



รายงานวิจัยฉบับสมบูรณ์

โครงการ: การปรับเปลี่ยนโครงสร้างระบบห่วงโซ่คุณค่าและกลยุทธ์การตลาดสินค้า
เกษตรอินทรีย์ สำหรับห้างสรรพสินค้าและการส่งออกของประเทศไทย
**Organic Food Value Chain Restricting and Marketing Strategies for
Supermarkets and Exporting in Thailand**

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เมษายน พ.ศ. 2556

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(ความเห็นในรายงานนี้เป็นของผู้วิจัย สกว. ไม่จำเป็นต้องเห็นด้วยเสมอไป)

Abstract

Project Code: DBG53800027
Project Title: **Organic Food Value Chain Restricting and Marketing Strategies for Supermarkets and Exporting in Thailand**
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Project Period: 2 years

Currently, agri-food systems are facing dynamic changes in both developed and developing economies. Agri-food systems that were based on traditional markets are increasingly channelled through modern trade chains. One of the reasons for this change is the influence exerted by modern trade chains. While this situation offers opportunities for organic small-scale farmers, the high standards set by modern trade chains in terms of quantity, quality, delivery, timing, packing, safety, etc., can prevent small-scale farmers from exploiting such opportunities, because of the significant changes required in their production and marketing systems.

Furthermore, the associated coordination and transaction costs can drive modern trade buyers toward a small group of suppliers based on producers' capacity. In recent years, social enterprise schemes have become an important producer organizational form that has emerged in both developed and developing economies in integrating small-scale farmers with modern trade chains. The role of social enterprises in integrating organic small-scale into modern trade chains is based on case studies of two social enterprise schemes. An applied value-chain and New Institutional Economics (based on transaction costs) framework is used to analyze how smallholders are coping with the transformation in the food sector in Thailand and the role of social enterprises.

The study has found that organic small-scale farmers mainly use five different mechanisms to participate in modern trade chains depending on their situations and preferences. Participation through social enterprise scheme was found to be currently popular because it offers farmers a number of opportunities and advantages in the supply of organic/pesticide-safe products. In addition, the study results show that organic farmers in the social enterprise schemes in both case studies had higher outcomes (profits) than conventional farmers. The decision of households to participate in social enterprise schemes in producing organic products for modern trade chains was not independent of household and farm characteristics.

Organic farmers faced challenges related to labour, input/credit supply and in meeting production and produce standards prescribed by modern trade chains. However, the key motivation for participation arised from the roles that social enterprise schemes played in enabling farmers to deal with market uncertainty by providing guaranteed outlets for produce and assured minimum price.

The study also shows that social enterprises played important role in reducing transaction costs for organic small-scale farmers which influenced the profitability and sustainability of organic small-scale farmers' participation in modern trade chains. The results of this study provide important insights for policy and efforts to promote social enterprises as organizations uniquely capable of integrating small-scale farmers into modern trade chains.

Key words: Organic Farming, Marketing , Modern Trade, Supply Chain

บทคัดย่อ

รหัสโครงการ: DBG53800027
ชื่อโครงการ: การปรับเปลี่ยนโครงสร้างระบบห่วงโซ่คุณค่าและกลยุทธ์การตลาด
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ระยะเวลาโครงการ: 2 ปี

ปัจจุบันอุตสาหกรรมอาหาร โดยเฉพาะอาหารที่มาจากภาคเกษตรได้มีการเปลี่ยนแปลงแบบ พลวัต ทั้งในประเทศที่พัฒนาแล้วและกำลังพัฒนา ซึ่งรูปแบบการค้าสมัยใหม่ ได้เข้ามามีบทบาทมากขึ้น และเข้าไปทดแทนการค้าแบบดั้งเดิม หนึ่งในเหตุผลสำคัญสำหรับการเปลี่ยนแปลงนี้คือแรง ผลักดันจากการขยายตัวของอุตสาหกรรมการค้าปลีกและห่วงโซ่การค้าสมัยใหม่ ซึ่งการเปลี่ยนแปลง ดังกล่าว ถือเป็นโอกาสที่ดีสำหรับเกษตรกรรายย่อย โดยเฉพาะเกษตรกรที่ทำการเกษตรแบบอินทรีย์ ซึ่งสามารถผลิตสินค้าอินทรีย์ที่ตอบสนองต่อความต้องการของโซ่อุปทานสมัยใหม่ได้ ซึ่งโซ่อุปทาน การค้าสินค้าเกษตรสมัยใหม่นั้น ได้มีการกำหนดมาตรฐานทางการเกษตรปลอดภัยที่สูงขึ้นทั้งในด้าน คุณภาพ ปริมาณ การขนส่ง เวลา บรรจุภัณฑ์ และความปลอดภัย ดังนั้นเกษตรกรที่ทำการเกษตร แบบอินทรีย์จึงมีโอกาสทางการค้าเพิ่มมากขึ้น อย่างไรก็ตามโซ่อุปทานการค้าสมัยใหม่ได้คำนึงถึง ต้นทุนในการทำธุรกรรมทางการผลิตและการตลาด รวมถึงการติดต่อประสานงาน จึงทำให้การค้า ระหว่างเกษตรกรผู้ผลิตสินค้าเกษตรอินทรีย์รายย่อยไม่สามารถติดต่อทำการค้ากับผู้ประกอบการ การค้าสมัยใหม่ได้ ซึ่งจากการศึกษาพบว่าองค์กรธุรกิจเพื่อสังคมได้มีบทบาทในการช่วยประสานกลุ่ม เกษตรกรอินทรีย์กับผู้ประกอบการแบบการค้าสมัยใหม่ได้อย่างมีประสิทธิภาพมากขึ้น และจาก การศึกษาบทบาทของผู้ประกอบการเพื่อสังคมในการรวมเกษตรกรขนาดย่อยไปยังห่วงโซ่สมัยใหม่ได้ ศึกษาใน 2 กรณีศึกษาของกลุ่มผู้ประกอบการเพื่อสังคมนอกแนวคิดเรื่องห่วงโซ่คุณค่าประยุกต์และ เศรษฐศาสตร์สถาบันสมัยใหม่ (เน้นประเด็นต้นทุนธุรกรรม) ถูกใช้เพื่อวิเคราะห์เกี่ยวกับผู้ถือหุ้นราย เล็กตอบสนองต่อการเปลี่ยนแปลงของอุตสาหกรรมอาหารของไทยอย่างไรและบทบาทของ ผู้ประกอบการเพื่อสังคมพบว่า

เกษตรกรผู้ทำการเกษตรแบบอินทรีย์รายย่อยจะสามารถเข้าร่วมกับผู้ประกอบการค้าแบบสมัยใหม่ได้ ในห้าช่องทาง ซึ่งในการเข้าร่วมห่วงโซ่การค้าสมัยใหม่ซึ่งมีความแตกต่างของแต่ละบุคคลขึ้นอยู่กับ เหตุการณ์และความพึงพอใจ การเข้าร่วมรูปแบบผู้ประกอบการเพื่อสังคมถูกค้นพบที่กำลังเป็นที่นิยม เพราะทำให้เกษตรกรทั้งโอกาสและผลประโยชน์ในด้านการขนส่งสินค้าอินทรีย์และสินค้าปลอดภัยจาก สารเคมี โดยเฉพาะอย่างยิ่งผลการศึกษานี้ได้อธิบายถึงเกษตรกรที่ทำการผลิตแบบเกษตรอินทรีย์ที่ เข้าร่วมรูปแบบผู้ประกอบการเพื่อสังคมทั้งสองกรณีศึกษาว่าได้รับกำไรสูงกว่าเกษตรกรที่ไม่เข้าร่วม

ส่วนในการตัดสินใจของครัวเรือนในการเข้าร่วมในรูปแบบผู้ประกอบการเพื่อสังคมในการผลิตเพื่อห่วงโซ่การค้าสมัยใหม่ขึ้นอยู่กับลักษณะของครอบครัวและพื้นที่เพราะปลูกทั้งนี้เกษตรกรแบบเกษตรอินทรีย์ที่เข้าร่วมกับผู้ประกอบการสมัยใหม่ได้เล็งเห็นถึงโอกาสในด้าน แรงงาน วัตถุดิบและ แหล่งทุน และในการผลิตและการทำมาตรฐานโดยคำแนะนำของผู้ประกอบการในห่วงโซ่การค้าสมัยใหม่ อย่างไรก็ตาม หัวใจสำคัญในการเข้าร่วมรูปแบบผู้ประกอบการเพื่อสังคม เป็นผลมาจากบทบาทของผู้ประกอบการเพื่อสังคมที่ช่วยเกษตรกรในความไม่แน่นอนของตลาดโดยให้การประกันการรับซื้อและประกันราคาขั้นต่ำ การศึกษาครั้งนี้ยังอธิบายถึงผู้ประกอบการเพื่อสังคมมีบทบาทที่สำคัญในการลดต้นทุนในการทำธุรกรรมต่างๆสำหรับเกษตรกรแบบเกษตรอินทรีย์รายย่อยซึ่งส่งผลต่อความสามารถในการสร้างกำไรและการยั่งยืนของการเข้าร่วมห่วงโซ่การค้าสมัยใหม่ของเกษตรกรรายย่อยผลจากการศึกษานี้จะเป็นประโยชน์อย่างสำคัญในการออกนโยบายเพื่อสนับสนุนผู้ประกอบการเพื่อสังคมเป็นองค์กรในการขับเคลื่อนเกษตรกรรายย่อยไปยังห่วงโซ่การค้าสมัยใหม่

คำหลัก: เกษตรอินทรีย์ การค้าสมัยใหม่ การตลาด โซ่อุปทาน

Executive Summary

This study has analysed the organic food value chain restructuring and marketing development of modern trade chains. It aimed to identify the motivations of organic farmers participating in modern trade chain and the economic impacts of participation.

Summary of Research Findings

The following sections present a summary of research results and discussion on the main findings of this research on those specific objectives.

1. Factors driving transformation of organic food markets in Thailand, emergence of modern trade chains and implications for small-scale producer (Objective No. 1)

This study provided an overview of the transformation of the agri-food supply chain in Thailand over the last two decades. This transformation has involved the rapid rise of modern trade chains driven by changes in consumer preferences, increasing awareness of food safety and environment issues and government policies encouraging foreign direct investment in food retailing. It was estimated that following rapid growth supermarket chains now accounts for over 50 percent of food market in Thailand

It is expected that the market share of modern trade will continue to grow in the next few years. The increasing share of modern trade, especially of supermarkets, represents new marketing opportunities as well as challenges for small-scale producers. The rise of modern trade chains, especially supermarkets, offers new marketing mechanisms, coordination between producers and buyers is a key element in supply chain. The main challenge for small-scale farmers is how to produce commodities that meet requirements imposed by the modern trade in terms of quantity, quality, variety, frequency of supply as well as adherence to logistics of supply chain management. The results suggest that small-scale farmers' experiences of participation in modern supply chains in Thailand are similar to those of small farmers in some other countries

This study found that it was almost practically impossible for organic small-scale farmers to establish a direct marketing relationship with a modern chain by themselves. Just a small minority of farmers, who are exceptionally able, are able to sell their organic products directly to modern trade chains. The majority of small-scale farmers sell their organic products in the modern trade chains through different coordination mechanisms. This research has found small-scale farmers use different mechanisms to participate in modern trade chains depending on their situation and preferences. A brief summary of these mechanisms is as follows: 1) through leading (large) farmers who have a relationship with the modern trade chains, establish a relationship with a pool of smaller farmers in order to guarantee the quantity, variety and frequency of supply of their products; 2) One of the most common ways of participating in the modern trade chains was through wholesalers/traders who bought produce from small-scale farms where most farmers were in contact farming arrangements; 3) Another common participation channel in the modern trade chains (especially for supermarket chains) was through brokers/suppliers who bought produce from small-scale farmers in a contact farming

scheme. In this case, brokers/suppliers usually provide inputs/credits for small-scale farmers to produce for them; 4) Small-scale farmers also had an alternative way of participating in the modern trade chains, which was through cooperatives which are generally found in fruit supply chains. This was promoted by government policies from time-to-time in order to reduce the excess supply of produce in the market; and 5) Farmers' participation in the modern trade chains through social enterprise schemes was found to be currently popular because it offered farmers with a number of opportunities and advantages, especially for the supply of organic/pesticide-safe products. However, this method of participation requires a high level of coordination between stakeholders.

2. Term under which small-scale producers interact with social enterprises in producing for modern trade chains (Objective No. 2)

The literature suggests that the nature and performance of contracts reflects the governance structures of specific modern supply chains. Buyer-driven organic food produce supply chains reflect the increasing role of modern trade chains in setting standards, priorities and parameters. However, none has provided detailed discussion about the farm-level impacts, especially how contracts are managed, and what upgrading possibilities for small-scale farmers. This study shows how these forces are reflected at the farm-level, by focusing on the analysis of the contract between farmers and social enterprises in producing for modern trade chains. The findings reveal that most contracts are formal and renegotiated from time to time, with strict oversight and enforcement by buyers. The study's results explain how farmers operate under standardised product specification, modes of production, certification and other intense pressures from buyers.

The social enterprise contractual scheme was found to be one of the key factors for success for organic farmers' participation in the modern trade chains. However, the results of this research showed that services in marketing, collection and distribution were particularly important for participation in modern supply chains in the context of Thailand. Marketing services were mainly associated with negotiation with buyers. Small-scale farmers did not negotiate directly with buyers, such as modern trade chains, due to two main reasons. First, individual small-scale farmers did not have enough scale (large scale) to negotiate as it was too costly for them. Second, there would be too high transaction costs for supermarket chains to negotiate with a large number of individual small-scale farmers. Therefore, social enterprise helped small-scale farmers to negotiate with the supermarkets. The importance of social enterprise scheme was confirmed from the research results; most supermarkets had highly positive attitudes and preferences to deal with social enterprises, partly because the supermarket received several advantages from social enterprise channel than through other channels.

The advantages are separated into two main categories, which are capacities and advantages. Advantages in capacities can also be divided into production advantages and supporting advantages. To be more précised, production has two main advantages, which are 1) to allow better production planning and 2) to be able to produce products in a long run efficiently. In supporting advantages, there are four main advantages, which are 1) understand information about demand of products 2) acknowledge the learning curve 3) improve the technology and knowledge management skills and 4) improve payment mechanism and management.

