981-85</td>
<td>28.84</td>
<td>13.54</td>
<td>15.17</td>
<td>4.00</td>
<td>61.55</td>
<td>1.57</td>
</tr>
<tr>
<td>1986-90</td>
<td>29.58</td>
<td>14.18</td>
<td>15.05</td>
<td>3.62</td>
<td>62.43</td>
<td>0.06</td>
</tr>
<tr>
<td>1991-95</td>
<td>31.07</td>
<td>13.27</td>
<td>12.75</td>
<td>3.07</td>
<td>60.16</td>
<td>-0.23</td>
</tr>
<tr>
<td>1996-00</td>
<td>32.46</td>
<td>15.08</td>
<td>13.74</td>
<td>2.86</td>
<td>64.14</td>
<td>1.05</td>
</tr>
<tr>
<td>2001-07</td>
<td>33.52</td>
<td>15.82</td>
<td>15.12</td>
<td>2.29</td>
<td>66.75</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Source: Kongrithi, 2009

1 Rai is unit of land in Thailand: 1 hectare = 6.25 rai
According to the table 2, rice production area in Thailand was increasing continually during 1961-2007. The biggest areas of rice producing were in Northeastern part, while Southern region had the less rice farming areas. In the early period, Central plain region was the second largest of rice farming area, however the areas were not expanded as much as in the North because an invasion of industrial sector.

Planting season is classified into two main growing seasons, the wet season for major rice and the dry season for second rice. (Ekasingh, B., Sangkapitux, C., Kitchaicharoen, P. and Suebpongsang, P., 2007). In 2009, the rice planting area for wet season is 57.39 million rai and there are 10.07 million rai planting rice in dry season. Production in a wet season is approximately 401 kg per rai, while production during dry season is about 687 kg per rai (Bureau of Agricultural Development Policy and Planning, Office of Agricultural Economics of Thailand, 2010). Rice yield in each region is shown in the table 3.

Table 3. Rice yield by region, 1961-2007

<table>
<thead>
<tr>
<th>Period</th>
<th>Regions/Yield (kg/rai)</th>
<th>Growth rate per annum (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Northeast</td>
<td>North</td>
</tr>
<tr>
<td>1961-65</td>
<td>198</td>
<td>367</td>
</tr>
<tr>
<td>1966-70</td>
<td>227</td>
<td>387</td>
</tr>
<tr>
<td>1971-75</td>
<td>216</td>
<td>353</td>
</tr>
<tr>
<td>1976-80</td>
<td>190</td>
<td>361</td>
</tr>
<tr>
<td>1981-85</td>
<td>225</td>
<td>388</td>
</tr>
<tr>
<td>1986-90</td>
<td>232</td>
<td>385</td>
</tr>
<tr>
<td>1991-95</td>
<td>258</td>
<td>396</td>
</tr>
<tr>
<td>1996-00</td>
<td>269</td>
<td>452</td>
</tr>
<tr>
<td>2001-07</td>
<td>286</td>
<td>524</td>
</tr>
</tbody>
</table>

Source: Kongrithi, 2009

Rice yield in each region has changed overtime as a result of a development of rice breeds, irrigation, cultivation practices and a use of mechanization. Significant change has emerged in the North and Central plain area. The yield of rice has increased from 261 kg/rai during 1961-1965 to 524 kg/rai during 2001-2007 in the North. The larger change was in Central plain where the yield of rice was 261 kg/rai in 1961-195 and increased to 587 kg/rai in 2001-2007.

Paddy rice production for the whole country is depicted in the figure 3.
4.2. Demand of rice production

The utilization of annual rice production is divided into three ways including domestic consumption, ending stock and export.

4.2.1 Domestic consumption

During 2007-2009, local demand of rice is 10.73 million tons, 11.10 million tons and 11.29 million tons respectively according to the survey of the Office of Agricultural Economics of Thailand (2010). The utilization of rice can be categorized into direct consumption, seeds for next crop, animal feed, and raw material for related industries; for example, noodle, alcohol and flour. Direct consumption shares the biggest use of rice production because rice is the main staple food for Thais. The rice consumption per capita has decreased from 119 kg per year in 1990 to 100 kg per year in 2011 (Isyilanonda and Kongrithi, 2007 and Institute of Nutrition, Mahidol University, 2011) because the pattern consumption of Thais has changed as a result of a changing to urban lifestyle and strong influence of Western foods. Kongrithi (2009) argued that “an increase in household income and rice price induce a reduction in demand of rice”. Even if the per capita consumption of rice has declined, total consumption appears larger because of an increasing population. Kongrithi (2009) stated that “Consumption grew from 7.53 million tons during 1961-1965 to 9.93 million tons during 2001-2007.

4.2.2 Ending stock

Thailand keeps rice in stock for the purpose of food security. The country has ratio of stock to domestic utilization above 20 percent which is enough to last 2-3 months for self-sufficient (ASEAN Food Security Information- and Training Center, 2008).
4.2.3 International demand

Thailand is a dominant rice export country for the past 30 years. Various types of rice are exported to the international markets which include premium rice or the high quality rice, medium quality rice, low quality rice, parboiled rice and glutinous rice. Rice exports are the surplus of domestic rice requirements. Office of Agricultural Economics of Thailand (2010) reported the total export amounts of rice in 2007-2009 are 9.19 million tons, 10.22 million tons and 8.60 million tons respectively.

4.3 Rice processing

Typical processing operations are shown in figure 4.

![Rice processing procedure diagram]

Figure 4. Rice processing procedure
Source: Paddy cultivation (Nielsen, 2004)

Nielsen (2004) divided rice processing procedure into three steps. First, the harvesting of rice is primary step to get paddy rice. In this process creates some losses from seeds and post-harvest. Next is to threshing or winnowing paddy rice to separate the husk from the grain. Brown rice is the product of this process. Then, the brown rice will be milled to polish rice bran in order to get smooth and shiny rice seed without any coats. Raw rice bran is a by-product of this process which will be used as a material for rice bran oil extraction. Typically, rice mill procedure will obtain rice products approximately 48 percent polished rice, 17 percent broken-milled rice, 10 percent raw rice bran and 20-30 percent paddy husk.
4.4 Rice Market

Rice production is distributed to four sectors including local consumers, exporters, food processing manufacturers and animal feed manufacturers (Wongharn et al, 2004). Domestic rice market is considered as major market of rice production. The surplus of local requirement is exported to international. Rodmua (2009) marked that 40-45% of total rice production is exported to international markets, and the principal of exported markets for Thai rice are countries in Africa continent, Asia, the Middle East, the American continent, Europe and Oceania.

Table 4. Thai milled rice export by destination, 2000-2008

<table>
<thead>
<tr>
<th>Years</th>
<th>Asia</th>
<th>Middle Asia</th>
<th>Europe</th>
<th>Africa</th>
<th>America</th>
<th>Oceania</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity (million)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>1.95</td>
<td>1.39</td>
<td>0.33</td>
<td>2.56</td>
<td>0.30</td>
<td>0.08</td>
<td>6.60</td>
</tr>
<tr>
<td>2001</td>
<td>2.04</td>
<td>1.08</td>
<td>0.41</td>
<td>3.56</td>
<td>0.38</td>
<td>0.08</td>
<td>7.55</td>
</tr>
<tr>
<td>2002</td>
<td>2.36</td>
<td>1.22</td>
<td>0.34</td>
<td>2.86</td>
<td>0.37</td>
<td>0.08</td>
<td>7.25</td>
</tr>
<tr>
<td>2003</td>
<td>2.68</td>
<td>1.17</td>
<td>0.34</td>
<td>2.62</td>
<td>0.70</td>
<td>0.09</td>
<td>7.60</td>
</tr>
<tr>
<td>2004</td>
<td>2.58</td>
<td>1.61</td>
<td>0.44</td>
<td>4.76</td>
<td>0.61</td>
<td>0.13</td>
<td>10.14</td>
</tr>
<tr>
<td>2005</td>
<td>2.06</td>
<td>0.91</td>
<td>0.33</td>
<td>3.45</td>
<td>0.41</td>
<td>0.14</td>
<td>7.30</td>
</tr>
<tr>
<td>2006</td>
<td>2.07</td>
<td>1.58</td>
<td>0.40</td>
<td>2.74</td>
<td>0.48</td>
<td>0.15</td>
<td>7.42</td>
</tr>
<tr>
<td>2007</td>
<td>2.89</td>
<td>1.47</td>
<td>0.65</td>
<td>3.92</td>
<td>0.48</td>
<td>0.16</td>
<td>9.56</td>
</tr>
<tr>
<td>2008</td>
<td>2.47</td>
<td>1.35</td>
<td>0.79</td>
<td>4.64</td>
<td>0.55</td>
<td>0.20</td>
<td>10.01</td>
</tr>
<tr>
<td>Average</td>
<td>2.34</td>
<td>1.31</td>
<td>0.45</td>
<td>3.46</td>
<td>0.48</td>
<td>0.12</td>
<td>8.16</td>
</tr>
</tbody>
</table>