The incentives advantages of small scale farmers have two main areas, which are marketing and pricing. Firstly, the marketing has two main advantages, which are 1) a guaranteed market for contracted products and 2) a continuous and stable demand. Secondly, pricing comprises with two main advantages, which are 1) higher average price and 2) stable price (Reardon, 2009).

In summary, this conclusion could be made that the social enterprise contractual scheme was the key and crucial factor in the modern trade chains (Alter, 2006). The following section answer on the next objectives which is on the impacts, motivations and challenges in small-scale farmers' participation in social enterprise schemes producing for modern trade chains.

3. Impacts, motivations and challenges in small-scale farmers' participation in social enterprise schemes producing for modern trade chains (Objective 3 and 4)

Farmers included in the survey sample were characterized in terms of socio-economic, farm, household and marketing characteristics. This characterization showed that participant and non-participant farmers were quite similar. Furthermore, the research found that the results from both case studies (Green Net and Royal Project) are somewhat similar.

The research results based on gross margin analyses clearly illustrated the direct and indirect benefits accruing to participant farmers in the social enterprise schemes. Participant farmers from both case studies had higher profits than non-participant farmers. The results also showed that an important role of social enterprise was helping to reduce transaction costs (e.g. market uncertainty) for participant farmers. Although non-participant farmers do not benefit from reduced transaction costs associated with participation, they generally have higher non-farm incomes.

The study results, based on probit model analyses, also indicated that the decision of households to participate in the social enterprise schemes in producing for modern trade chains was not independent of household and farm characteristics. The household characteristics such as labour availability in the household and head of household's education and experience were found to be significant in influencing participation. Farm characteristics such as quality of soil, farm size were also significantly important.

In addition, the research results, based on factor analyses, showed the motivations and challenges of participant farmers associated with market uncertainty such as guaranteed purchase and minimum price. The farmers faced some problems associated with labour and input/credit supply as well as market requirements. Although previous research has acknowledged some of these effects, this study's results add empirical support in the Thai context.

Result found that not everyone can be member of social enterprises because the participant farmers have to follow rules and regulations of the Royal Projects and the Green Net. The major obstacles are 1) rules and regulations of being members in social enterprise 2) model and farm management itself 3) logistics systems that allow them to participate in social enterprises and 4) financial systems of being members in a social enterprise. The social enterprise sets rules and regulations to obstructs those who does not intend to follow. This aims to help the small scale farmers to be able to increase their ability to do farming based on the environmental friendliness approach. In this case, the quality of farming products can be expected and they can also be sold in the modern supply chain or modern trade, thus have better opportunity for their farming products.

Policy Implications

The results of this study suggest a need for policies that facilitate the integration of small-scale farmers in the new agri-food systems emerging in Thailand. It is expected that the changes in agri-food systems will become more pronounced in the future. For instance, the entrance in the region of modern trade chains such as large retailers (for example Tesco, Carrefour etc.), fast food chains, and processors which bring new procurement systems, will change traditional supply chains. As these companies are regularly multinationals, they may offer local, regional and even international market opportunities. The challenge, however, is to comply with the grades, standards, delivery and logistics systems requirements associated with their procurement systems. The identification and assessment of motivations and constraints associated with the participation of small-scale farmers in social enterprise schemes can provide useful inputs for policy makers interested in promoting small-scale farmers' participation in modern supply chains.

Future evolution of small scale sector coping with food sector transformation will have to examine their own selection whether they are appropriate in social enterprise or traditional system. As they cannot avoid the social enterprise form, they will have to adjust themselves so that they can survive in the industry. In a long run, there are various factors that the small scale farmers have to consider for a readiness in adjusting themselves in the modern supply chain in the future operations.

Policies associated with farmers: Policies should be aimed at tackling marketing barriers associated with particular characteristics of procurement systems used in the modern supply chains such as grading, selling place and payment systems. Policies oriented to overcome technological barriers are also important – these include policies which affect small-scale farmers' access to inputs and credit and services which affect their ability to comply with the requirement of modern trade chains.

Policies associated with social enterprise: As small-scale farmers face the risks of being excluded from modern supply chain systems due to the volumes and frequency of supply required, social enterprises could be promoted in integrating small-scale farmers in the modern trade chains. Collective and marketing social enterprises allow small-scale farmers to pool produce in order to guarantee frequency and variety as well as standards (under social enterprise scheme contracts). Likewise, collection, manufacture, transportation, and distribution costs can be lowered. However, promotion of social enterprise must carefully identify and focus on the main constraints. Policies should not promote such organization just for social reasons, but instead should consider the service that social enterprises are uniquely capable of providing.

An additional concern, on the other hands is the changes in agri-food systems which can bring serious problems to farmers who are excluded from new market opportunities. It is expected that traditional market also needs to adapt and change their practices in response to the pressure from the development of the new supply chains and this adjustment, in turn, is likely to put further challenges to small farmers. As the Thai rural population have very few alternatives other than the agriculture sector, farmers would become locked into their old activities even if the sector has become more uncertain and unprofitable. This could finally result in an increase in poverty and

inequality. The government should highly concern type or concept of the social enterprise whether they are effective in Thailand, especially social enterprise in the agricultural products. This is because Thailand has no realistic and model of rules and picture of social enterprise. They only assume themselves as if they are social enterprise but there is none that is effective at present. The model of social enterprise should be developed and supported by the government sector to ensure that they are effective and can be operated in Thailand.

Thus, policies are needed not only to facilitate farmers participation in new supply chains, but also to provide alternatives to those farmers that face the entry barriers. In this sense, alternative markets and/or even new economic activities should be explored.

Contributions of the Research

The main contribution of this research is that it provides an empirical illustration of the role and potential of social enterprises (producer organization): establishing vertically-coordinated relationships between agribusiness firms and small-scale farmers, in which both parties benefit with buyers getting reliable suppliers of produce and farmers getting a secure market. In the same way, these results provide important implications (sources of knowledge) that can be used for making policies aimed at enhancing the small-scale farmer's capacity to participate in modern supply chains.

In addition, in this research, the application of the value chain framework has been very useful to explain the economic behaviour of small-scale farmers in developing countries it responses to changes in their traditional agri-food systems. The role of contractual transaction costs for determining small-scale farmers' participation in the modern supply chains has been assessed in this research, and its results generally support value chain analysis concept.

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ABSTRACT

Currently, agri-food systems are facing dynamic changes in both developed and developing economies. Agri-food systems that were based on traditional markets are increasingly channelled through modern trade chains. One of the reasons for this change is the influence exerted by retail and modern supply chains. While this situation offers opportunities for small-scale farmers, the high standards set by modern trade chains in terms of quantity, quality, delivery, timing, packing, safety, etc., can prevent small-scale farmers from exploiting such opportunities, because of the significant changes required in their production and marketing systems. Furthermore, the associated coordination and transaction costs can drive modern trade buyers toward a small group of suppliers based on producers' capacity. In recent years, social enterprise schemes have become an important producer organizational form that has emerged in both developed and developing economies in integrating small-scale farmers with modern trade chains. Therefore, the purpose of this study is to assess the impacts, motivations and challenges in small-scale farmers' participation in social enterprise schemes producing for modern trade chain in Thailand. The role of social enterprises in integrating small-scale into modern trade chains is based on case studies of two social enterprise schemes. An applied value-chain and New Institutional Economics (based on transaction costs) framework is used to analyze how smallholders are coping with the transformation in the food sector in Thailand and the role of social enterprises.

The study has found that small-scale farmers mainly use five different mechanisms to participate in modern trade chains depending on their situations and preferences. Participation through social enterprise scheme was found to be currently popular because it offers farmers a number of opportunities and advantages in the supply of organic/pesticide-safe products. In addition, the study results show that participant farmers in the social enterprise schemes in both case studies had higher outcomes (profits) than non-participant farmers. The decision of households to participate in social enterprise schemes in producing for modern trade chains was not independent of household and farm characteristics. Participant farmers faced challenges related to labour, input/credit supply and in meeting production and produce standards prescribed by modern trade chains. However, the key motivation for participation arised from the roles that social enterprise schemes played in enabling farmers to deal with market uncertainty by providing guaranteed outlets for produce and assured minimum price. The study also shows that social enterprises played important role in reducing transaction costs for small-scale farmers which influenced the profitability and sustainability of small-scale farmers' participation in modern trade chains. The results of this study provide important insights for policy and efforts to promote social enterprises as organizations uniquely capable of integrating small-scale farmers into modern trade chains.

ACKNOWLEDGMENTS

During my research there have been many supports to my research. All of them make my passage easier with their emotional support and encouragement to my work as well as their intellectual engagement to my creativities and ideas.

First I would like to acknowledge the Royal Thai Government for the generous financial support that made my doctoral studies possible.

I am most grateful to my supervisors, . Prof.Aree Wiboonponge (Chiang Mai University) and Assoc.Prof.Somporn Isvilanonda (Kasetsart University), Prof. Bhavani Shankar, and Dr. C. S. Srinivasan for their scholarly guidance, stimulating suggestions and encouragement throughout my research period. It is not only their patience but also their kindly supports academically and personally that enable me to complete this project.

Since my fieldwork required the cooperation and assistance of many organizations and farmers to make the fieldwork possible, I would like to thank them for their willingness to share with me their knowledge and experiences. They welcomed me into their communities and homes, and endured long hours of interviews.

Also I would like to thank my research assistances and colleagues from School of Management, Mae Fah Luang University. Their assistance enabled me to do the fieldwork.

Lastly and most importantly, I would like to give my very best to my family whose patient love and care enabled me to complete this work. The interpretation and remaining errors are entirely mine.

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2nd April, 2013

CHAPTER 1

INTRODUCTION

“The twentieth century witnessed a revolution in the nature of the food supply chain, the implications of which are only now being worked through at policy and institutional levels. The period was characterized by unprecedented changes in how food is produced, distributed, consumed and controlled-and by high levels of concentration of market share” (Tim Lang, 2004: 3).

1.0 Background of Study

Over the past two decades, Agri-food systems (food chains)¹ have faced dramatic changes (Blandon, 2006). Scholars who are interested in these changes agree that forces and driving factors of these changes include agro-industrialization, globalization and multinationalization, advances in technology, trade liberalization and policies as well as changes in consumer demand and growing influences of modern trade chains² especially supermarket chains (Saxowsky and Duncan, 1998; Brester and Penn, 1999; Reardon and Swinnen, 2004; Reardon and Berdegue, 2002; Blandon, 2006; Onumah *et al.*, 2007).

The rise of supermarkets in developing countries has been acknowledged in development economics literature over the past few years. Related studies have been carried out, first in the context of Latin America and more recently in the Asian and Southern African contexts (see for example Neven *et al.*, 2006; Brown, 2005; Shepherd, 2005; Vorley, 2005; Reardon, 2004; Cacho, 2003; and Reardon *et al.*, 2003). These studies identified the growth of supermarkets and the changes in global supply chains

¹ The definition of agri-food systems is adapted from Hobbs *et al.* (2000) with regards to the scope of the present study. Hobbs *et al.* (2000: 9) stated that agri-food systems can be viewed in terms of local as well as global “*supply chains*” or “*value chains*”, which include “the entire vertical chain of activities: from production on the farm, through processing, distribution, and retailing to the consumer – in other words, the entire spectrum, from [farm] gate to [consumer’s] plate”.

² Modern trade chains can be grouped as supermarkets, hypermarkets, convenience stores, discount convenience stores, green/special shops, as well as export companies. This study refers to modern trade chains as supermarket chains to fit the context of Thailand.

caused by this growth. These studies also did not only show how the spread of supermarkets affected small-scale farmers³ and processing and distribution firms, but they also highlighted the new opportunities for supermarkets in developing countries. Some studies such as Shepherd (2005), Brown (2005, 2007) Blandon (2006) and Onumah *et al.*, (2007) have put forwards steps that need to be taken to help small-scale farmers adapt to the new realities of supplying produce to large or modern trade markets.

Agri-food systems that were based on traditional markets are now increasingly channel through modern trade chains with new requirements on farmers that eventually result in alterations to traditional marketing relationships (Reardon and Barrett, 2000; Peterson *et al.*, 2001; Blandon, 2006). The development of modern trade chains in modern trade markets rely heavily on the successful management of their supply chains. Large firms with higher power in the supply chain usually have more negotiating power with their producers and suppliers, so they are able to cut cost and minimize risks in the supply chain than smaller firms (Brown, 2005). New business models have emerged to increase profits for shareholders and maintain an effective cost structure while consumers' demands have led to the emergence of measures to improve "flexibility through 'just-in-time' delivery, tighter control over inputs and standards, and ever-lower prices" (Brown, 2005). Modern trade markets can achieve competitive advantage due to their good management of supply chains and their marketing strategies by means of market positioning, promotional activities and pricing strategies (Brown, 2005; McCullough *et al.*, 2008b; Singh, 2008). In addition, modern trade markets often demand greater flexibility and reliability of supply. They are likely to avoid storing large inventories of perishable products; at the same time, they need to make sure that store shelves are always fully stocked. For these reasons, modern trade markets are paying very close attention to quality improvement and supply chain reliability; quantity, delivery and cost reduction are carefully managed and controlled. The modern trade markets have to constantly increase the efficiency of their supply chains to cope more efficiently with the intensified competitive environments in the industry (Neven *et al.*, 2004; Neven *et al.*, 2006).

Modern trade markets also need to deal with the increasing concerns over food and health safety as well as environmental issues. Brown (2005) and McCullough *et al.* (2008a) pointed out that modern trade markets are under more pressure to acquire highly qualified products from their producers and suppliers. Modern trade chains have found an effective way to control the quantity and quality of their

³ The term, 'small-scale farmer/smallholder,' is difficult to define since it can mean different things in different contexts with different geographical areas, socio-economic conditions, agricultural sub-sectors, and technologies used (Blandon, 2006). The present research refers to this specific term as the majority of small-scale farmers or smallholders who use unsophisticated traditional technologies in their farming processes and grow less than eight hectare of rice (first case study)/ four hectare of vegetables (second case study).

goods by making contractual arrangements with specialized wholesalers⁴ and/or farmers that can meet the high standards they demand (Reardon and Berdegue, 2002; Blandon, 2006). However, it is often found that only medium and large scale producers can meet these high standards in many developing countries. This raises the concern that individual small-scale farmers may be in a disadvantaged position due to the lack of capacity to supply their produce to meet the requirements from this competitive market.