| Years | Share (%) | | | | | | |
|-------|-----------|--------|--------|---------|---------|---------|
| 2000  | 29.54 | 21.06 | 4.93 | 38.77 | 4.53 | 1.16 | 100.00 |
| 2001  | 26.98 | 14.32 | 5.44 | 47.16 | 5.08 | 1.02 | 100.00 |
| 2002  | 32.64 | 16.85 | 4.75 | 39.52 | 5.15 | 1.10 | 100.00 |
| 2003  | 35.29 | 15.37 | 4.51 | 34.43 | 9.21 | 1.20 | 100.00 |
| 2004  | 25.49 | 15.89 | 4.35 | 46.91 | 6.05 | 1.31 | 100.00 |
| 2005  | 28.17 | 12.41 | 4.55 | 47.24 | 5.67 | 1.96 | 100.00 |
| 2006  | 27.89 | 21.26 | 5.45 | 36.87 | 6.51 | 2.02 | 100.00 |
| 2007  | 30.25 | 15.33 | 6.77 | 41.04 | 4.99 | 1.63 | 100.00 |
| 2008  | 24.71 | 13.33 | 7.91 | 46.35 | 5.52 | 1.98 | 100.00 |
| Average | 28.73 | 16.04 | 5.49 | 42.37 | 5.83 | 1.51 | 100.00 |

Source: Board of Trade of Thailand (2008)

Asia Market: Diverse types of Thai rice are demanded in Asia market. The major markets for high quality rice such as Jasmine rice and white rice are China, Malaysia, Singapore and Japan. Medium quality rice is demanded by Indonesia and Korea. Philippines is an important market for exporting of low quality rice. Glutinous rice is demanded in Indonesia market (Dechachete, 2011). Thailand exported 2.47 million tons of milled rice to Asia market which was accounting for 24.71% of total rice export in 2008.

The Middle East Market: There is a high demand of high quality rice in the market particularly in Iraq, Iran, Saudi Arabia and United Arab Emirates. Consumers have high purchase power, and they are willing to pay for high quality of rice (Kongrithi, 2009). An average yearly rice exports to this region was 16.04% out of total rice exports or 1.31 million tons during 2000-2008.
European Market: High quality rice and parboiled rice are demanded in European market. Exported volume of rice is smaller than other markets as long grain from the United State of America are more popular in this region. The important markets are Russia, Belgium and Netherland. A yearly exports of rice during 2000-2008 was 0.45 million tons or 5.49% of total rice exports.

Africa Market: Africa is the biggest rice export destination of Thai rice as about 42.37% of total rice exports or 3.46 million tons were traded annually in 2000-2008. The major markets are Ivory Coast, Senegal, Nigeria, Benin and Ghana. Since foreign currency is a principal difficulties for most African countries, their governments prefer to buy rice at low price or at a long-term credit (Kongrithi, 2009). Low quality rice and parboiled rice are main products to be exported to this region.

American Continent Market: There is only small quantity of rice exported to American Continent because rice is also widely cultivated in this region. The important markets are the United State of America, Canada, Cuba, Mexico and Brazil. There were 5.83% of total rice exports or 0.48 million tons traded to this region in 2000-2008.

Oceania Market: Although Oceania is not a big market for Thai rice, there is an increasing trend of rice exporting. An export volume is increased from 0.08 million tons in 2000 to 0.20 million tons in 2008. The major markets in this region are Australia, New Zealand, Fiji and Papua New Guinea.

4.5 Swedish Rice Market

4.5.1 Production

Sweden has a total area of 449,964 km². Over 80% of the land areas are covered by forest, mountain, wetland and lake. There are only 7% or about 3 million hectares under cultivation located mostly in the South. In addition, the temperate climate with large difference between summer and winter is primary difficulty in cultivation. Therefore, the country relies heavily on food imports to serve domestic market.

There is no record of rice production in Sweden according to Eurostat. Although milling industry does exist, the maximum production capacity is only 84,000 tons annually. The major processing plants are Swedish Rice Production and Amanat Nawaz Rice. A 95% of rice processing in the country is exported to other EU countries (Swedish Chambers of Commerce, 2010).
4.5.2 Consumption

In Sweden, rice is utilized in three ways; direct consumption, animal feed and raw materials for further processing. According to Eurostat, rice consumption per capita of Swedes is 7.1 kg in 2008. The consumption of rice was increased 1.6% annually during 2004-2008. About 78% of total consumption was milled rice, and the rest 22% was brown rice. Broken rice was used mainly for animal feed.

In 2008, Sweden imported 63,000 tons of rice. There is an increasing trend in rice imported by 3.2% in volume, and 10% in value per annum. An increase in import of rice corresponds with an increasing of rice consumption.

Table 5. Import of rice by Sweden, 2004-2008 (million EUR/1000 tons)

<table>
<thead>
<tr>
<th>Product</th>
<th>2004</th>
<th>2006</th>
<th>2008</th>
<th>Average annual change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Volume</td>
<td>Value</td>
<td>Volume</td>
</tr>
<tr>
<td>Paddy rice</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Brown rice</td>
<td>7.4</td>
<td>13</td>
<td>11</td>
<td>35</td>
</tr>
<tr>
<td>Milled rice</td>
<td>28</td>
<td>38</td>
<td>24</td>
<td>39</td>
</tr>
<tr>
<td>Broken rice</td>
<td>1.2</td>
<td>3.6</td>
<td>0.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>37</td>
<td>55</td>
<td>36</td>
<td>76</td>
</tr>
</tbody>
</table>


Thailand is the leading of rice supplier who accounting for 18% of total import. An import of rice from Thailand increases 23% annually. The second largest of rice supplier is Pakistan, followed by India. China is an emerging supplier. Rice import by origin in 2004-2008 is shown in the table 6.
Table 6. Rice imports by origin and leading suppliers, 2004-2008.

<table>
<thead>
<tr>
<th>Product</th>
<th>Origin</th>
<th>Leading suppliers in 2008 (share in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy rice</td>
<td>Intra-EU</td>
<td>UK (80%), Belgium (6.3%), Germany (5.7%), Greece (2.6%), Italy (2.1%)</td>
</tr>
<tr>
<td></td>
<td>Extra-EU</td>
<td>Thailand (0.7%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Belgium (23%), UK (14%), Germany (7.9%), Italy (5.5%), Netherlands (2.5%)</td>
</tr>
<tr>
<td>Brown rice</td>
<td>Intra-EU</td>
<td>Australia (0.1%), U.A. Emirates (0.1%), Pakistan (24%), India (19%), China (0.8%), Thailand (0.1%)</td>
</tr>
<tr>
<td></td>
<td>Extra-EU</td>
<td></td>
</tr>
<tr>
<td>Milled rice</td>
<td>Intra-EU</td>
<td>Italy (17%), Germany (15%), Belgium (10%), Netherlands (8.6%), Denmark (7.2%)</td>
</tr>
<tr>
<td></td>
<td>Extra-EU</td>
<td>USA (3.2%), Australia (0.6%), Thailand (23%), Pakistan (7.3%), India (1.9%), China (0.2%), Vietnam (0.1%)</td>
</tr>
<tr>
<td>Broken rice</td>
<td>Intra-EU</td>
<td>Finland (45%), Netherlands (36%), Germany (5.3%), Denmark (1.0%), Italy (0.6%)</td>
</tr>
<tr>
<td></td>
<td>Extra-EU</td>
<td>Thailand (11%)</td>
</tr>
<tr>
<td>Total</td>
<td>Intra-EU</td>
<td>Italy (14%), Germany (13%), Belgium (13%), Netherlands (8.2%), Denmark (5.5%)</td>
</tr>
<tr>
<td></td>
<td>Extra-EU</td>
<td>USA (2.5%), Australia (0.5%), Thailand (18%), Pakistan (10%), India (5.4%), China (0.3%)</td>
</tr>
</tbody>
</table>


According to the survey by the Swedish Chambers in close cooperation with the Centre for the Promotion of Imports from developing countries (CBI, n.d.), trend of Swedish consumption is described as follow.

a. Convenience: the demand of convenience food such as in-store eating, take away food and fast food is increasing in Sweden.

b. Health: natural and healthy food products are increasing in demand. People are willing to pay higher price for environmental friendly products as well as the organic products are gaining more popular.

c. Private label: natural commodity status is an incentive for consumers to buy rice rather than its brand. It’s therefore resulting in a continuous growth of private label sales.

d. New products: Swedes are open to new tastes as the survey shows that they are moving away from their own traditions.
Chapter V  
Analysis and Discussion  

5.1 Stakeholders in Rice Value Chain and Their Roles  

Rice produced by farmers is taken through many paths and long route to reach consumers. Functions and roles of stakeholders involving in the chain are described below.  