Most small-scale farmers in developing countries that supply produce to supermarkets may face several challenges when it comes to meeting the supermarket's requirements concerning quality, diversity, safety and delivery (Reardon *et al.*, 2003; McCullough *et al.*, 2008a, b). They may also have to accept less favorable terms of payment (Brown, 2005). In some cases, these requirements have already affected the number of small-scale farmers who participated in modern trade chains; companies tend to delist suppliers who do not meet their expectations (Reardon *et al.*, 2003; Brown, 2005; Meer *et al.*, 2006; Ruben *et al.*, 2006, 2007; Gaiha and Thapa, 2007).

Under these circumstances, contract farming has been employed in many developing countries as a form of vertical coordination between agribusiness firms and small-scale farmers (Rehber, 2000; Singh, 2002). In these countries, contract farming is an alternative strategy for modern trade chains management (Reardon and Berdegue', 2002; Masakure, 2005). Even though contact farming can help small-scale farmers to access new agri-food systems such as supermarket supply chains, it has some limitations such as supermarkets facing difficulty managing a large amount of suppliers; they try to reduce the amount of small-scale suppliers to deal with the problem (Reardon and Berdegue', 2002; Masakure and Henson, 2005). The existing small-scale farmers under contract have found themselves to be struggling with the high standards required by supermarkets (Reardon and Berdegue', 2002; Blandon, 2006). Onumah *et al.* (2007) stated that important factors that influence small-scale farmer participation in modern trade chains are diseconomies of scale and collective action. These factors seem to affect the patterns of contractual arrangements.

Onumah *et al.* (2007) and Thuvachote (2007) added that changes in agri-food systems also appear to have affected the form of farmers' organizations. The traditional farmers' organizations such as cooperatives in most developing countries are well-integrated into the state-run commodity marketing systems, and they usually do not have any role in modern supply chains (Onumah *et al.*, 2007; Thuvachote, 2007). Researchers found new forms of farmers' organizations such as social enterprises that have emerged to help small-scale farmers in participating in the modern trade chains in developed

⁴ They operate their own collection and distribution centres, and usually acquire produce from contact farming schemes (Blandon, 2006)

economies (for example MacPherson, 2003; Onumah *et al.*, 2007). These new forms of farmers' organizations in developing economies are being promoted by government/donor projects, NGOs, and the private sector (Onumah *et al.*, 2007).

In the case of Thailand, its rapid growth of the economy over the last few decades has led to a strong expansion of modern trade chains (Wiboonpongse and Sriboonchitta, 2004; Shepherd, 2005). In recent years, increasing attention has been paid to the growth of modern trade in Thailand. Most studies conducted on the context of Thailand examined the issues of growth and business competition of modern trade chains (see for example Wiboonpongse and Sriboonchitta, 2004; Buurma and Saranark, 2006; Tokrisna, 2006; Shanon, 2008 and 2009). These studies analyzed the modern supply chain development and procurement systems between modern trade markets and suppliers as well as producers. There are very few studies related to agri-food supply chain restructuring and marketing development of modern trade chains and the effects of contracting between small-scale farmers and modern trade markets in Thailand, leaving this particular area under-researched. Wiboonpongse and Sriboonchitta (2004) studied the development of modern trade chains and small-scale producers' participation in restructured national and regional agri-food systems in Thailand; however, the study did not cover the issues of modern supply chain and efficiency of contracting with modern trade chains. Another study was carried out by Buurma and Saranark (2006), focusing on the conditions that motivated Asian supermarkets' choices for vegetable sourcing through wholesale procurement or preferred supplier systems. They found that TOPs supermarket in Thailand had been using contract farming systems for their supply chain development. Buurma and Saranark's study did not explore how supermarkets restructure supply chains and the effect this would have on forces and future trends of supply chain development for small-scale farmers. Moreover, the issues of the development of farmers' organizations in terms of their role in integrating small-scale farmers with modern trade chains in Thailand has not yet been explored.

Some authors also pointed out that the consequence of threats on small-scale farmers participation in modern trade chains in Thailand seem to have been minimized by two major sources of assistance, namely government and social enterprises, in some cases, the collaboration between these two (see for example Thuvachote, 2007; Wiboonpongse and Sriboonchitta, 2004). Therefore, based on the above review of related literature, this study was aimed at assessing the role of social enterprises in helping integrate organic small-scale farmers in the modern trade chains in Thailand. The study considered contract farming within the context of value chain analysis framework. It employed in-depth case studies of social enterprises supplying produce to modern trade markets and small-scale producers under contract farming (social enterprise schemes).

1.1 Objectives of Study

This study applied the value chain framework to assess the effects of small-scale farmers' participating in the organic food production for modern trade supply chains. The specific objectives of the study are:

1. to analyze the changing value chain and transformation in the organic food industry of small-scale producers and modern trade chains in Thailand;
2. to understand the alternatives in organic certification and the economic implications for farmers and their supportive organizations.
3. to outline the terms under which small-scale producers interact with social enterprises in producing for modern trade chains;
4. to analyze the motivations and challenges that small-scale producers in producing for modern trade chains in Thailand; and,
5. to analyze the impacts on small-scale producers when participating in the production for submarkets and exporting in Thailand

1.2 Thesis Structure

This thesis is divided into nine chapters. Figure 1.1 presents a diagrammatic view of the thesis structure. A brief background of the study and the main objectives are presented above.

Chapter 2 presents a more detailed analysis of the background, with an overview of Thai agriculture, supermarketization, food safety trends, organic farming, small-scale farmers and social enterprise in Thailand.

Chapter 3 reviews literature on the issues of global agri-food systems, supermarket expansion and smallholders, organic trends, and social enterprises and their effects on smallholders, which are useful for the analysis of the data. The main theoretical considerations that support this research are also presented and discussed in this chapter.

Chapter 4 uses evidence from the literature review, the framework developed in Chapter 3, and initial data from focus group discussions and interviews, to generate specific research questions.

Chapter 5 provides a description of the data and research methodology for this study. This includes a discussion on qualitative and quantitative methods of data collection during the two phases of fieldwork in Thailand. Both kinds of data are considered essential for this research. Qualitative data were analyzed using descriptive and interpretive analysis techniques while quantitative data are analyzed using statistical and multivariate data analysis techniques. An overview of the geographical scope of the study and the sample selection is also provided.

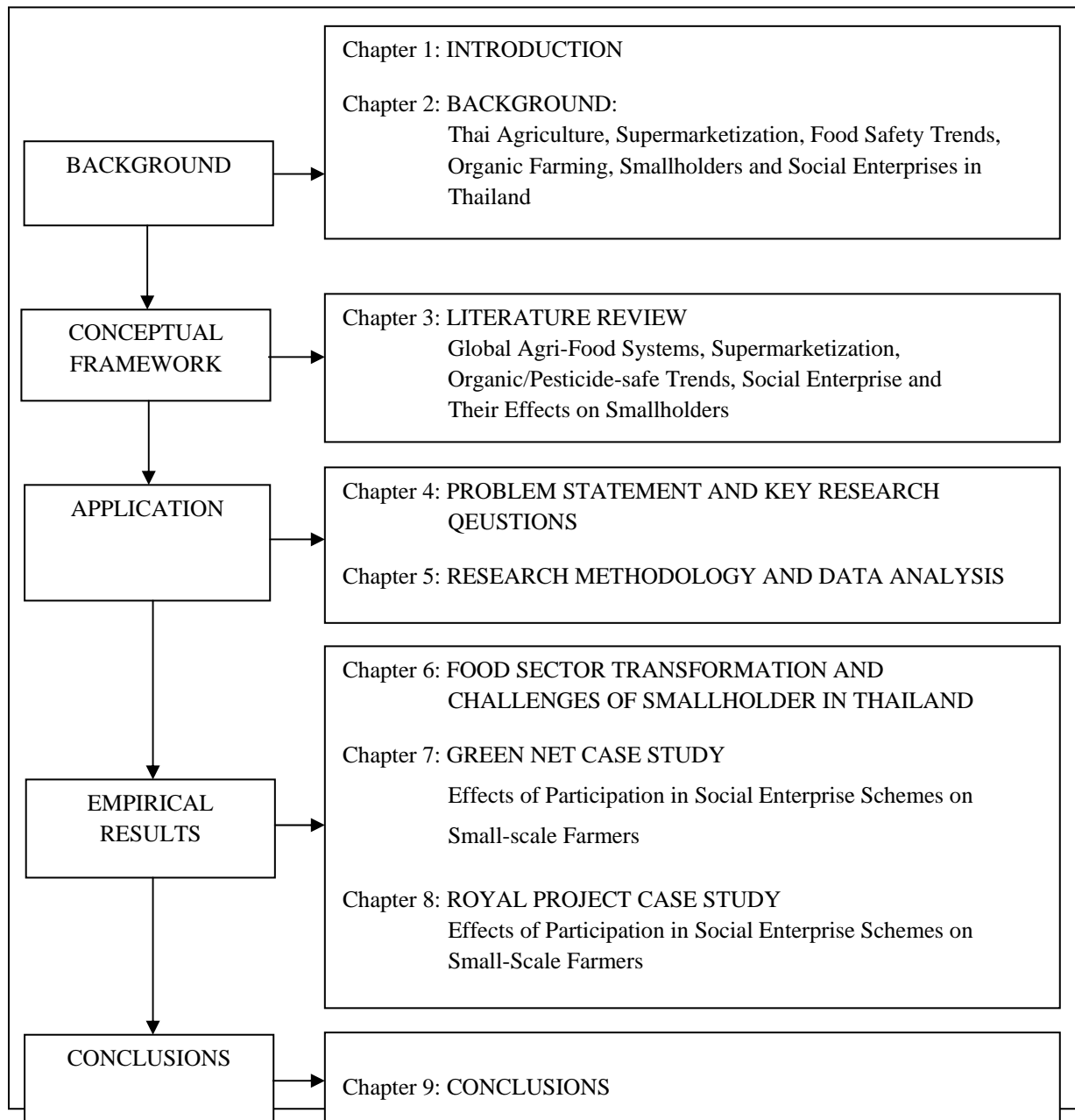
Chapter 6 presents the findings based on the qualitative data and material from semi-structured interviews. The chapter starts with presentations and discussions on the themes of general overview of the food retailing industry in Thailand, forces and trends driving the future food value chain, agri-food value chain restructuring and smallholders, opportunities and threats experienced by small-scale farmers, and ways to participate in modern trade markets. Then, it ends with analysis of the roles of case-study social enterprises, namely Green Net and Royal Project in linking small-scale farmers to modern trade chains.

Chapter 7 presents the findings from quantitative survey data of the first case study (Green Net). This chapter presents and discusses the determinants, motivation, success factors, and constraints faced by small-scale farmers who participate with Green Net in producing for modern trade companies.

Chapter 8 presents the findings from the second case study, the Royal Project, based on the survey data. This chapter used the same research methods employed in chapter 7 to explore the impacts of participation in the Royal Project in producing in the modern trade chains on small-scale farmers.

Chapter 9 concludes the thesis by summarising the main results, providing implications, stating the limitations of the study and suggesting some areas for future research.

Figure 1.1: Outline of the thesis structure



CHAPTER 2

BACKGROUND

THAI AGRICULTURE, SUPERMARKETIZATION, FOOD SAFETY TRENDS,
ORGANIC FARMING, SMALLHOLDERS AND SOCIAL ENTERPRISES IN THAILAND

2.0 Introduction

This chapter provides a general background of agriculture and agri-food markets in Thailand. It examines the role of social enterprises in integrating small-scale farmers into modern trade chains in Thailand in the context of the trends towards ‘supermarketization’⁵, growth of organic farming and increasing consumer awareness of food safety. The chapter is aimed at explaining the current situation and development of agri-food systems and presenting the development of farmers’ (producer) organizations, social enterprise schemes, and discussing the integration of small-scale farmers in modern supply chains in Thailand.

2.1 Thai Agriculture

Thailand is a predominantly agrarian country with a significant share in the world export of agricultural products of about 2.4 percent or US\$ 31.66 billion in 2008 (WTO, 2009). The agricultural sector accounts for 11.18 percent of GDP in 2009 (NESDB, 2010).

Agriculture is crucial for Thai people. The country’s total area of agricultural land is 112,640,432 rai (or 180,224 km²) or approximately 27.6 percent of the total land area (NSO, 2008). The agricultural sector plays a vital role in Thai society; it is always an important contributor to food security and a significant source of incomes for Thai people. Thailand National Statistics (NSO) (2008) reported that

⁵ Reardon *et al.* (2005: 3) imply in their article about supermarketization that the concept concerns an “extremely rapid transformation...of the food retail sector, embodied in the rapid spread of supermarkets...”).

the agricultural sector accommodates about 38 percent of the total labour force and it is one of the major sectors that generate foreign exchange.

Table 2.1 shows the balance of trade value during 1997-2007. It should be noted that before 1997, the overall balance of trade was negative while that of the agricultural sector was positive over the years. The financial crisis in 1997 made the agricultural export sector more competitive leading to an increase in the balance of trade value of the agricultural sector. Although the political crisis in Thailand between late 2004 and 2006 had a negative influence on the country's overall balance of trade, it did not affect the agricultural sector. In fact, the balance of trade value of the agricultural sector in 2007 was 551,747 million Baht, which increased from 523,324 million Baht in 2006.⁶

Table 2.1: Value of exports, imports and balance of trade, 1997-2007

Year	(Million Baht)					
	Export		Import		Balance of trade	
	Total	Agricultural and product	Total	Agricultural and food products	Total	Agricultural and product
1997	1,806,700	413,148	1,924,283	166,680	-117,583	246,469
1998	2,248,321	488,081	1,774,066	165,980	474,255	322,101
1999	2,215,180	457,666	1,907,391	163,879	307,789	293,787
2000	2,773,827	510,851	2,494,141	198,115	279,686	312,737
2001	2,884,704	550,549	2,752,346	234,625	132,358	315,925
2002	2,923,941	552,982	2,774,840	233,563	149,101	319,418
2003	3,325,630	641,236	3,138,776	260,759	186,854	380,477
2004	3,873,690	707,057	3,801,067	299,456	72,632	407,601
2005	4,438,691	738,340	4,754,025	329,889	-315,334	408,451
2006	4,937,372	842,802	4,942,923	319,479	-5,550	523,324
2007	5,241,963	897,152	4,870,186	345,405	371,776	551,747

Source: Thai Customs Department, calculated by Bank of Thailand (2008)⁷

Furthermore, Vanit-Anunchai, (2006) found that agricultural sector became a social safety net that helped provide job opportunities for the victims of unemployment caused by the financial and economic crisis. There is a strong tie between workers in the manufacturing sector and communities in the agricultural (rural) area; unemployed workers from the manufacturing sector migrated back to work on farms in the countryside to secure essential income support (Tualananda, 2000).