5.1.1 Farmer  

The chain begins with mainstream farmers who are regarded as the backbone of the country. As rice is widely planted in every region of the country, about one-third of population is labor force in rice farming. Farmers are classified into two groups which are large-scale commercial farmers and small-scale subsistence farmers. The large-scale commercial farmers refer to farmers who own large farm area and mainly produce for agro-industries and export markets. This group of farmers commercializes their produce through contract farming and large-scale agribusiness (Jitsanguan, 2001). The small-scale farmers refer to farmers who own about 15-20 rai (2.5-3 ha) of farm area. Their production is mainly used for household consumption, while surplus is selling for income. The majority group is belonging to small-scale farmers. Office of Agricultural Economics of Thailand (2008) reported that there are 5.78 million households participating in rice production which each household has approximately four members. Although the use of farm mechanization has been developed in the country, rice farming remains highly labor-intensive. Rice farming system is grouped into four categories including Hill rice, Lowland rice, Deep-water rice and Floating rice.  

a. Hill rice is the seeding practice in dry land where the area is limited to irrigation system. The height of rice plant is about 130 – 150 cm.  

b. Lowland rice is grown under flooded culture that retains water throughout the growing season. Rice is directly transplanted into the puddle field that maintains water level from 5-50 cm. An average height of rice is 100 – 200 cm.  

c. Deep-water rice is grown in wet lowland area under medium to very deep flooding culture with water level from 51 – 300 cm. Since the rice plant grows as the water rise, thus the height of rice is varying upon water level.  

c. Floating rice is a planting method that response to deep water submergence. Rice is grown at the water depths 100 - 600 cm. The height of rice is varying upon water level.  

There are three rice cultivation methods classifying according to land condition and rice breeds.
a. Drill-seeded is the method to plant the Hill rice in the dry area. Farmer usually drills a hole in row, simply drops 3-5 rice seeds and covers the hole. Rice will grow once there is a rain.

b. Transplanting is the common practice in Thailand. Moist seedbeds are prepared to grow seeds for a period and then the seedlings are transplanted. This method relies heavily on labor intensive which correspondingly resulting in high cost of labor.

c. Direct seeding is the method that seeds are frequently peregrinated.

Paddy is the product that farmers perceive as their major asset. Usually farmers utilize paddy in four ways; keeping seeds for next growing season, pay-off debts in kind, selling and household consumption (Dooren, 2005).

Farmers’ pattern of selling paddy is similar annually. They usually bring paddy to market immediately after harvest. Some farmers who are free of debt and have Yoong-chang keep their stocks for later market sales in order to make subsequent sales in small lots. According to the season of rice cultivation, sale of paddy is classified into three periods as follow.

- First period: Paddy is brought to market in December which there is the rice harvesting season. The sales price of paddy in this period is cheapest because most small farmers offer their product simultaneously. Then the price of paddy is gradually increasing in February to April as there is high demand of international market, while supply is less.

- Second period: The new cultivation period is starting in May to July. In this period, farmers gradually release their paddy stock; however the supply is lesser than the first period. The buyers have collected large volume of rice during the cheap price of end harvest season. Thus, the sale price of paddy is higher than the price in December but usually lower than in February-April as market mechanism of low both supply and demand controlling the market price.

- Third period: The price of paddy is increased sharply in August to November as a result of high competition among buyers to limited supply by farmers. Farmers normally sell all paddy stocks, which only small volume, and wait for the next harvest season in December.

Consider the period of selling paddy, there is a standard pattern which the sale price is low during the high paddy supply in the first period. Then the sale price gradually increases in the second and third period as demand is higher, while supply is lower. This cycle of paddy sale price is emerged year by year.
5.1.2 Local collector

Local collector is a paddy-paddy trader who directly buy farmer’s paddy and sell to miller or the central market exchange. Those local collectors usually own barn for keeping paddy and own truck to arrange transportation. The local collectors are classified into two groups are,

a. Local collectors in a village: In general, they are a big farmer or shopkeepers in a village who own truck to transport paddy to the miller or the central market exchange.

b. Local collectors from outside a village: They are a middle person whose business located nearby the rice producing areas. Those local collectors play significant role in the Lower North and Central region where the highest paddy production volume are there. They sometimes provide financial credit and farm inputs; for example, seeds, fertilizers and pesticides, in term of contract farming to farmers who have limited budget during the beginning of growing season. Farmers, in return, give a promise to sell paddy to the collectors. Income that farmers will receive from selling their paddy is then deducted by the costs of inputs. Sources of income of the local collectors are from price differentials of sales price and purchase price.

5.1.3 Farmer’s group and Cooperatives

Farmer’s organization in Thailand is classified into two types; Farmer’s group and Cooperative. Farmer’s group is a group of at least thirty farmers in a particular area who form a legal unit. The farmer’s group is formed with the purposes to cooperate and support members in term of financial transaction, purchase and transportation, equipments and rice barn, for example. Products of the farmer’s group are paddies which directly sell to miller, and milled rice which usually sell to local consumers. The farmer’s group, as a legal unit, gains supports to conduct group effort in marketing activities from the Department of Agricultural Extension of Ministry of Agriculture in order to increase bargaining power by acting together. It’s a kind of instrument that government employs to support farmers through farmer’s group.

Another form of farmer’s organization is an Agricultural cooperative. Agricultural cooperative plays important role in gathering paddy from members at the market price, and delivery paddy to bigger agricultural cooperatives that equipped with milling house or miller. Some cooperatives give service of rice milling to members and sell surplus to market, but there are only few numbers of cooperatives that specialize in milling and marketing rice. Profits that the cooperatives earn from selling rice will be sharing and return to members who sell paddy to the cooperative.

5.1.4 Central Market

The central markets are both established by government agencies or by business sector, and located particularly in main production areas. The governmental centers are set up by two
agencies; the Bank for Agriculture and Agricultural Cooperative (BAAC) and the Department of Agricultural Extension, Ministry of Agricultural and Cooperatives. Roles of these two government agencies are to accommodate rice price policy measures. In the past, the BAAC acted as a pawnshop for paddy, while the Department of Agricultural Extension promoted local competition and provided facilities such as weighing machines, drying lawns, and warehouses under the mortgage program implemented by the government. Nowadays, the government has implemented the new measure of Crop price guarantee program since the cultivation year 2009/2010 under the ministration of BAAC. The policy and roles of government agencies will be discussed in the part of Institutional aspects.

Private market places are set up as a meeting place for farmers, local collectors and millers to interface, negotiate and make transaction. The owners of market places are sometimes local collector and/or millers. Facilities provided by Market center depend up on the size of the market. Typical facilities are labor, moisture measure, drying lawns, warehouses and loans. As to avoid the problems of price interference, fee earning preference, rent and loan interest, the owner of a large market center normally does not engage in trading. The Ministry of Commerce supports the arrangement of the centers.

5.1.5 Millers

Miller is an intermediary who plays two important roles of production unit and marketing unit simultaneously. As a production unit, miller turn paddy into milled rice. As paddy consists of brown rice and husk, rice milling is a process to remove or separate husk to obtain edible portion called as ‘Polished rice’. Ammar, S. and Viroj, N.R. (1990) marked that “the grading of rice is usually performed at the mills and uses a minimum of broken kernels as a major grading standard. The by-products in rice milling are rice hull, rice germ and bran layers, and fine broken”. As marketing unit, rice mill purchase paddy from farmers, local collectors and central market and distribute milled rice through its distributive channels to consumers, brokers, commercial merchants such as wholesalers and retailers, and government agencies. There is a high competition in rice mill businesses since rice mills exist in almost every region of the country with a variety of sizes and technologies. However, most of rice mills are relied heavily on labor force for bagging, piling, carrying and loading. The Office of Agricultural Economics of Thailand (2005) reported that there are 39,811 rice milling plants in Thailand in 2006. Millers participate in rice export trade directly and indirectly. They ship milled rice to Bangkok through transporters to wholesalers. Then rice is distributed in Bangkok and also abroad. There are some large mills that integrate wholly into this export chain.

Sources of income of small rice mill are rice milling fees and selling of rice by-products such as paddy husk and bran. For large rice mills, their main addition income is the price differential of sales price of milled rice and purchase price of paddy deducted by costs of rice milling.
5.1.6 Brokers
A main function of broker is to build up market connection between millers and wholesalers or millers and exporters. Brokers search for rice with a certain type, quality and quantity that demanded by exporters. Most of millers market rice to wholesalers and exporters through brokers. The rate of brokerage is about 2-3 % of sale value (Wiboonpongse and Chaovanapoonphol, 2001).

5.1.7 Wholesalers and Retailers
Wholesalers and retailers are an important distributive channels to consumers in domestic market. They exist all over the country. The wholesalers sometimes are big millers who fully integrate the production and market milled rice to both domestic and overseas market especially the mills in large paddy production areas.

5.1.8 Domestic consumers
As at December 31\textsuperscript{st}, 2011, Thailand has 63.88 million populations (Department of Provincial Administration, Ministry of Interior). They typically have rice as their staple food. According to the survey of Institute of Nutrition, Mahidol University (2011) indicates that rice consumption per capita of Thais is about 100-110 kg per person per year. Consumers’ budget for rice consumption is small portion comparing to other expenses because rice farmers who are about 40% of labor forces keep adequate proportion of their rice production for household consumption before they sell a surplus to market. For consumers in other sectors, the Government keeps monitoring and steady domestic price of rice as for food security reason through the measure of price support to farmers. However, the rice consumption per capita of Thais is declining. Although there is 0.77% population growth rate during 2000-2010, the consumption pattern has changed which influenced by western food consumption style. In addition, consumers tend to consume more meat and vegetables as their income are higher (The National Statistic Office of Thailand, 2010).

5.1.9 Exporters
An export of rice in Thailand is a free trade orientation. There is no restricted volume for rice export. However, traders have to register as a rice exporter with the Department of Foreign Trade, Ministry of Commerce, and submit trade documents as defined in the regulation on rice export in 1991. An export of rice is conducted in two forms; Private to Private sales and Government to Government sales.

a. Private to Private sales is a business conducted between private rice exporter in Thailand and foreign private partners. Most of exporters export rice through brokers and international rice traders. There are few exports who sell directly to government and/or importers abroad. Most of exported rice exporters are located in Bangkok where there is a center of rice exporting. In order to maintain and develop their strength business, rice
exporters have formed a group and registered as the Thai Rice Exporter Association. The association acts as an information center and a window for members and foreign importers to enhance their businesses. The rice exporters, therefore, have high power in domestic rice market.

b. Government to Government sales is a deal conducted between Thai Government under the management of Ministry of Commerce, and the Government of imported countries. Nowadays, the Government to Government sales has been declined in importance because of the competence and efficiency of Private to Private sales.

5.1.10 Brokers and International rice traders

Brokers acts as mediator to match a deal between exporters and importers. They don’t have any right over the products. Once the deal is closed successfully, the brokers get pay a commission.

International rice traders function similarly to brokers, but they take position over the purchased products. They purchase rice from Thai exporters and sell to purchasers in country of destination. Most of these brokers and international rice traders are in Europe and the United State such as (Pinprao, 2000),

- Jackson Sons & Co: Head office is located in London, England
- Louise Dreyfus: Located in Paris, France
- Action S.A.: Located in Warsaw, Poland
- Schepens Co.: Head office is located in Antwerp, Belgium
- Continental Grain: Head office is located in New York, USA
- Cargill Inc.: Head office is located in Minneapolis, USA

5.1.11 Associated Marketing Service (AMS)

AMS is an organization founded by leading European retailers in 1987. It’s initiated to manage and coordinate joint purchase activities of private label food and non-food items. AMS creates economy of scale which allows members to enjoy benefit of volume synergy in reducing cost of goods and services. The founding of AMS has raised the bargaining power of European retailers in the rice market. The members of AMS are listed as follow (http://www.ams-sourcing.com, 2011 and Thai Trade Center Copenhagen, Department of Export Promotion, 2011).

**Shareholers:**
- Ahold NV Netherlands/Belgium/Czech Republic
- Dansk Supermarked Gruppen Denmark
ICA AB
Jeronimo Martins & Filhos SA/Uniarme
Kesko Food Ltd.
Migros
WM Morrison Supermarkets PLC
Esselunga
Delhaize
Systeme U

Sweden
Portugal
Finland
Switzerland
United Kingdom
Italy
Belgium
France

Members
Booker
Elomas
Hagar

United Kingdom
Greece
Iceland

“EURO SHOPPER” is the successful brand that AMS has created, developed and marketed exclusively.

5.1.12 Importers in Sweden

Rice importers in Sweden import products through their own chain, or through a specialized importers or agent. These importers are categorized into three groups; Rice processors, Importers/Wholesalers and Large Swedish distribution conglomeration.

a. Rice source good quality rice from Thailand, then imported rice is processed and packaged in Sweden. There are two large rice processors are Swedish Rice Production AB and Amanat Nawaz Rice AB.
   - Swedish Rice Production AB (SRP) is established in 1997 in Eskiltuna, Sweden. SRP mills rice and distributed to both local market and EU market in consumer pack (CBI, 2011).
   - Amanat Nawaz Rice is set up in 2004. It’s 100% own by Pakistani located in Åhus, Sweden.

b. Importer/Wholesalers who imported branded and advertised products such as Uncle Ben’s. These wholesalers usually are American’s subsidiaries of food packers.

c. Large Swedish distribution conglomeration such as ICA AB, KF, the consumers’ cooperative, retailer’s cooperative and AX Food AB. These organization import rice through their central importing and then distribute through their own retail organizations. They have private brands which import in consumer or restaurant packs.
5.1.13 Swedish consumers

Domestic use of rice is classified into three types: human consumption, animal feed and raw materials for further processing. Anyway, the main use of rice is for human consumption. According to Eurostat, Sweden is considered as a medium-size consumer of rice among EU countries. In 2008, rice consumption per capita of Swedes is 7.1 kg. Milled rice shares 78% of total consumption, while brown rice accounting for the rest 32%. During 2004-2008, average rice consumption is increased by 1.6% annually.

As explained above, there are many actors and numbers of paths that rice is taken through before it’s reached to consumers. The figure 5 illustrates the rice value chain starting from farmers, production unit, to consumers in Sweden.
Figure 5. Value chain of rice exported from Thailand to Sweden
5.2 Value-adding to the Rice Chain

Apparently, there are many actors involve in the chain of rice exporting. Every actor plays significant roles as to adding value to the product in term of both monetary and non-monetary value. Sale price of rice that each actor receives is different up on its costs and marketing margin at any level.

Marketing margin is equal to the difference between the sale price of a product and production cost/cost of product purchased. The table 5 indicates stakeholders’ costs, profits and sale price.