The financial crisis also boosted the expansion of modern foreign food retail markets such as supermarkets, superstores, hypermarkets and convenience stores like Tesco, Makro, Carrefour, and TOPs in Thailand, making them major players in Thai food retail sector. This development brought about changes in agricultural production patterns as farmers needed to produce products that met the

⁶ The currency of Thailand is "Baht (THB)".

⁷ Available at <http://www.customs.go.th/Customs-Eng/indexEng.jsp> [Accessed 12th December, 2009]

demand preferences of the modern food retail chains. The expansion of the modern retail markets opened up many new opportunities and challenges for small-scale farmers in Thailand (see Wiboonponse and Sriboonchitta, 2004; Tokrisana, 2006).

Thailand's agriculture has recently been diversified from traditional agricultural production that responded to local demand to new kinds of production that have been directly triggered by modern trade chains. Agricultural diversification was first facilitated by improved infrastructure and government's policy developed during the early National Economic and Social Development Plans. This diversification also supported the so-called "Kitchen of the World" campaign to promote Thailand as the world leader in the production of safe, excellent quality and high valued food products.

2.2 Supermarketization and Food Safety Trends in Thailand

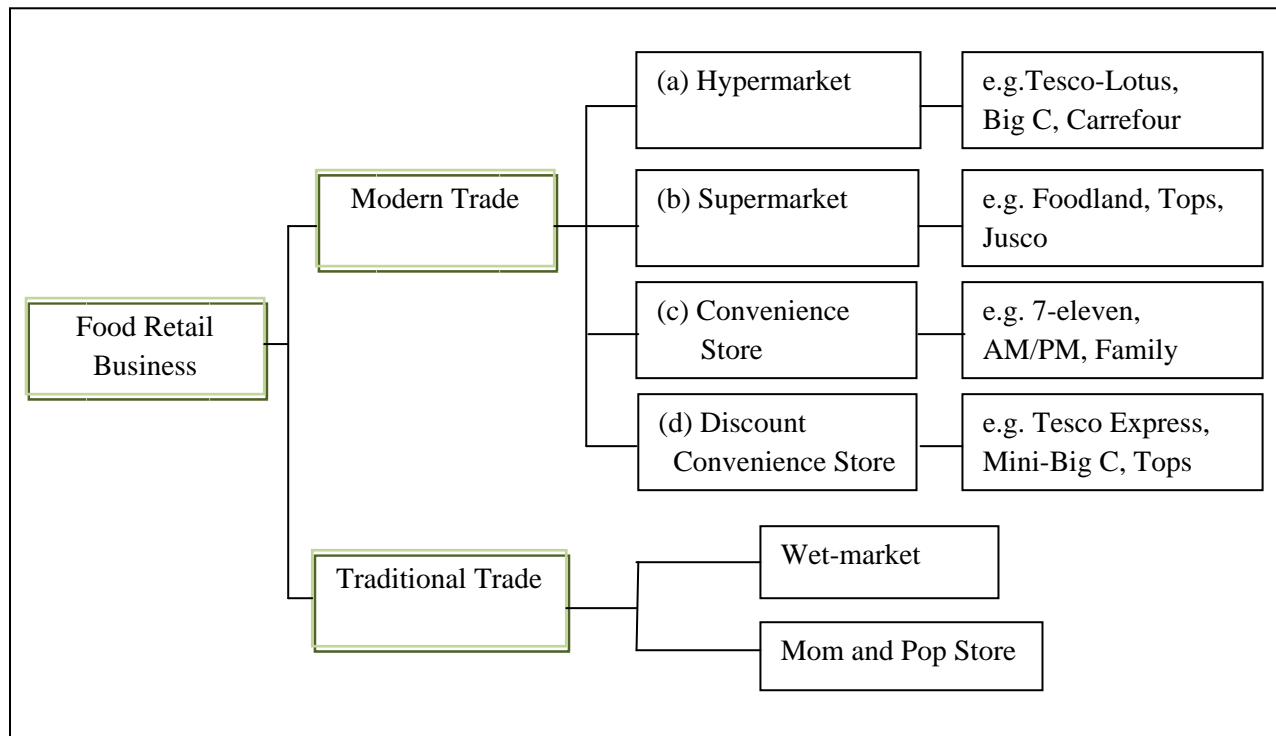
This section provides an overview of food retail industry in Thailand. It starts by describing the development of agri-food retail markets and supermarketization. Then, it discusses the food safety trends. The impacts of supermarketization and organic/pesticide-safe trends on small-scale farmers in Thailand are elucidated at the end of the section.

2.2.1 Overview of food retail industry

Thailand's food sector consisting of wholesale and retail trade plays an important role in the Thai economy; it accounted for about 14.0 percent of GDP in 2005 and generated employment for around 5.5 million persons in wholesale and retail sectors (Kittiwajphokawat, 2008). The retail trade in Thailand is undoubtedly one of the most important economic sectors in the country; total retail sector sales were expected to reach 2,489.7 billion Baht at the constant 2003 prices, and expand by 7% year-on-year in 2008 (ibid.). There were a total of 357,460 retail outlets in 2001, and there could be up to 400,000 outlets in 2006 (Wiboonpong and Sriboonchitta, 2004)

The retail food market in Thailand can be divided into two main sectors, namely a traditional market and a modern trade market. The modern trade market also can be separated into four major sub-sectors: (a) hypermarkets, (b) supermarkets, (c) convenience store chains, and (d) discount convenience store chains (Figure 2.1).

Figure 2.1: The retail food market in Thailand



Source: Adapted from Wongsakul (2008) and Thai Retailers Association (2009)

The traditional food retail system in Thailand consists of a number of “wet-markets” or “Talad-sod” which sell fresh food, and small food stores called “mom and pop” stores which usually distribute dry goods to customers. Thai people are used to buying food at wet-markets because they believe that they can get a variety of cheap fresh food such as vegetables, fruits and meats (Wiboonponse and Sriboonchitta, 2004). It must be noted that the structure of the food retailing sector in Thailand has undergone dramatic changes as a result of the rapid growth of the economy during the decade prior to the financial crisis in 1997. These changes will be explained below.

2.2.2 Agri-food retail markets development and supermarketization

The financial crisis that hit Thailand in 1997 provided modern foreign food retail companies with new opportunities for investments in the country. These unusual new opportunities created by the currency depreciation of the relatively strong Thai baht and the government policy to support the Foreign Direct Investment (FDI) enabled them to become the main market player in Thai food retail sector (see more discussions about FDI in Wiboonponse and Sriboonchitta, 2004; Tokrisna, 2006). The crisis helped facilitate the business of modern foreign food retail companies that target their services to meet the demands of the growing middle class. This type of customer demands more sophisticated food stores and a greater variety of products. The period after the economic crisis has

heavily shaped the structure of the present Thai retail trade; traditional small independent retailers have gradually been replaced with modern and often foreign-owned large retail chains (Table 2.2). As a result, the food retail sector has grown at a tremendous rate as well financed foreign retail giants aggressively compete for increased market share in high potential markets with middle-class customers.

Table 2.2: Value and Share of Modern Trade in all Retail Trade

						(billion Baht)
Item	1997	1998	1999	2000	2001	% Change
Modern Retail Trade	249.1	225.1	284.7	405.3	635.4	155.1
Traditional Retail Trade	708.9	435.7	580.6	661.3	558.7	(21.2)
Total	958.0	660.8	865.3	1,066.6	1,194.1	24.6
Share						Change
Modern Retail Trade	26.0	34.1	32.9	38.0	53.2	27.2
Traditional Retail Trade	74.0	65.9	67.1	62.0	46.8	(27.2)

Source: Calculated from Thailand Development Research Institute: TDRI (2002)

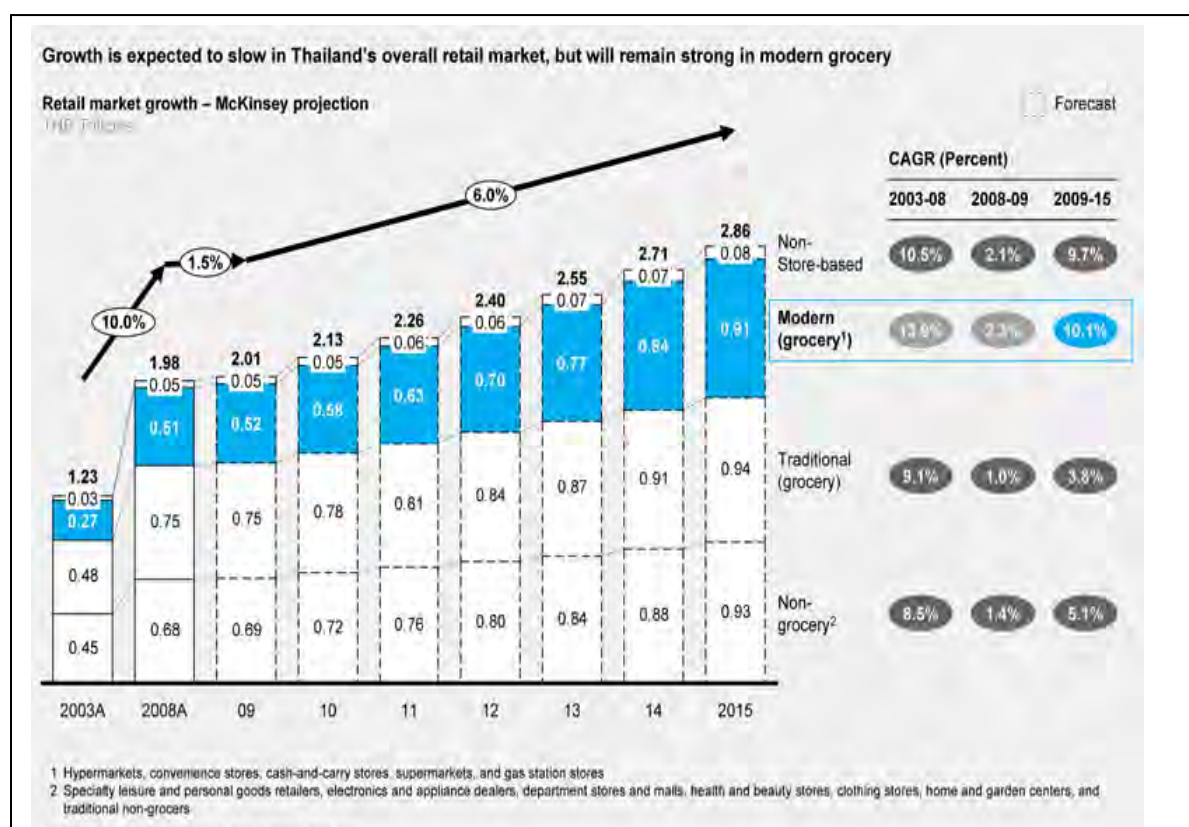
Over the past decades, the retail scene has changed dramatically with the modern trade and traditional trade reversing positions in terms of market share; the modern trade retailing systems grew steadily and now account roughly for 50 percent of the market (Shannon, 2009). The report from EIU Euromonitor in 2010 (EIU, 2010) supports that the expected growth of modern trade will remain strong in Thailand from 2009 to 2015 (Figure 2.2).

At present, Thai agricultural economic conditions are favourable for modern trading business. There are a number of studies with findings that show the development and growth of modern trade chains (see for example Wiboonponse and Sriboonchitta, 2004; Wongsakul, 2005).

These studies reveal that certain Thai consumers have changed their buying behaviour from traditional markets to modern trade markets or switched between modern trades. Thai consumers have also adapted very positively to modern trade markets and have grown to prefer a modern shopping style (Wiboonponse and Sriboonchitta, 2004). The changing buying behaviours are in line with their increasing incomes and enhanced health consciousness, as well as changing preferences. Thai consumers are increasing their purchases of small-pack agri-foods from modern trade markets such as smallpacks of rice and pesticide-safe fruits and vegetables. In addition, modern trade is clawing market share from traditional markets due to various other factors, namely low prices, impressive outlet environments, better information technology, promotions and product ranges (Wiboonponse and Sriboonchitta, 2004; Wongsakul, 2005; Stracke-LaBmann, 2007; Kittiwajphokawat, 2008).

However, two thirds of agricultural products continue to be marketed through traditional channels such as local wholesalers and transporters, wet markets, street hawkers and small restaurants (Wiboonponse and Sriboonchitta, 2004). This is because consumers believe that the traditional markets offer better fresh food offerings at lower prices than modern trade markets.