Table 7. Stakeholders’ costs, profits and sale price of rice, 2005-2009

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Description</th>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer</td>
<td>Production costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variable costs (Baht/rai)</td>
<td></td>
<td>2,059.74</td>
<td>2,123.86</td>
<td>2,209.59</td>
<td>3,174.04</td>
<td>3,123.47</td>
</tr>
<tr>
<td></td>
<td>Fixed costs (Baht/rai)</td>
<td></td>
<td>220.47</td>
<td>220.47</td>
<td>220.47</td>
<td>458.27</td>
<td>458.27</td>
</tr>
<tr>
<td></td>
<td>Total costs</td>
<td></td>
<td>2,280.21</td>
<td>2,344.33</td>
<td>2,430.06</td>
<td>3,632.31</td>
<td>3,581.74</td>
</tr>
<tr>
<td></td>
<td>Production (kg./rai)</td>
<td></td>
<td>436.00</td>
<td>427.00</td>
<td>433.00</td>
<td>405.00</td>
<td>411.00</td>
</tr>
<tr>
<td></td>
<td>Production costs per kg</td>
<td></td>
<td>5.23</td>
<td>5.49</td>
<td>5.61</td>
<td>8.97</td>
<td>8.71</td>
</tr>
<tr>
<td></td>
<td>Production costs per ton</td>
<td></td>
<td>5,229.84</td>
<td>5,490.23</td>
<td>5,612.15</td>
<td>8,968.67</td>
<td>8,714.70</td>
</tr>
<tr>
<td></td>
<td>Marketing margin</td>
<td></td>
<td>2,122.66</td>
<td>2,392.77</td>
<td>2,861.35</td>
<td>4,343.33</td>
<td>3,904.30</td>
</tr>
<tr>
<td></td>
<td>Sale price of farmer</td>
<td></td>
<td>7,352.50</td>
<td>7,883.00</td>
<td>8,473.50</td>
<td>13,312.00</td>
<td>12,619.00</td>
</tr>
<tr>
<td>Intermediary</td>
<td>Marketing and management costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transportation</td>
<td></td>
<td>200.00</td>
<td>200.00</td>
<td>200.00</td>
<td>250.00</td>
<td>250.00</td>
</tr>
<tr>
<td></td>
<td>Warehouse fee</td>
<td></td>
<td>20.00</td>
<td>20.00</td>
<td>20.00</td>
<td>25.00</td>
<td>25.00</td>
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<tr>
<td></td>
<td>Stock keeping fee</td>
<td></td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>20.00</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>Weight loss fee</td>
<td></td>
<td>50.00</td>
<td>50.00</td>
<td>50.00</td>
<td>80.00</td>
<td>80.00</td>
</tr>
<tr>
<td></td>
<td>Management cost</td>
<td></td>
<td>25.50</td>
<td>27.00</td>
<td>28.50</td>
<td>33.00</td>
<td>35.00</td>
</tr>
<tr>
<td></td>
<td>Total costs</td>
<td></td>
<td>305.50</td>
<td>307.00</td>
<td>308.50</td>
<td>408.00</td>
<td>410.00</td>
</tr>
<tr>
<td></td>
<td>Profits</td>
<td></td>
<td>512.00</td>
<td>474.00</td>
<td>386.00</td>
<td>2,083.00</td>
<td>2,659.00</td>
</tr>
<tr>
<td></td>
<td>Marketing margin</td>
<td></td>
<td>817.50</td>
<td>781.00</td>
<td>694.50</td>
<td>2,491.00</td>
<td>3,069.00</td>
</tr>
<tr>
<td></td>
<td>Sale price of Intermediary</td>
<td></td>
<td>8,170.00</td>
<td>8,664.00</td>
<td>9,168.00</td>
<td>15,803.00</td>
<td>15,688.00</td>
</tr>
</tbody>
</table>

Source: Rodmua, 2009

* Estimated value
Table 7. Stakeholders’ costs, profits and sale price of rice, 2005-2009 (Cont’)

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Description</th>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miller</td>
<td>Processing cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miller</td>
<td>Cost of milling rice</td>
<td></td>
<td>317.66</td>
<td>334.38</td>
<td>351.98</td>
<td>370.50</td>
<td>390.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Quality improvement cost</td>
<td></td>
<td>97.74</td>
<td>102.89</td>
<td>108.30</td>
<td>114.00</td>
<td>120.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Packing cost</td>
<td></td>
<td>14.66</td>
<td>15.43</td>
<td>16.25</td>
<td>17.10</td>
<td>18.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Packaging cost</td>
<td></td>
<td>9.77</td>
<td>10.29</td>
<td>10.83</td>
<td>11.40</td>
<td>12.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Weight loss fee</td>
<td></td>
<td>50.00</td>
<td>50.00</td>
<td>50.00</td>
<td>80.00</td>
<td>80.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Management cost</td>
<td></td>
<td>48.87</td>
<td>51.44</td>
<td>54.15</td>
<td>57.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Transportation</td>
<td></td>
<td>350.00</td>
<td>350.00</td>
<td>350.00</td>
<td>400.00</td>
<td>400.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Total costs</td>
<td></td>
<td>888.70</td>
<td>914.43</td>
<td>941.50</td>
<td>1,050.00</td>
<td>1,080.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Profits</td>
<td></td>
<td>3,091.30</td>
<td>5,071.58</td>
<td>6,050.50</td>
<td>7,047.00</td>
<td>7,732.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Marketing margin</td>
<td></td>
<td>3,980.00</td>
<td>5,986.00</td>
<td>6,992.00</td>
<td>8,097.00</td>
<td>8,812.00</td>
</tr>
<tr>
<td>Miller</td>
<td>Sale price of Miller</td>
<td></td>
<td>12,150.00</td>
<td>14,650.00</td>
<td>16,160.00</td>
<td>23,900.00</td>
<td>24,500.00</td>
</tr>
<tr>
<td>Exporter</td>
<td>Exporting cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exporter</td>
<td>Quality improvement cost</td>
<td></td>
<td>341.00</td>
<td>366.00</td>
<td>380.00</td>
<td>412.00</td>
<td>445.00</td>
</tr>
<tr>
<td>Exporter</td>
<td>Packing cost</td>
<td></td>
<td>29.36</td>
<td>31.93</td>
<td>32.50</td>
<td>40.00</td>
<td>43.50</td>
</tr>
<tr>
<td>Exporter</td>
<td>Packaging cost</td>
<td></td>
<td>183.20</td>
<td>190.00</td>
<td>203.33</td>
<td>268.00</td>
<td>270.00</td>
</tr>
<tr>
<td>Exporter</td>
<td>Manufacturing overhead</td>
<td></td>
<td>10.00</td>
<td>10.00</td>
<td>10.00</td>
<td>15.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Exporter</td>
<td>Management cost</td>
<td></td>
<td>175.00</td>
<td>180.00</td>
<td>180.00</td>
<td>220.00</td>
<td>215.00</td>
</tr>
<tr>
<td>Exporter</td>
<td>Container vessel cost</td>
<td></td>
<td>200.00</td>
<td>220.00</td>
<td>220.00</td>
<td>295.00</td>
<td>260.00</td>
</tr>
<tr>
<td>Exporter</td>
<td>Total costs</td>
<td></td>
<td>938.56</td>
<td>997.93</td>
<td>1,025.83</td>
<td>1,250.00</td>
<td>1,245.50</td>
</tr>
<tr>
<td>Exporter</td>
<td>Profits</td>
<td></td>
<td>3,926.57</td>
<td>4,694.38</td>
<td>4,296.46</td>
<td>10,060.00</td>
<td>5,149.10</td>
</tr>
<tr>
<td>Exporter</td>
<td>Marketing margin</td>
<td></td>
<td>4,865.13</td>
<td>5,692.31</td>
<td>5,322.29</td>
<td>11,310.00</td>
<td>6,394.60</td>
</tr>
<tr>
<td>Exporter</td>
<td>Export price (FOB)</td>
<td></td>
<td>17,015.13</td>
<td>20,342.31</td>
<td>21,482.29</td>
<td>35,210.00</td>
<td>30,894.60</td>
</tr>
</tbody>
</table>

Source: Rodmua, 2009

* Estimated value

According to the table 5, stakeholders in the rice value chain are grouped into four groups; farmer, intermediary, miller and exporter.
Farmer as a producer of paddy uses various production factors for rice cultivation. Costs of production consist of variable costs and fixed costs which are varying depend on farmer’s budget. However, average variable cost in 2005-2009 is 2,059.74 Baht, 2,123.86 Baht, 2,209.59 Baht, 3,174.04 Baht and 3,123.47 Baht respectively. Variable costs are the cost of labor in land preparing, planting, farm maintaining and harvesting, seeds, fertilizers, pesticides and fuel. Fixed costs are the cost of land and agricultural machineries and its depreciation. Om 2005-2009, fixed costs of paddy produce by farmers are 220.47 Baht, 220.47 Baht, 220.47 Baht, 458.27 Baht and 458.27 Baht consecutively. As can be seen, the total cost of production of farmers has increased during the mentioned period which is a result of an increasing of oil price. Oil is an important production factor in rice farming. Once oil price is increased, it raises the production costs and consequently influents the farm gate price of rice to be higher. The sale price of rice by farmers in 2006-2009 is 7,352.50 Baht, 7,883.00 Baht, 8,473.50 Baht, 13,312.00 Baht and 12,619.00 Baht respectively.