Figure 2.2: Retail market growth in Thailand



Note: CAGR is Compound Annual Growth Rate

Source: EIU Euromonitor, Planet Retail, McKinsey (2010)⁸

Modern trade has had an advantage over the traditional markets in terms of experience, funds, global sourcing network and economies of scale (Wiboonponse and Sriboonchitta, 2004; Tokrisana, 2006; Shannon, 2009). For example, Tesco is currently been the largest modern trade (hypermarket) network in Thailand, having more than doubled its store numbers in the past five years; Big C and Carrefour are also now planning to break out of Bangkok and establish stores elsewhere in the main cities (Wiboonponse and Sriboonchitta, 2004). The modern trade sector in Thailand is now extremely competitive in terms of their low prices because the needs to build up scale are paramount. This condition turns the retail business environment highly competitive. The modern trade chains have accelerated their expansion scheme to open more branches in many smaller cities to increase market

⁸ Available at <http://www.euromonitor.com/> [Accessed on 30 April, 2010]

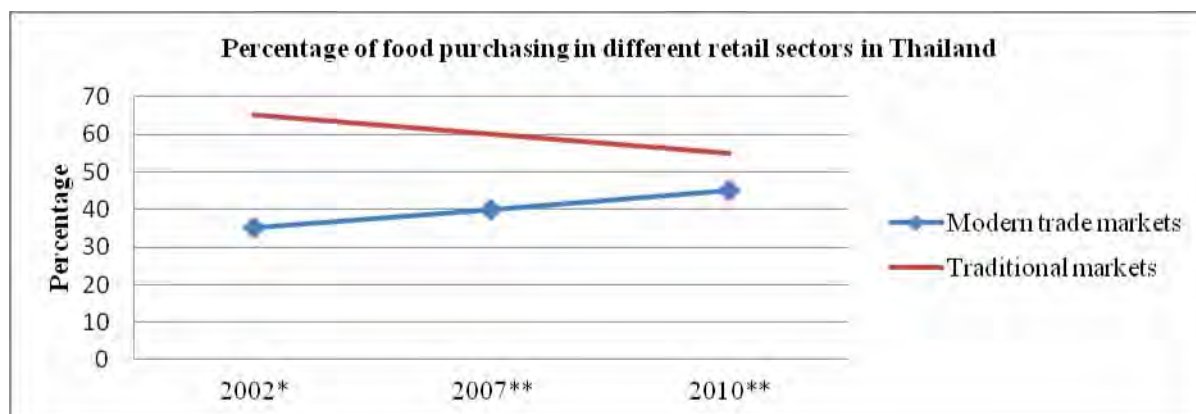
share. They have also opened new branch models (smaller size branch model) to access more customers (who do not live in the main cities) to avoid strict regulations on modern trade, (see more discussions in Kittiwajphokawat, 2008; Shannon, 2009).

Regarding the competitiveness in the food market sector, most modern trade markets in Thailand have developed similar strategies, focusing on lowering prices and providing wider selection. Sometimes, they set the price of some items lower than in traditional markets or give special discounts for membership. Improved technology and innovation have also been used by modern retailers, which directly affect the traditional markets (Wongsakul, 2005; Kittiwajphokawat, 2008; Shannon, 2009).

A close examination of the patterns of sales of foods in both traditional markets and modern trade chains between 2002 and 2010 shows that the proportion of food sold in the modern markets have been on the increase while that in the traditional markets have been in decline (Wiboonponse and Sriboonchitta, 2004; TDRI, 2002; Shannon, 2009). For example, the percentage of foods sold in the modern markets rose from 35 percent in 2002 to 40 percent in 2007 and rose again to about 50 percent in 2010 while that of traditional markets dropped from 65 percent to 60 percent and about 50 percent in corresponding years respectively (Figure 2.3).

A number of studies showed that the main factors of change and growth in modern trade chains in Thailand include changes in consumer behaviors, new retail regulations etc. (for example Tokrisna, 2006; Shannon, 2009; Kittiwajphokawat, 2008). In addition, the studies from the Research Institute for Developing Thailand (2002) and Wongsakul (2005) reported that one of the most important factors that brought about changes in patterns of Thai purchasing habits after the financial crisis is that most consumers think that modern trade markets have a variety of food, which are safer than the food from traditional markets. They also provide greater the convenience for shoppers. Therefore, most modern trade markets are now seen as offering high quality and safe food for customers, which confirms to the customers' growing food safety awareness in Thailand at present. The food safety trend is presented in the next sub-section.

Figure 2.3: Percentage of Food Purchasing in Different Retail Sections in the Whole Country during 2002-2010



Source: * Information from the survey of Thai retail business from Research Institute for Developing Thailand (2002)

** Information from Wiboonponse and Sriboonchitta, 2004

*** Information (expectation) from Shannon (2009)

2.2.3 Food safety trends

Since the mid-1990s, most consumers have paid greater attention to health and environmental issues. To an extent, such attention reflects the rise of social concern and awareness of health and environmental problems around the world. A large market for “green”, “natural”, “pesticide-safe” products grown with reduced use of chemical pesticides and fertilizers as well as “organic” products is anticipated (Vanit-Anunchai, 2006; Roitner-Schobesberger, 2006).

The awareness of food safety continues to receive more emphasis. Many people, living in a big city, are concerned about the quality of food more than prices. Their awareness is likely to be influenced by higher education, advanced information technology, better living conditions and so on (Vanit-Anunchai, 2006; Roitner-Schobesberger *et al.*, 2008; Stracke-Labmann, 2007; Kittiwajphokawat, 2008). Wiboonponse and Sriboonchitta (2004) found that the factors affecting consumer purchasing decisions for modern trade markets in an urban area include a wide range of choices (brands) of individual items, price tags serving as an important tool for price information, location of store, and cleanliness.

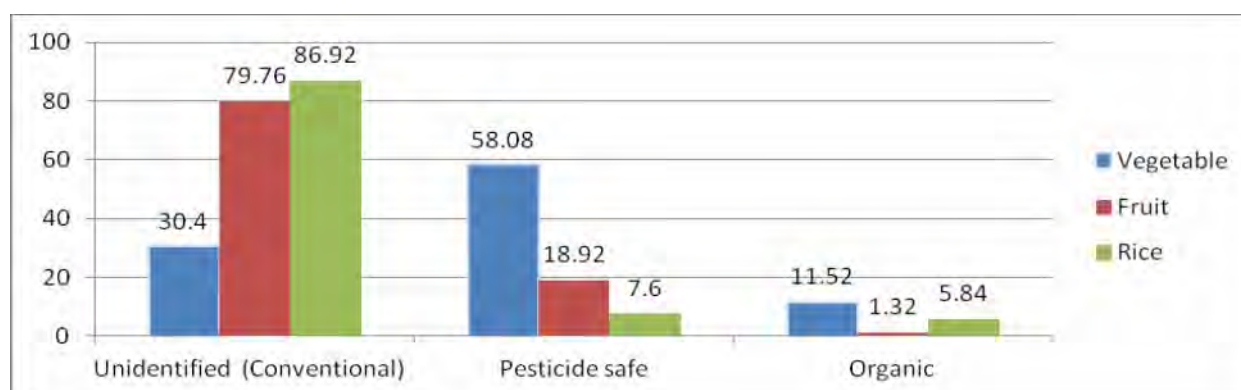
The Asian Institute of Technology (AIT) collected data for its development and innovation of sustainable agricultural project. This project was aimed at revealing the percentages of main types of fresh fruits and vegetables as well as rice sold in different modern trade chains in Bangkok in 2004⁹

The results are shown in Figure 2.4 and Table 2.3. The figure shows that the majority of vegetable types sold in modern trade markets are pesticide-safe vegetables, which account for over 58 percent in total. Conventional vegetable accounts only for 30.40 percent while 11.52 percent is for organic vegetable products. In contrast, the main market share of fruits and rice sold in modern trade markets are conventional products with 79.76 percent and 86.92 percent respectively.

Table 2.3 shows that supermarkets sold a large amount of pesticide-safe vegetables (about 64%) while conventional vegetables and organic vegetables had a lower share (35.36%). Similarly, hypermarkets sold over 47 percent of pesticide-safe vegetables and 4.36 of organic vegetable in their stores. Besides, green shops had high percentages of organic and pesticide-safe vegetable sales (50% and 47.3%, respectively).

These results indicate that most modern trade markets are interested in pesticide-safe and organic products as a result of changing consumer behaviour. Most of them offer food safety and present themselves as pesticide-safe and high quality food retailers to support the food safety trends and consumer demands.

Figure 2.4: Types of Agri-food Products Sold in Modern Trade Markets



Source: Calculated by author using data (adapted) from Lohakarn (2007)

⁹ Data collected in 2004 from lead modern trade markets, which included 242 modern trade markets, 25 department stores, 87 supermarkets, 73 hypermarkets, 29 convenience stores and 28 Green shops located in Bangkok and other main cities., found in Lohakarn (2007)

Table 2.3: Average percentage of main types of agri-food products sold in different modern trade chains in Thailand

Market channel	Vegetable			Fruit			Rice		
	Conventional	Pesticide-safe	Organic	Conventional	Pesticide-safe	Organic	Conventional	Pesticide-safe	Organic
Supermarket	28.71	64.63	6.65	79.43	20.36	0.21	94.21	2.86	2.93
Hypermarket	47.59	48.05	4.36	90.88	9.10	0.02	94.02	1.37	4.61
Green Shop	2.67	47.33	50.00	56.67	33.33	10.00	33.33	50.00	16.67
Total average	30.40	58.08	11.52	79.76	18.92	1.32	86.92	7.60	5.48

Source: calculated by author using data (adapted) from Lohakarn *et al.* (2007)

2.2.4 Supermarketization and small-scale farmers

The expansion of modern trade markets and food safety trend has had an impact on traditional retailers, suppliers/brokers, especially small-scale farmers (Tokrisna, 2006; Lohakarn, 2007; Shannon, 2009). High competition from modern trade chains made it necessary to improve their efficiency management, customer satisfaction and provide competitive prices. Modern retail food sector relies on suppliers from fresh market for fresh food. Due to the relatively large volume of demand and the presence of numerous small-scale farmers, role of these suppliers in obtaining adequate supply at the right quality and quantity for modern large scale retail food outlets has been increasing (Tokirsna, 2006; Lohakarn. 2007).

Getting good supply in large volume with good quality was one of the main problems for modern trade chains. Due to small-scale farm production, the supplier's role is still important in the fresh food business. Tokirsna (2006) suggested that there was a potential for modern trade chains to develop contract farming (especially for small-scale farmers), in an attempt to control quality and procurements.

Modern supply chains play an important role as the tool of competition in Thai food retail business, especially in domestic modern trade markets as well as international markets when they have capacity to invest in infrastructure and technology supported by the head office (Wiboonpongse and Sriboonchitta, 2004; Wongsakul, 2005; Tokrisna, 2006; Kittiwathphokawat, 2008). In recent years, large-scale retailers in Thailand have become their own distributors, performing wholesaling activities such as purchasing certain goods directly from suppliers/brokers and transferring products directly to their stores using their own transport system or outsourcing to third party logistics (Wongsakul, 2005). Besides, the role of technology application is critical for retailers because it can reduce inventory handling and operation costs and increase speed of working process among partners in the

supply chain. Also, supply chain management can control the product's quality and guarantee its safety in the entire supply chain through modern tracking methods (ibid).

These factors have a number of implication for small-scale farmers participating in the modern trade chains. Although, most small-scale farmers who participate in the modern trade chains are members of farmers' organizations; lack of logistics and marketing management systems as well as business strategies of old forms of farmers' organization (e.g. cooperative, farmer association, grassroots organizations) became a challenge for them in participating with modern trade chains in Thailand (see Thuvachote, 2007).

Recently, the impact of supermarketization on agri-food systems in Thailand has received much attention. Despite this, there are a small number of studies focused on the effect of supermarketization of small-scale farmers in this particular context. Tokrisna (2006) pointed out that the development of modern retail food sector creates an opportunity for small-scale farmers due to demand in relatively large volumes and all year round. Wiboonponse and Sriboonchitta (2004) explained that products from small-scale farmers for modern retail food sector have been offered a better price and small-scale farmers have recovered benefits such as credit/inputs as well as training programs which are not provided by traditional markets. Wiboonponse and Sriboonchitta also pointed out that producers' organizations (e.g. cooperatives) are among important factors that help small-scale farmers to access modern supply chains due to modern trade markets requirements for quantity, quality, delivery and management systems. However, these old form of organization are experienced with unsustainable.

Other studies found that small-scale farmers are faced with several threats and obstacles to sell their product to modern trade markets. Products from small-scale farmers are often rejected by modern trade markets due to their very high standards for product quality. Small-scale farmers do not have effective logistics and supply chain management systems. The prices offered are usually low. While product entrance fee are collected, small-scale farmers were found to have a problem with delays payment. All these obstacles have become the main causes that bar small-scale producers to enter modern trade markets (see for example, Wiboonponse and Sriboonchitta, 2004; Kittiwajphokawat, 2008). Wiboonponse and Sriboonchitta (2004) also stated that small-scale farmers were occasionally affected by lower price due to the high competition among modern trade chains which reduces producers' margins. They also added that only professional suppliers of small to medium scale operations can hold their place in the modern trade chain systems; most small-scale farmers had difficulties in maintaining their business link with modern trade chains.

2.3 Organic/Pesticide-Safe Farming and Small-Scale Farmers in Thailand

The previous sections present the development of agri-food markets and food safety trends in Thailand. This section describes the development and potential of organic/pesticide-safe farming.

Ellis *et al.* (2006) put forward that the emerging popularity of organic agriculture in Thailand was a result of a combination of three major trends. *The first trend* is an increasing public awareness of healthy living with consuming natural and safe foods being seen as important for both preventive and curative health care. This has led to growing concern and demand for safe foods, especially among urban middle classes. Organic foods are considered to be the safest option as they are perceived as having zero or low contamination by agro-chemicals. *The second trend* is the rise of environmental awareness, including concerns on the impact of using agro-chemical in conventional agriculture on the environment, ecology and biodiversity. *The third trend* is the development of sustainable agriculture in response to the crisis faced by farmers as a result of declining productivity and farm prices of high-input cash-crop. This third trend has also helped drive the establishment of many grassroots community development organizations or producer organizations.

A number of scholars (for example Eill and Panyakul, 2005; Ellis *et al.*, 2006; Stracke-Labmann, 2007) also found that the current government, NGOs, social enterprises and international organizations have been helping to promote a more environmentally sustainable agricultural system (e.g. pesticide-safe and organic farming) in Thailand, which directly support new market opportunities for modern trade chains.