Intermediary is a middle person who purchase paddy from farmers, then sell and transport paddy to millers. Intermediary here refers to local collectors, farmers’ organizations and central market. The sale price of rice that these intermediaries received from millers is 8,170 Baht, 8,644 Baht, 9,168 Baht, 15,803 Baht and 15,688 Baht in 2005-2009 consecutively. Costs that the intermediaries taking on are cost of buying paddy, transportation, warehouse, stock keeping fee, weigh loss fee and cost of management. The transportation cost is the largest cost which normally varies up on the distance to mill house. An average cost of transportation during the mentioned period is 200 Baht in 2005-2007, and 250 Baht in 2008-2009. Profit margin that the intermediaries receive is 512 Baht, 474 Baht, 386 Baht, 2,083 Baht and 2,659 Baht in 2005-2009 consecutively.

Millers, a rice processor, purchase paddy from both intermediaries and farmers directly. Milling house plays an important role in a process to remove the husk and the bran layers to get edible rice. This process is considered as the most important value-added process for rice (Ekasingh, B., Sangkapitux, C., Kitchaicharoen, P. and Suebpongsang, P., 2007). An average sale price of rice that millers receive is 12,150 Baht, 14,650 Baht, 16,160 Baht, 23,900 Baht and 24,500 Baht in 2005-2009 respectively. An average total cost of rice processing per ton is 888.70 Baht, 914.43 Baht, 941.50 Baht, 1,050 Baht and 1,080 Baht in 2005-2009 respectively. Millers enjoy profit margin at 3,091.30 Baht, 5,071.58 Baht, 6,050.50 Baht, 7,047 Baht and 7,132 Baht in 2005-2009 respectively. Usually once millers are informed the sale price of rice that offered by rice exporters on behalf of broker who be between miller and exporter, they will set the purchase price of paddy to intermediaries and/or farmers by excluding the cost of milling, their expecting margin and other relevant costs in the mill house. Ekasingh, B., Sangkapitux, C., Kitchaicharoen, P. and Suebpongsang, P. (2007) state that millers play important roles in price transmission.

Thai rice exports are 7.5 – 10.2 million tons or about 50% of total rice production 2006-1008. The export prices are quoted by exporters in term of Free on Board (FOB) price (Dechachete, 2011). The FOB price per ton quoted in 2005-2009 are 17,015.13 Baht, 20,342.31 Baht,
21,482.29 Baht, 35,210 Baht and 30,894.6 Baht respectively. Exporters shoulder the costs mainly to improve quality of rice to satisfy importer’s standards.

For rice market in Sweden, most of import rice comes to Sweden as consumer packed. The price structure is shown in the table 6.

Table 8. Price structure for rice in consumer pack in Sweden

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landed cost</td>
<td>100.00</td>
</tr>
<tr>
<td>Importer/Wholesaler mark-up</td>
<td>+17.00</td>
</tr>
<tr>
<td>Wholesaler price</td>
<td>117.00</td>
</tr>
<tr>
<td>Retail mark-up</td>
<td>+60.00</td>
</tr>
<tr>
<td>Retail price exclude VAT</td>
<td>177.00</td>
</tr>
<tr>
<td>VAT 12% added on</td>
<td>+21.24</td>
</tr>
<tr>
<td>Retail price include VAT</td>
<td>198.24</td>
</tr>
</tbody>
</table>

Source: Swedish Chambers of Commerce

According to the table 6, the retail price of ordinary polished rice including VAT is twice of the landed cost. The mark-up price at wholesaler and retailer arise from additional cost that wholesaler and retailer spend on product and/or package improvement, plus profit margin of the sellers.

5.3 Role of Governance in Rice Value Chain

The value chain of rice export from Thailand to Sweden has a complex structure with many stakeholders involving along the chain. The powerful actors who have high bargaining power can influence other actors and consequently control the chain.

Market of rice can be divided into two sub-markets which includes paddy market and rice market. In paddy market, there are five actors involving in the market; farmers, local collectors, farmers’ organizations, central market and millers. In this market, farmers are vulnerable to middle-merchants. Since most farmers don’t have storage to keep their products, they sell their product immediately after harvesting season at a price set by buyers. Unlike millers who have high capacity storage can choose to sell their rice at any time when the price is satisfied. Millers are regarded as the most powerful actor in the paddy market because paddy has to be processed to milled rice, and the biggest rice processor is miller. Although there are some farmer cooperatives equipped with mill house, they can produce only few proportion of mill rice comparing to millers who have higher technology and larger fund. In addition, the marketing of farm cooperative is considerably less effective than millers and their large networks. In order to support vulnerable farmers, the Thai government has adopted policy measure to guarantee the sale price of rice to farmers called ‘Price Guarantee Program’.
Farmers who sell their products lower than the guarantee price are able to claim a differential price at local government units. The program will be discussed more in details in the part of Institutional aspect.

In milled rice market, sale price is influenced by local supply and demand since about half of rice production is consumed domestically. The Government is also influence of rice price to some extent (Wiboonpongsa and Chaovanapoonpol, 2001). In addition, Thailand is very open to trade in rice and the export of rice is a free trade orientation. Thus, world market price and currency exchange rate also command domestic prices (Dawe et al., 2008). For Thai rice export, about 80% of total exports are controlled by 10 traders (Dooren, 2005). Large exportable rice is sold through private exporters who have direct contact with private importers in Europe. In conclusion, role of governance in domestic rice market goes forth and back in which rice supply by farmers and demand of rice in both local and international market influence sale prices to be fluctuated. However, the major actor who set the price is exporters and they are regarded as the most influential actor in the local rice chain.

In Swedish market, the food sector is concentrated and integrated. Each group of importer/wholesaler is greatly integrated with activities ranging from sourcing, purchasing, importing, and wholesaling to distribution and retailing. These importers/wholesalers import rice to offer in a market under their private brands; for example, ICA AB and EURO SHOPPER.

Under the strict regulations of European Union and high market requirements in Sweden, rice exporting countries have less option to access the market just to follow those rules to meet requirements.

5.4 Institutions and its impact on rice value chain

Apart from stakeholders who directly involve in the rice value chain, there are other institutions that their roles create effects on the chain as well. Roles of those institutions are discussed in this chapter.

5.4.1 Thai Government

As rice is the main production crop of the country, Thai Government has given top attention to the rice sector. Various policy measures have been launched to increase production capacity to satisfy an increasing domestic demand, provide accessibility to low price food and to raise government revenue for state development purposes. The development of agricultural policies and strategies is handled under the administration of the Ministry of Agriculture and Cooperative and the Ministry of Commerce. Farmers are able to access to source of fund through the services of the Bank for Agriculture and Agricultural Cooperative, a state enterprise under the jurisdiction of the Ministry of Finance. Although the government doesn’t intervene in the rice export market and even open to the free-trade system, the government’s
function considerably affects the performance of rice production and export in Thailand (Shigetomi, Kubo and Tsukada, 2011). The highlighted policies are listed in the table 9.