The Asian Development Bank (ADB) reported that the major motive for Thai farmers to convert to organic/pesticide-safe farming was poverty in Thailand in the agricultural sector. There are 12 percent of rural Thai population living beneath the national poverty line (ADB, 2005). Although this percentage is much lower than in most other Asian countries, poverty is still a significant matter of concern (Stracke-Labmann, 2007). The support of organic farming to alleviate poverty is one of the goals of the UN Economic and Social Commission for Asia and the Pacific (UN-ESCAP, 2002). Five conclusions were reached in a regional workshop on the role of organic farming in poverty alleviation in Chiang Mai, Thailand, in 2001 (Stracke-Labmann, 2007). One of them is that organic agriculture can alleviate poverty mainly by reducing the dependence on external inputs. Another conclusion is that governments of developing countries should support organic farming because of its potential to increase employment, income and food security for small-scale farmers in rural areas (*ibid.*).

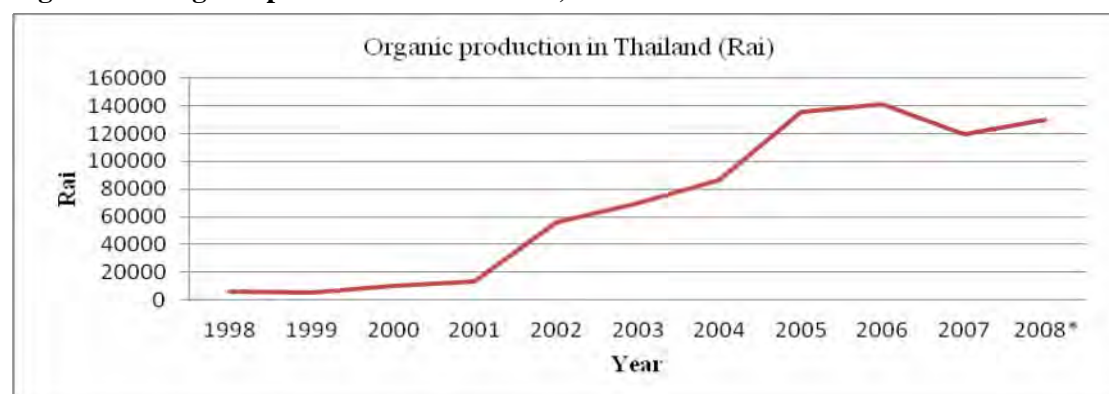
In addition, several researchers confirmed the profitability of organic farming in terms of cost benefit equation between conventional and organic farming in Thailand (see Hutanuwatr *et al.*, 2005, Setboonsarng, 2006, Van Dooren, 2005). These studies showed that the net profit of the organic production outstripped that of the conventional one. However, most studies did not mention about product quality, which is of greater interest for sale and export.

2.3.1 Current organic/pesticide-safe farming situation in Thailand

There has been no systematic record of organic/pesticide-safe production in Thailand, making it difficult to evaluate the current situation precisely. This section is mainly based on the organic data as a result of lack of documented information on pesticide-safe farming and marketing in Thailand. Ellis *et al.* (2006) stated that despite rapid progress on production and regulatory fronts, Thailand's organic sector is still at a relatively early developmental stage. Most farmers used simple production systems, without sophisticated technologies. Most organic products are basic unprocessed commodities such as rice, fresh fruits and vegetables. The number of processed organic products are relatively few and not in continuous simply as the raw material is usually insufficient to supply processing plants (ibid).

Green Net and the Earth Net Foundation reported that the area under organic farming in Thailand increased from just over 55,992 Rai in 2002 to 119,722 Rai in 2007 (Figure 2.5 and Table 2.4), representing only 0.10 percent of the total agricultural land area (131 million rai or 21 million hectare). The land area devoted to organic farming increased by over 63,730 rai from 2002 to 2007 (more than 200 percent). Table 2.5 shows that the area with organic farming in Thailand; although it is in the upper middle rank compared to other Asian countries, it is ranked among the lowest in the world.

Figure 2.5: Organic production in Thailand, 1998-2008



Source: Green Net (2008)

*Approximated figure from Green Net in 2009

Table 2.4: Organic production in Thailand, 1998-2007

						(Rai)
Year	Rice	Fied crops	Vegetables	Fruit	Other	Total
1998	6,281.41		-		-	6,281.41
1999	5,510.13		-		-	5,510.13
2000	7,005.26		3,518.75		-	10,524.25
2001	9,900.50		3,518.75		-	13,419.25
2002	32,841.27		22,382.30		768.75	55,992.32
2003	46,719.33		22,260.64		768.75	69,748.72
2004	52,182.75	7,859.79	13,283.60	12,777.00	768.75	86,871.89
2005	108,302.02	6,731.20	14,844.76	4,995.35	761.00	135,634.33
2006	113,213.04	6,546.65	15,121.21	4,981.83	1,077.25	140,939.98
2007	77,005.03	10,103.64	16,503.19	15,907.20	203.75	119,722.81

Source: Green Net (2010)¹⁰

Table 2.5: Ranking organic of Thailand with other countires

Production area in Thailand	Ranking (World, 85 countries)	Ranking (Asia, 21 countries)
Production area (ha)	71	12
Organic area as % of total agricultural area	82	13
Number of organic farms	42	5

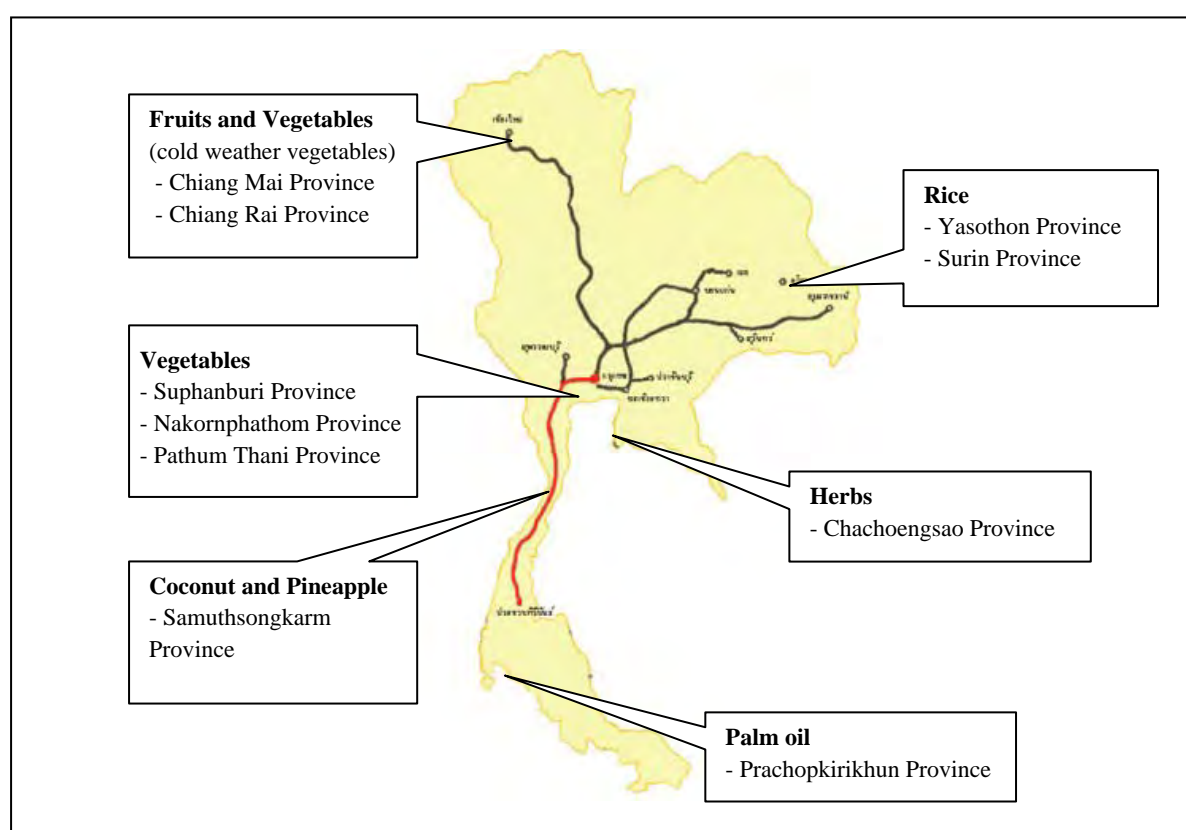
Source: Willer and Yussefi (2004)

There are two main categories of organic/pesticide-safe farming in Thailand; certified and non-certified (Panyakul, 2003; Ellis *et al.* 2006, Ellis and Panyakul, 2006; Vanit-Anunchai, 2007). Because there is no available systematic record of organic/pesticide-safe production in Thailand, it is difficult to evaluate the current situation. The available data cover only certified organic production. Given this lack of documented information on non-certified organic farming, organic/pesticide-safe production in this research refers only to certified production.

The largest production category in Thailand is organic rice, from the northeast region, followed by fresh vegetables and herbs. The main organic rice producers are in Yasothon and Surin provinces. Organic vegetables are mainly leafy vegetables, especially the salad types and Chinese vegetables. The vegetable producers are mainly in Chiang Mai and central of Thailand provinces (Figure 2.6).

¹⁰ Available from <www.greennet.or.th> [Accessed on 12th May, 2010]

Figure 2.6: The main organic production by province in Thailand



Source: Adapted from Green Net (2010)¹¹

The products from Thai organic markets in 2005 was estimated to be around 29,415 tons, valued at US\$ 23 million per year, a substantial increase from just 9,756 tons in 2003 (Green Net, 2006). In addition, Thai domestic market has increased with regards to the export market. It was estimated at 494.5 million Baht, or US\$12.4 million, with 425.9 million Baht (US\$10.6 million) exported in 2005 (Table 2.6) (ibid).

Table 2.6: Production and market value 2003-2005

Crop	2003		2004		2005	
	Production (tons)	Value (in Baht)	Production (tons)	Value (in Baht)	Production (tons)	Value (in Baht)
Rice	7,007.90	210.24	7,824.41	313.10	18,960.38	534.75
Field crops			1,571.96	55.02	2,040.92	45.16
Vegetables and herbs	2,671.28	160.28	2,656.73	159.40	4,618.18	255.83
Fruits			3,833.10	76.66	3,746.51	74.93
Others	76.88	4.61	76.88	4.61	49.11	9.69
Total	9,756.05	375.13	15,966.08	608.79	29,415.10	920.36

Source: Green Net (2006)

¹¹ Available at <http://www.greennet.or.th/e0000.htm> [Accessed on 11th April, 2010]

It can be seen from the above discussion that at the present time, Thailand has considerable potential in producing organic products, both basic and processed, which can support both domestic and export markets (Panyakul 2003; Ellis *et al.*, 2006; Stracke-Labmann, 2007; Green Net, 2010).

2.3.2 Organic and pesticide-safe farming actors in Thailand

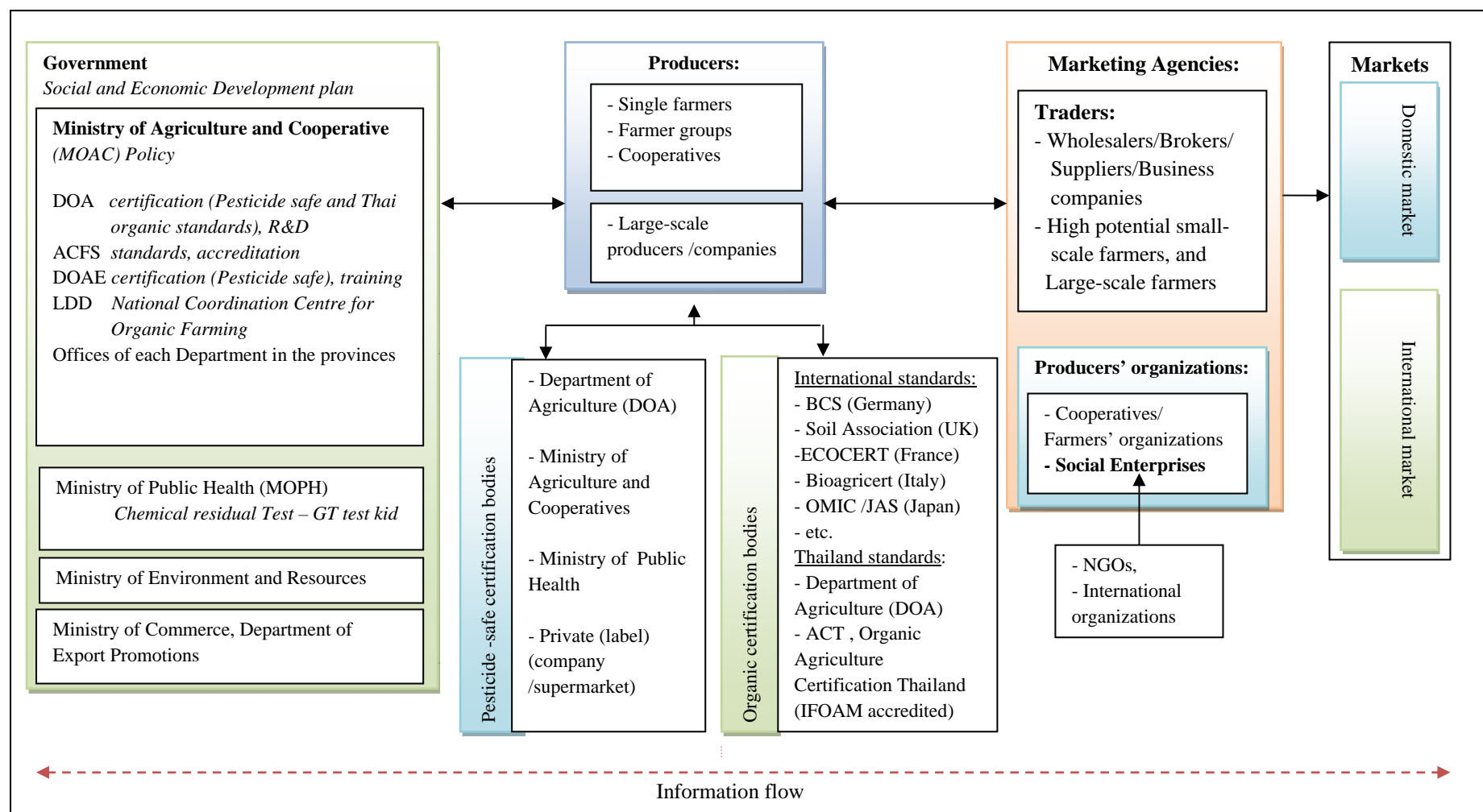
Thailand's organic and pesticide-safe farming are driven mainly by producers (producers' cooperatives, grassroots support groups and large-scale farms), NGOs, social enterprises, traders and government projects (see Panyakul and Sukjirattikal, 2003; Ellis *et al.*, 2006; Roitner-Schobesberger, 2006; Roitner-Schobesberger *et al.*, 2007; Stracke-Labmann, 2007; Green Net, 2010). Table 2.7 provides an overview of the most important actors and their roles in the organic and pesticide-safe agriculture in Thailand. The linkages of organic/pesticide-safe farming network in Thailand are shown in Figure 2.7.