<table>
<thead>
<tr>
<th>Policy measure</th>
<th>Start year</th>
<th>End year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export tax</td>
<td>1952</td>
<td>1985</td>
</tr>
<tr>
<td>Rice premium</td>
<td>1954</td>
<td>1986</td>
</tr>
<tr>
<td>Rice reserve requirement</td>
<td>1960</td>
<td>1985</td>
</tr>
<tr>
<td>Export quota 1</td>
<td>1974</td>
<td>1978</td>
</tr>
<tr>
<td>Export quota 2</td>
<td>1984</td>
<td>1986</td>
</tr>
<tr>
<td>Direct purchase by state agencies</td>
<td>1975</td>
<td>1980s and 1990</td>
</tr>
<tr>
<td>Pledging</td>
<td>1982</td>
<td>2008</td>
</tr>
<tr>
<td>Crop price guarantee</td>
<td>2009</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Shigetomi, Kubo and Tsukada (2011)

a. Export tax was a tax based on the real value of rice export (ad volarem tax) that levied on private rice export implemented during 1952-1985. The Custom Department administered the collection of the tax.

b. Rice Premium measure was effective during 1954-1986 by Ministry of Commerce. Private Rice exporters were required to pay a premium in order to get an export license.

c. Rice reserve requirement was introduced in 1960. Under this policy, rice exporters obliged to sell a certain amount of rice as export volume to the government at the official fixed price which usually lowers than market prices.

d. Export quota scheme was first introduced during 1970-1974, and reintroduced in 1984-1986. Launching of the scheme was to control the volume of rice export in which a concern of low domestic supply and high sale price as affected by strong demand in international market.

e. Direct purchase by state agencies was a program implemented in 1975, aiming at raising farm gate price to support rice producers. The program later was replaced by the pledging program.

f. Pledging program was a measure the government employed to assist farmers by manipulating prices of rice. The program was implemented in 1982. The idea of the program was to help farmers ride out price fluctuation by allowing framers to pledge their products to the government at a guarantee price with less loan rate during the market price was low. Once the market price of rice was high, farmers could redeem the loan within 4 months of harvest and sold their product to the market as usual. Therefore, farmers were able to enjoy higher income.
g. Crop Price Guarantee Program has replaced the pledging program in 2009. Insured price is based on production costs including transportation cost from farm to buyers’ mills with profit margin of 20-25%. Eligible tonnage is limited based on average cultivation and yield of each crop. The idea of this program is designed to benefit all farmers, particularly small-scale farmers. The Bank for Agriculture and Agricultural cooperatives (BAAC) is responsible for the program administration. Under the implementation of this program, farmers are required to register with a local branch of BAAC, and then a lowest-price guarantee contract is signed up on agreement of farmers and BAAC. During the price guarantee period, the program is enable farmers to manage the risk of price fluctuation and make own decision. If the market prices of crops are lower than the guarantee price, famers who sign up on the contract with BAAC will receive the price differentials. On the other hand, if market prices of rice are higher than the guarantee prices, farmers are allowed to sell their products in the market and the contract that has been signed with BACC will automatically be invalid. In other words, the crops price guarantee program is similar to typical insurances.

Refer to the lists of the government’s policy, the direction of the policies fall into two types. The first four policies are consumer-oriented as they are implemented to stabilize price of rice domestically and provide cheap access to staple food. In addition, the government employed these measures in order to extract revenue from exporters for national development purpose, particularly a development of industrialization at Bangkok base (Forssel, 2009). The implementation of the programs resulted in an expansion of industrial sector. However, farmers got adversely effects for all heavy tax loads because exporters transferred costs of losses incurred downward along the chain, and farmers were the less power negotiator. Much lower price of paddy was offered to farmers. During the programs were effective, there were significant reduction in rice farming areas as well as a decline in rice supply in the market (Pimprao, 2000).

After an intensive investment in industrialization, industrial sector in Thailand has been developed and urbanites’ income increased rapidly. Rice sector’s role has reduced in GDP share as well as an income disparity between urban and rural population have increased. Labors migrate from rice farming to industrial sector. It resulted in a decrease in labor force involving in rice production (Forssel, 2009). The last three programs are noticeable clearly that the direction has changed to producer-oriented. The programs were implemented to support farmers, the first producer of rice in the chain. The study of rice market system ay Pimprao (2000) proved that the direct purchase by state agencies did not provide real benefits to farmer but millers instead. Then, the pledging program was introduced. Most farmers were satisfied with the program as they immediately earned benefit from higher sale price comparing to other long-run programs such as a promotion of increasing productivity, a change of cultivation practice or a change of crop varieties. On one hand, the pledging program created costs and disadvantaged to society. Market mechanism was distorted because a product prices set by the government were regularly set well above market price. Farmers, therefore, aimed to pledge their products to government without redeem their loan. Government had to spend large budget for administration fee and cost of storage management.
It caused the government to be suffered from the loss of over 10 billion baht each year from selling agricultural product stockpiles at low price. The program was more beneficial to traders and rich farmers who hold big land in irrigated areas. The program of crops price guarantee that replaced the pledging program since 2009 rids the government of the necessity to use warehouses to store crop products which therefore reduces cost of administration and management. Farmers receive benefits from selling products at a guarantee price. However, the program may costs the government largely if the market price is much lower than the guarantee price. In addition, a thoroughly inspect farmers’ document is also necessary in order to prevent false register of non-farmers.

As discussed above, the policies are implemented to regulate and/or to support only some specific actors in the chain, but the consequences are extended to other actors systematically. For example, the ending stock measure reduced the volume of rice exports which hence raised competition among buyers. The export tax measure was implemented to extract revenue from exporters. However, exporters transfer those costs to their suppliers by setting lower purchase price of rice as to maintain their profits. Then the similar situations occur downwards the chain to farmers, the starting actor of the chain. The crop price guarantee program which was introduced to support farmers encourages them to produce higher rice production because they can be sure of their products to be sold at a certain price.

Therefore, the governmental policies crate effects to the chain to some extent.

5.4.2 Swedish Government

Sweden has become the member of the European Union since January 1, 1995. To access to Swedish market, therefore the EU legislation is applied. Since Sweden is a high-developed country and known as one of the highest food safety standards in Europe, the requirement does not limit only the EU legislation. There are non-legislative market requirement to be concerned.

a. EU legislation
According to the General Food Law (ED) 178/2002, all food products in EU have to comply with five main principal listed below.

Principal 1: Food safety
The principal is established to ensure a high protection level of human health and an interests of consumers concerning to food. Conditions of product use are taken into account, as well as each stage of production, processing, distribution and information provided to consumers. Food is considered to be unsafe when it is either;

- Injurious to health
- Unfit for human consumption due to contaminations caused by extraneous matter, putrefaction, deterioration or decay.
**Principle 2: Responsibilities**
Since EU legislation is not regulating in non-EU countries, it is food business operators’ responsibility to ensure their products to meet EU safety requirement at all time. Failure to meet the legal requirements is resulted in product withdrawal when the non-compliance is discovered. For example, EU market restricts the rice that contaminated to cadmium. It indicates that EU importers want importers to guarantee the use of appropriate hygiene practices. Usually the guarantee can be proved through certification such as:
- ISO at a global level
- CEN at an EU level
- SIS (Swedish Standards Institute) at national level

These certifications are not official legislation, but widely accepted norms which often required by buyers. Credibility of exporter will be improved if they meet required standard.

**Principle 3: Traceability**
Traceability is an ability to trace to the origin of food throughout the food chain from production, processing and distribution. This implies that food exporters to EU countries have to prepare all records of the products in order to provide information when required by EU importers.

**Principle 4: Precautionary**
The European Food Safety Authority (EFSA) which located in Parma in Italy is a scientific adviser to EU in order to deal with policy implementation concerning with existent or emerging food risk. In case that the EFSA query some food at a potential risk, EU will act immediately without waiting for scientific certainty. With precautionary principle applied in EU, the requirements are changeable and exporters cannot be sure of their products to always access to EU market.

**Principle 5: Presentation**
To enable consumers to get comprehensive information about the food they buy, the rules of labeling, advertising and presenting are established. The rules of labeling require exporters to provide following information:
- Name of the food
- Ingredients and amount associated
- Durability indication
- Special storage condition
- Instruction of use
- Name and address of manufacturer
- Packer or retailer
- Place of origin (if necessary)

**b. Market requirement**
Swedish market acts up to a high standard expectation of customers who now pay attention not only to the finished products but also to the conditions in the supply chain. Therefore,
non-legislative requirements are developed in addition to EU legislation by the market itself. Non-legislative requirement in Swedish market can be divided into five categories which include certification and eco-labels, corporate responsibility, codes of conduct, quality management and environmental management.

**Certification and Eco-labels**
Many Swedish buyers consider standards as part of basic requirements to suppliers. Although it’s not an official requirement, certified suppliers are more favored comparing to a non-certified suppliers.

**Corporate Responsibility**
Concept of corporate responsibility is growing as a growth of consumer awareness. Suppliers will be outstanding in competition if their productions sound ethically, socially and environmentally.

**Code of Conduct**
Swedish consumers are very responsive to standard working condition in suppliers’ business operation. A code of conduct is a kind of commitment of suppliers to ethical business, society and environment.

**Quality Management**
Product safety is considered as most important issue in a food sector. Quality management systems according to the ISO 9000 standard are global acceptance. In addition, the Hazard Analysis and Critical Control Point (HACCP) is also required by buyer in many cases.

**Environmental Management**
Swedish market now requires widely organic production. Food safety is highlighted to the entire chain as a concept ‘from farm to fork’.

**c. Customs tariffs and import regulations**
All types of rice export to EU market are subject to agricultural levies. Current tariff levels are listed as follow (Wailes, 2003).
- EUR 211 per ton for paddy rice
- EUR 264 per ton for brown rice
- EUR 416 per ton for milled rice.

There are some exceptions in the form of reduced duty quotas or duty-free quotas. Preferences are given to a quota of milled rice import from Thailand with zero tariffs on 63,000 tons. Brown rice can be imported at a tariff of EUR 88 per ton for 20,000 tons. Broken rice of 80,000 tons can be imported with a duty of EUR 28 per ton. Importers have to apply for an import license from the Swedish board of Agriculture in case of the shipment is larger than one metric ton.
Since Sweden is a member of European Union (EU), product exports to Sweden have to follow EU legislation and exporters’ business operation listing from producing, processing and distribution are required to meet requirements. These measures on one hand are implemented to protect public health, environment and to fulfill consumer’s demands. On the other hand, it is a measure to protect local industries. Since European Union is one of the major rice trading nations who import rice from developing countries to be processed and to distribute among European countries. Distorting of rice trade and milling activities can be seen as import quota and tariff on milled rice which are generally higher than other types of rice. Therefore, rice exporting countries like Thailand has to improve its business operation along the rice chain in order to meet EU legislation and to fulfill non-legislative requirements by Swedish market. In conclusion, the regulation and non-legislative requirements are seen as trade barriers to rice exporting countries.
Chapter VI
Conclusions and Recommendations

6.1 Conclusions

Thailand, a dominant rice exporter in the world rice market, is a major rice supplier to Sweden with 18% market share of imported rice. In Thailand, rice is cultivated all over the country. The biggest rice producing area is in the Northeast region; however the Central plain region produces the highest yield. Rice production in Thailand is utilized in three ways which include domestic consumption, ending stock and export.

Swedish rice market relies heavily on import because climate condition is unsuitable to growing rice. Although rice is not a staple food of Swedes, there is an increasing trend of rice consumption with 1.6% rising annually.

Value chain of rice exported from Thailand to Sweden is involving by many actors, at least 12 actors, along the chain including farmers, local collectors, farmer’s organization, central market, millers, brokers, wholesalers, retailers, exporters, International rice traders and brokers, Associated Marketing Services (AMS), Swedish importers and Swedish consumers. Rice from producers is taken through numbers of path before it’s reached to consumers. The major actors in the chain are farmers who produce rice, millers who process rice, exporters who trade rice to Sweden and Swedish importers who import and distribute rice products to consumers. Between these major actors, there are other stakeholders who act as a linkage. They play important roles in sourcing, transporting and distributing of the products. Each stakeholder along the chain adds value to the products in term of both monetary and non-monetary value. Value of rice is raised along the chain it is taken through according to the costs incurred and marketing margin of each stakeholders in the chain. Profits are shared largely to stakeholders who have high bargaining power in the chain which are millers and exporters.

Role of governance in rice market is accordance to the bargaining power of actors in the chain. Actors who have higher bargaining power are able to dictate other actors. The governance in domestic rice market goes forth and back, from farmers up along the chain to exporter, and exporters down to farmers in which rice supply by farmers and demand of rice in both local and international market influence sale prices to be fluctuated. However, farmers as a producer of rice are vulnerable to buyers because they don’t have capacity storage to keep their products. They sell products to market immediately after harvesting flood big supply to market. Thus, buyers are able to set purchase price as they have higher negotiation power. Miller is one of the powerful actors in paddy market because they have high capacity storage and they also play an important role in converting paddy rice to eatable milled rice. In rice market, the most influential actor in the local rice chain is exporter because they are a price setter. Prices of rice are influenced by local supply and
demand of both local and international consumption. Besides, World market price and currency exchange are other factors that affect local sale price as Thailand apply free-trade system in rice trading. EU legislation and non-legislative requirements in Swedish rice market increase power to Swedish importers and lessen option to Thai rice exporters to be followed those regulations.

Thai Government has given top priority to rice sector as rice is the main production crop of the country. Various policy measures have been adopted to improve production as well as to raise government revenue for state development purpose. The highlighted policies since 1950s are export tax, rice premium, rice reserve requirement, export quota, direct purchase by state agencies, pledging and crop price guarantee. The directions of the policies fall into two types are consumer-oriented and producer-oriented. The consumer-oriented policies which include export tax, rice premium, rice reserve requirement and export quota are effective to stabilize domestic price of rice. Besides, the government employs these measures to extract revenue from exporters to invest in a development of industrial sector. Later, the direction has changed to consumer-oriented. The notable policies are the direct purchase by state agencies, pledging and crop price guarantee which is the latest implemented program. These three programs are adopted mainly to support farmers because the labor in rice farming is declined in number. Moreover, there is a big income gap between rural and urban population. The policy measures adopted by Thai government have specific purposes concerning specific actors in the chain. Although, those programs create affects to the rice value chain to some extent, the chain typically adjusts itself by the market mechanism of demand and supply.

Swedish government applies EU legislation in the country since Sweden has become the member of the European Union in 1995. There are five principles to be complied when export food products to EU which include food safety, responsibilities, traceability, precautionary and presentation. Further to EU legislation, there are five non-legislative requirements developed by market itself that exporters must aware; certificate and eco-labels, corporate responsibility, code of conduct, quality management and environmental management. Those market requirements are not officially regulated by law, however, they are voluntary options that make exported products be competitive in Swedish market. Moreover, all types of rice export to EU market are subject to agricultural levies. These policy measures; legislation, non-legislative requirements, tariff and quota, on one hand are adopted to protect public health, environment and to meet customer’s expectation. On the other hand, it is a measure to protect local industries. In addition, they can also be seen as trade barriers to rice exporting countries.
6.2 Recommendations

6.2.1 Recommendations to Rice Value Chain Development

According to an analysis of the value chain of rice export from Thailand to Sweden, the chain structure is complex and many stakeholders involving along the chain. The chain has proved efficiency since Thailand has been the leading rice exporter for the past thirty years, although the country is not the leading rice producer. Private sector in the rice value chain has contributed greatly to expand rice market to both local and foreign. When considering the value-adding along the chain, however, the large share of profits is belonging to the actors who have high bargaining power. Farmers are the most vulnerable stakeholder in the chain. Although Thai government provides monetary support though current the “Crop price guarantee program”, it’s not considered as sustainable solution. Self-efficiency should be the main focus on development program. Following procedures are recommended.

- It’s recommended that farmer’s organization such as the farmer’s cooperative should be established since the proportion of existing farmer’s organizations are very small comparing to total number of farmers all over the country.
- To be competitive with other private organizations, it’s recommended to strengthen relationship among farmer’s organizations in local levels as well as regional and national level.
- Farmer’s organization is recommended to engage more in marketing function and build up business network both local and foreign market.
- Government supports are crucially important in term of funding for investment and education for human resource development. Besides, a development of irrigation system and transportation are crucial factors to improve rice production and product distribution.

In addition, a form of farmer’s organization with integrated operation can reduce a transaction costs through intermediaries along the chain. Thus, Thailand can offer rice products to market with competitive prices.

In order to be competitive in Swedish market, quality product is the major consideration. Since Swedish consumers pay high attention to product safety, health and environmental friendly, organic rice is a suitable choice offering to this market. Therefore, it’s recommended that Thailand promotes organic rice farming to capture this growing market. Moreover, it’s the way to work harmony with nature as well as to sustain national rice sector in a long run. For Thai rice exporters, it’s important to fully understand the requirements of EU market both legislation and non-legislation, and follows the rules strictly. Otherwise, it may lead to a withdrawal of Thai rice products which is not only from Swedish market but the whole European Union.
6.2.2 Recommendations for Further Study

Results of the study indicate that Thai rice has potential in Swedish market as there is an increasing trend of rice consumption, and Thailand is the leading rice supplier in the market. Rice value chain work effectiveness and Thai government open free-trade for rice export. For further study, it’s suggested to study on consumer behavior and their attitude toward Thai rice in Swedish market in order to recommend appropriate market strategy to Thai rice exporters. It’s also suggested to conduct competitor analysis in order to know who the business is competing with, what products they offer and to plan properly strategy to compete with those competitors.
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