Table 2.7: Key Actors and Their Role in Organic and Pesticide-safe Agriculture Development in Thailand

	Key actors	Roles
Producers	Either single farms or large-scale corporate farms	Produce various crops
Producer organizations	Organized as producer groups or cooperatives	Produce various crops
NGOs	NGOs under the Alternative Agriculture Network, Key players include: Sustainable Agriculture Pilot Projects	Provide support services for organic and chemical-free conversion and internal control
Social Enterprises	Cooperative companies, Community/ Foundation companies, Community Interest Companies	Act as marketing agency and also provide support services/inputs for farming
Traders	Wholesalers/ Brokers/ Suppliers/Business companies	Purchasing various crops
Government bodies	Department of Agriculture Ministry of Agriculture and Cooperatives Department of Agricultural and Extension Ministry of Public Health	Complete a national guideline for organic crop standards Set up organic and chemical-free inspection and certification
Certification body	Organic Agriculture Certification Thailand (ATC) Foreign certification bodies: Bioagricoop (Italian) Siol Association (UK)	Certify organic farms in Thailand Certify organic farms in Thailand

Source: Adapted from Ellis *et al.* (2006)

Figure 2.7: Organic and pesticide-safe farming network in Thailand



Source: Author's compilation from secondary data and group discussions

Producers

Producers in organic and pesticide-safe farming consist of farmers who group together in a form of farmers' organizations, NGOs and social enterprises to support agricultural projects and traders. There are also a number of commercial family farms and large-scale businesses. Ellis and Panyakul (2005) point out that producers can be divided into three broad categories: smallholders working together as a producer group or under a common organic or chemical-free project, producers with single farms, and large-scale corporate farms. The focus of the present study is on the first category. It examines smallholders working together as a producer group or under a common organic or pesticide-safe project. The majority of the organic or chemical-free produce farmers in Thailand belong to this category.

NGOs and grassroots organizations

NGOs and grassroots organizations play a crucial role for the development of organic and pesticide-safe farming in Thailand (Panyakul, 2003). Producers in projects supported by NGOs and international organizations usually work together in a form of producer groups. However, most farmers' groups do not have any legal status; only few of them officially registered as cooperatives or farmer organizations (Ellis *et al.*, 2006). These organizations are self-supporting; they provide their members with training and input or cash advances to cover production costs. Many of them also provide processing facilities for their members and act as a collective marketing mechanism (*ibid.*).

Social Enterprise

The social enterprise sector has recently becomes one of the new important actors in the relationship between the farmers' organisations and the modern trade chains in Thailand. Social enterprises such as Green Net, Royal Project, Lemon Farm and the Alternative Agriculture Network (ANN) have become good organizational models for farmers' organizations that help integrate small-scale farmers who do organic and pesticide-safe farming with modern trade chains. Panyakul (2003) and Thuvachote (2007) state that social enterprise plays a crucial role for the development of organic and pesticide-safe farming in Thailand. They promote organic and pesticide-safe farming by co-operating with farmer groups, cooperatives, traders and international organizations e.g. fair-trade organizations and by mediating between the farmers and traders (see for example Panyakul, 2002; Ellis *et al.*, 2006; Thuvachote, 2007). They are active in supporting farmers' activities related to organic and pesticide-safe farming extension work by encouraging them to reduce the use of pesticides, helping with marketing of the products, co-operating with farmers with regards to research and development and market development (see Panyakul, 2003; Stracke-Labmann, 2007; Thuvachote, 2007 please see also more details about social enterprises in sub-section 2.5).

The government

The Thai government's interest in organic and pesticide-safe agriculture started later than that of NGOs and its role in organic and pesticide-safe agriculture is still small, but increasing (Stracke-Labmann, 2007). King Bhumibol Adulyadej, the present king of Thailand has encouraged Thai people to practice "Sufficiency Economy" since the financial and economic crisis in Thailand in 1997. His Majesty the King stated in his famous royal speech given on December 4, 1997 that "to be a tiger is not important, the important thing is to have a self-supporting economy" (UNDP, 2003). To him, having enough to survive is at the heart of a self-supporting economy. His Majesty the King has been highly respected by Thai people. It is not surprising that his idea of sufficiency economy has become popular among the Thai people although the country's export-oriented agriculture continues to be strongly supported. Sustainable agriculture, including organic and pesticide-safe farming in Thailand first received more attention from the government in the 8th National Economic and Social Development Plan (8th Plan). This was partly the result of the work of NGOs. This five-year plan (1997-2001) was intended to deal with socio-economic and political problems in Thailand due to increasing imbalance of development among economic and social issues and environment (see NESDB, 1997). The Royal Thai Government in 1997 used the Eighth Plan to support "sustainable development by regarding human development as the main target of national development." This plan stressed the importance of "administration, decentralisation, and management of authority planning to allow greater popular participation" (NESDB, 1997). This was the first time sustainable agriculture, which includes organic and pesticide-safe agriculture, was explicitly mentioned in Thai policy document.

Sustainability was a significant term in the 9th National Plan for the years 2002-2006. Following the King's principle of "Sufficiency Economy", it even proposed that sufficiency economy would be the "country's development and management philosophy". Moreover, this plan put an emphasis on balanced development referring to the "middle path" strategy, a well-known Buddhist concept, as another important keyword (NESDB, 2000)¹². Furthermore, the government added some more objectives in the recent National Economic and Social Development Plan or the 10th Plan for 2007 to 2011 in order to sustain rural development and to improve quality of life both for producers and consumers, (ibid.).

Government organisations have recently been involved in organic and pesticide-safe farming through policy, support, certification, accreditation, extension, research and development. The responsibility for this policy lies mainly in the hands of different departments within the Ministry of Agriculture and Cooperatives. For example, the Department of Agricultural Extension is responsible for the training,

¹² Available at www.nesdb.go.th [Accessed June, 2009]

support and extension matters while the Department of Agriculture and ACFS provide certification and accreditation, respectively. The Ministry of Public Health play a role in supporting with chemical residue test issues (author's compilation from interviews and institution reports).

Table 2.8: Overview of organic and pesticide-safe agricultural policies and programmes

Policy area	Government policy and programmes
General awareness of merit of organic agriculture	Publication and government websites, e.g. publications of Department of Agriculture (DOA) and Department of Agricultural Extension (DOAE)
Organic regulation, standards and certification	Voluntary national standard guideline for organic and pesticide-safe crop (ACFS) Set up public certification body (Organic Crop Institute)
Production	At provincial level, some governors started organic and pesticide-safe projects, e.g. and Yasothon and Surin organize organic rice projects. Several local and national agencies started organic and chemical-free agriculture training course for producers. Few training programmes are linked to certification.
Input (seeds, seeding, pest control and fertilizers)	No specific activities so far on seeds. The Department of Land Development plans to set up several hundred organic fertilizer factories in main cities.
Marketing development	Working with business sector (modern trade chains such as TOPs, Tesco-Lotus supermarkets) and social enterprises (such as Royal Project and Green Net) in integrating small-scale farmer with the modern supply chains.
Export marketing	Department of Export Promotion (DEP) conducts public seminars, assists traders and exporters to participate in overseas organic fairs (e.g. Biofach, Germany, Natural Products Organic Asia, Singapore) and organizes buyer-seller matching events and information services
Research	Some research funding institutions offer specific funding support for organic agriculture, e.g. Thailand Research Fund, National Research Council of Thailand. No clear budget allocation and research goals.
Extension service	Many public agencies, especially DOA and DOAE, conduct seminars and 1-day courses on organic and pesticide-safe farming. These are promotional as well as an extension activity

Source: Adapted from Ellis *et al.* (2006)

Traders

Some farmers are regarded as traders in the business sector. These farmers own large-scale farms. They are also contract farmers who pre-agree quantity, quality and price levels. Companies usually provide technical assistance and input or cash advances to support these farmers (Wiboonponse and Sriboonchitta, 2004; Eills *et al.*, 2006; Stracke-Labmann, 2007). These companies also pay for and hold the certification in their own names when registering for organic and pesticide-safe standards (Ellis *et al.*, 2006). It is also important to note that larger companies are increasingly entering the

organic and pesticide-safe sector at all stages in the supply chain, including production, processing, and marketing (Wiboonponse and Sriboonchitta, 2004; Ellis *et al.*, 2006).

Certification Body

Standards and certification are provided by public and private organizations in Thailand (Roitner-Schobesberger, 2006; Roitner-Schobesberger *et al.*, 2007). The work of these two types of organizations is explained below.

Standards and certification by National Government

The government has set up standards for organic and pesticide-safe crop production and established certification bodies for organic and pesticide-safe products as shown in Table 2.9 and 2.10. Table 2.9 shows the qualifications of three main products for fresh fruits and vegetables in Thailand with regards to the use of chemicals, development context and certification framework. The government has set up first certification body to deal with standards for pesticide-safe crop production in 1991, which was called “Hygienic food” (Table 2.10). The certification is managed by Department of Agriculture (DOA) of Ministry of Agriculture and Cooperatives (MOAC) (Vanit-Anunchai, 2006; Roitner-Schobesberger *et al.*, 2007). After restructuring the MOAC in 2003, this certification body was changed to “Food Quality and Safety”. There are also other certification bodies called “Pesticide-Safe Vegetables”, which is managed by the Ministry of Public Health.

The government has also set up standards for organic crop production in 2000 and developed a certification body for organic products, called “Organic Thailand” (Table 2.10). Organic Thailand is controlled by the Department of Agriculture (DOA)/ Ministry of Agriculture and Cooperatives (Roitner-Schobesberger, 2006).

Standards and certification by NGOs

The first and only Thai certification body accredited by International Movement of Organic Agriculture Movements (IFOAM) is called “Organic Agriculture Certification Thailand (ACT)” (see Table 2.10). This private organization was founded in 1995 and its members are NGOs, producer groups and other private organizations (*ibid*).

There are also several foreign organizations certifying organic products for export, e.g. Soil Association (UK), ECOCERT (France), OMIC/JAS (Japan), BCS Öko-Garantie GmbH (Germany) (Panyakul, 2003).

Table 2.9: Qualifications of three main products for fresh fruits and vegetables in Thailand according to the use of chemicals, development context and certification framework

Characteristic	Conventional		Pesticide-Safe		Organic
	Conventional local-market growers	Conventional professional growers	'Intelligent Pesticide Management'	'Integrated pest management'	
Use of synthetic pesticides	High	High	Reduced	Low	None
Use of artificial fertilizers	Divergent	Optimal	Balanced	Balanced	None
Institutional support	Agricultural Extension	Input suppliers	Input suppliers	FAO-project, Internaitioanal and/or NGOs organizations	Various NGOs, social enterprises, International
Development approach	Top-down	Participative	Participative	Bottom-up	Bottom-up
Development objective	Technology application	Yield security	Safe product	Pest prevention	Sustainable agriculture
Certification standard	None	None	FAO codex, Codex's MRL and Thai Public Health Ministry's MRL	FAO codex, Codex's MRL, GAP and Thai Public Health Ministry's MRL	IFOAM and Organic Thailand standard
Certification level	None	None	Product	Process and product	Process
Certification agency	None	None	Agricultural departments; DOA, DOAE, and ACFS, MOPH	Agricultural departments; DOA, DOAE, and ACFS, MOPH	<i>Thailand standards:</i> ACT, DOA, ACFS <i>International standards:</i> ECOCERT, OMIC/JAS, BCS Oeko-Garantie, Soil Association etc.
Certification label	None	None	Non-toxic	Non-toxic	Organic
Inspection	None	None	Farm registration and field visit but no inspection, random sampling once a year Using GT test kit to check pesticide residues	Farm registration and field visit but no inspection, random sampling once a year Using GT test kit to check pesticide residues	Site visit, annual field inspection
Residue analysis	Public health	Modern trade	Agricultural departments	Agricultural departments	Not relevant

Source: Adapted from Buurma and Saranark (2006) and information collected from key informant interviews and varies of secondary data sources.

MRL is the maximum concentration of pesticide residue (expressed as mg/kg), recommended by the Codex Alimentarius Commission to be legally permitted in or on food commodities and animal feeds (FAOSTAT, 2005)




2.3.3 Different advertising labels, standards and certificates

Owing to supply side developments, the market is overwhelmed with new label and new brand products. Consumers are sometimes confronted with many varieties of labels and brands in markets as shown in Table 2.10 (Vanit-Anunchai, 2006). Mostly, the organic and pesticide-safe products are presented in a package with the brand name and advertising labels, for example: “Organic Vegetable”, “Hygienic Vegetable”, “Pesticide-safe Vegetable”, “Pesticide-free Vegetable”, “Healthy Vegetable”, etc. (see Table 2.10). All of these labels inform consumers about different production process and the level of safety (ibid.). In addition to varieties of labels and brands presented on the package, there are various symbols of certification issued by four government bodies, namely DOA, DOAE, MOPH and ACFS and one non-government organization, ACT, as previously discussed.

Table 2.10: Major safe food labels in Thailand and their definitions

Type of products and label	Title of the label (including the translations of the Thai text on the label)	Origin and description
Pesticide-safe Product		
	Hygienic food Pilot project for hygienic fresh vegetables and fruits – Hygienic fresh vegetables and fruits – Department of Agriculture (DOA)	The label was originally used on produce originating from the “Hygienic fresh fruit and vegetable production pilot project” that was initiated in 1991 by the DOA (Ministry of Agriculture and Cooperatives). In the project, the use of synthetic chemicals is regulated and controlled (Chaimivol, 2003). The label is meant to be replaced by the new ‘Food quality and safety’ label (below).
	Food Quality and safety Ministry of Agriculture and Cooperatives – “Safe Food”	This quality and safety certification label is given to agricultural commodities and food products that conform to the standards established by the National Bureau of Agricultural Commodity and Food Standards (Ministry of Public Health) and DOA (2003).
	Pesticide-safe vegetable Quality certification for toxic substances control – Department of Medical Science – Ministry of Public Health (MOPH)	The Ministry of Public Health assigns the label to retailers who conduct tests for toxic substances before selling the products (TOPs, 2005). The label is used on fresh food products that meet the safety requirement of the Ministry of Public Health.
	Carrefour Quality line Carrefour (private) quality product	Carrefour’s own brand quality line label is a private label used for both pesticide-safe and organic products in Carrefour supermarkets. It is certified by the DOA (Ministry of Agriculture and Cooperatives) and BCS (Carrefour, 2010).

Table 2.10: Major safe food labels in Thailand and their definitions (Cont')

Type of products and labels	Title of the label (including the translations of the Thai text on the label)	Origin and description
Organic Product		
	Organic Thailand Organic products	The official organic label by the Department of Agriculture, Ministry of Agriculture and Cooperatives. It indicates that the product has been produced according to the organic farming standards set by the Department of Agriculture.
	Organic Agriculture Certification Thailand (ACT)	These products are certified organic by Organic Agriculture Certification Thailand (ACT), a private certification body accredited with IFOAM since 2001.
	IFOAM	Label of the International Federation of Organic Agriculture Movements (IFOAM). Although IFOAM does not certify organic farms itself, the label can be used by certifying bodies accredited by IFOAM.

Source: Adapted from Roitner-Schobesberger *et al.* (2008) and Green Net (2010)

2.3.4 Organic and pesticide-safe market situation in Thailand

Health awareness of Thai urban consumers is increasing (Roitner-Schobesberger, 2006). Several studies showing high levels of chemical residues on fruits and vegetables and critical newspaper articles have caught attention of consumers (Poapongsakorn, 2009; IPM-DANIDA, 2003). Lately, a number of studies have investigated the market potential for organic and pesticide-safe fruits and vegetables in Bangkok and main cities. These studies concluded that consumers had a negative perception of pesticide and they had a high degree of awareness concerning residues (for example Nelson, 1991; Roitner-Schobesberger, 2006; Vanit-Anunchai, 2006; Ellis *et al.*, 2006; Roitner-Schobesberger *et al.*, 2007). These findings indicate that there is a market potential for organic and pesticide-safe products addressing these concerns; these products have already been introduced by modern trade markets in Thailand (Roitner-Schobesberger, 2006).

International market

Thailand's organic and pesticide-safe export have a bright future due to the excess demand over supply in international markets especially for rice, tropical fruits and vegetables (Ellis *et al.*, 2006). Major importers of organic products include the European Union such as Germany, United Kingdom and France as well as Asian countries such as Japan and Singapore (see Chaivimol, 2004; Ellis *et al.*, 2006; UNCTAD/WTO, undated). In addition, American demand for tropical organic and pesticide-

safe products is also increasing. Despite production increase, the demand still seems to outstrip supply (Willer and Yussefi, 2004), especially in the case of organic rice (Chaivimal, 2004).

Domestic market

In recent years, Thailand has seen economic recovery and early signs of a revitalized domestic market (Ellis *et al.*, 2006). By the end of 2004, many certified brands of organic and pesticide-safe products appeared in local supermarket and modern trade outlets, particularly in Bangkok and other main cities. These new entrants led to an increasingly competitive environment and helped reduce prices (*ibid.*).

Distribution channels for organic and pesticide-safe agricultural products in Thailand have developed a great deal since cooperatives and social enterprises launched the organic and pesticide-safe market about a decade ago (see Ellis *et al.*, 2006; Stracke-Labmann; 2007). In addition, food retail transformation and supply chains changed radically once retailers recognized this trend, therefore, organic and pesticide-safe products become increasingly available in most modern trade markets (see for example Ellis *et al.*, 2006; Shannon, 2009).

There are several studies explaining the distribution channels of organic and pesticide-safe products in Thailand (for example Ellis *et al.*, 2006; Vanit-Anunchai, 2006; Stracke-LaBmann, 2007). The distribution channels are divided into 7 main channels as listed below:

1. Member systems (e.g. Vegetable Boxes and Community-Supported Agriculture) refers to products (mainly fresh fruits and vegetables) that are delivered to consumers' homes or offices regularly every week.
2. Weekly markets are mostly for organic and pesticide-safe produce. They are situated upcountry where sellers meet weekly, e.g. Im-Boon market in Chiang Mai province.
3. Occasional markets mean markets where producers get together for trading during major events such as trade fairs or conferences, e.g. health fair, organic day etc.
4. Retail health shops buy products directly from producers or through distribution centres (wholesalers) e.g. Aden, Poh-taek, Doi Kham, Green Net shops.
5. Health supermarkets focus on health and environmentally-friendly products, e.g. Lemon Farm (most outlets located in Bangkok petrol stations nationwide), Rim Ping Supermarkets (all outlets located in Chaing Mai province).
6. Supermarkets or Hypermarkets and discount stores such as TOPs, Carrefour, Makro, Big C, the Mall, and Villa stock a range of organic and pesticide-safe produce on their shelves.

7. Organic restaurants purchase their raw materials from organic and pesticide-safe producers. However, most of them use non-certified organic and pesticide-safe products sourced mainly from growers within the member.

Distribution channels for organic and pesticide-safe agricultural products are quite diversified based on the available channels above. The majority of produce is sold through health shops or “Green Shops”. However, currently, there is a growing preference for supermarkets/hypermarkets due to changing consumer behaviour (Panyakul, 2003; Ellis *et al.*, 2006). Modern trade chains are now likely to play an increasingly influential role in trading of organic and pesticide-safe produce in Thailand. Nevertheless, in Thailand, most modern trade chains are in the hands of major retail conglomerates. Such supply chain systems have potential to place smallholders at disadvantage in negotiating fair prices for produce (*ibid.*).

In addition, there are several major challenges faced by small-scale organic and pesticide-safe producers such as production technology, quality of product, inspection and certification including supply chain and logistics management (Ellis *et al.*, 2006; Vanit-Anunchai, 2006; Stracke-LaBmann, 2007).

2.3.5 Impacts of organic/pesticide-safe farming on small-scale farmers

Due to the development and pressure of agri-food market demands, organic/pesticide-safe products have indisputably entered the food market while market demand for such products has expanded rapidly over the past decade. Thus, the organic/pesticide-safe industry has been experiencing rapid growth in Thailand (see Vanit-Anunchai, 2006; Lohakarn *et al.*, 2007).

In recent years, a number of studies (see for example Vanit-Anunchai, 2006; Ellis *et al.*, 2006; Lohakarn *et al.*, 2007; Stracke-LaBmann, 2007) show trends, potential and benefits of organic farming in Thailand. Ellis *et al.* (2006) stated that organic farming helped to empower small-scale farmers and increase their opportunity of participation in modern trade chains. Furthermore, Setboonsarng (2006) pointed out that organic agriculture can be a vehicle for poverty reduction and reduce the need for rural-urban migration by opening up income opportunities in rural area as well as environmental conservation.

A number of research studies (see for example Hutanuwatr, 2005; Setboonsarng, 2006; Dooren, 2006) point to lower production cost in organic systems because less external inputs are used. Also, price premiums of up to 300 percent may be gained on the international market (Setboonsarng, 2006: 8). Other studies have found that even without price premiums, farmers are adopting organic agriculture to save costs and achieve sustainable yields (Hutanuwatr, 2005). However some studies found that

organic farming was slightly more expensive to produce when labour costs were included (see for example Hutanuwatr, 2005). The impact of organic conversion on yields is highly debated. According to Hutanuwatr (2005), farmers converting from traditional agriculture (low-input) systems to organics found that yields stabilised and outperformed previous yields, while farmers converting from high-input systems experience a drop in yields during the three-year conversion. Even if yields drop for conventional farmers, several studies show that profits in organic farms are the same or higher than conventional farms, as any drop in yield is compensated for by lower input costs and price premiums (see for example Hutanuwatr, 2005; Setboonsarng, 2006; Dooren, 2005; Ellis *et al.*, 2006).

However, some studies also suggest that there are many constraints of organic agriculture sustainability such as limited market demand and difficulties in securing a price premium (see Wiboonpongse and Sriboonchitta, 2004; Stracke-LaBmann, 2007). Furthermore, regarding modern supply chains, most organic producers have a lot of effects in participating in the modern trade chains (Wiboonpongse and Sriboonchitta, 2004). Hence, there is pressure to promote alternative channels such as social enterprise schemes which act as a marketing agency and preserve close producer-buyer-consumer relationships.

2.4 Overview of Social Enterprise Schemes in Agri-Food Business in Thailand

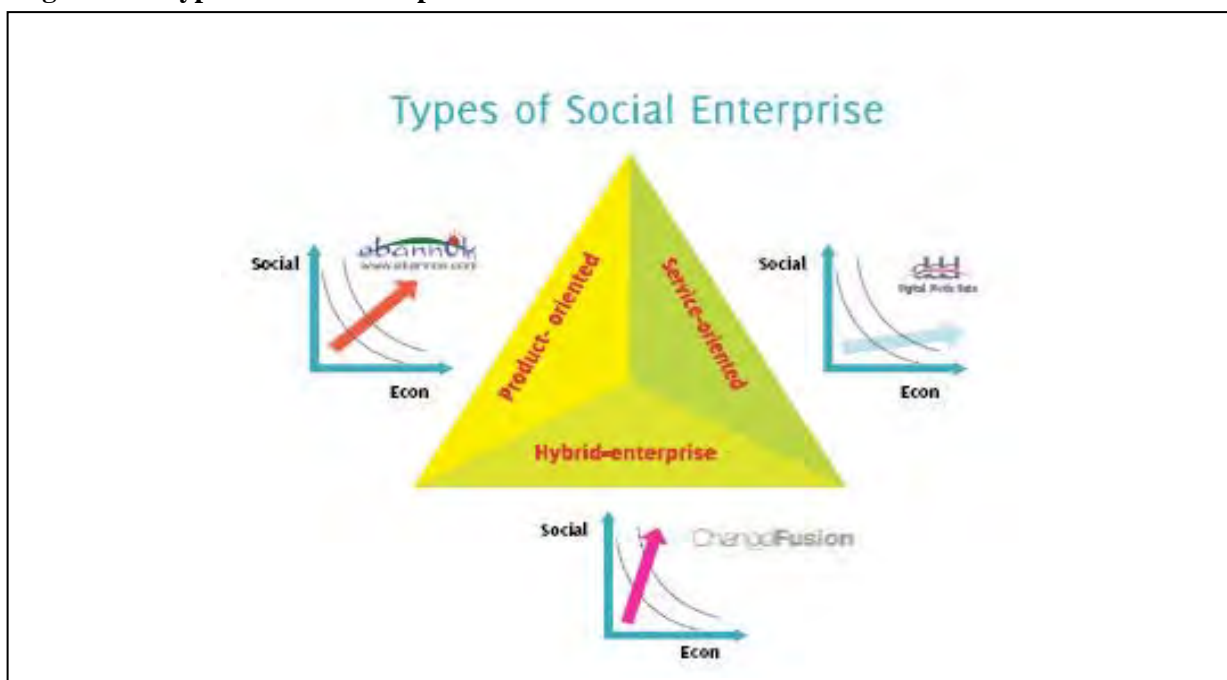
Social enterprises schemes have been based on the cooperative model in Thailand for long time. However, cooperatives in Thailand are now confronting new emerging needs and challenges from farmer-members and markets caused by national and global changes in the 21st century (Thuvachote, 2007). The new market economy in which farmers' organizations operate bring about new types of consumers who demand high quality products at reasonable prices, and prefer healthy and organic or pesticide-safe food (*ibid*). These offer both new opportunities and also threats to the cooperatives (*ibid*).

Farmers want to sell their products as fast as possible with high economic returns. Thus, farmers' organization have the responsibility to assist their members to sell their products at good prices. Thuvachote (2007) pointed out that there are several threats for cooperatives such as lack of collaboration with the private sector, lack of marketing strategies and management systems to address the high quality of products and traceability demanded by consumers as well as the concept of cooperative itself. In case of agri-food modern supply chain, the farmers' organizations in the form of a cooperative seems not to be an efficient model for modern trade chains. In consequence, the farmers' organization are changing and developing into other forms such as social enterprise schemes which have more capacity to deal with modern trade and supply chain management systems.

In recent years, social enterprise schemes have become an alternative model for farmers' organization in many developing countries such as Philippines, India, Malaysia, Pakistan including Thailand. In Thailand, Thai government just established the National Social Enterprise Committee (named ChangeFusion) in 2010. An important mission of the National Social Enterprise Committee is to promote sustainable development and help small-scale farmers by using His Majesty the King's self-sufficiency practices (ChangeFusion, 2010). Part of the King's self-sufficiency theory emphasizes local cooperation and generosity among business sectors which aligns directly with the concept of social enterprise in Thailand. Thai social enterprise has a unique model that allows entrepreneurs to generate income while simultaneously helping to solve social problems as well as environmental problems. The existing Thai social enterprises' scope of work varies from sustainable agriculture, fair trade, eco-tourism, micro-credit, career promotion for the physically handicapped, supportive housing for the poor, communal alternative energy by using the same model of modern business management for development (see for example ChangeFusion, 2010). Furthermore, the government has added some different objectives in order to sustain rural development and also improve quality of life for smallholder which also support the social enterprise schemes in the new National Economic and Social Development Plan or the 11th Plan for the years 2012 to 2016 (NESDB, 2010).

However, there are several types and forms of social enterprise schemes in Thailand, which are similar to those in other countries. ChangeFusion (2010) explained the rank of types of social enterprise schemes in Thailand in relation to the relationship between social/environmental and economic/financial returns (Figure 2.8).

Figure 2.8: Types of social enterprise in Thailand



Source: ChangeFusion, 2010

There are three main types of social enterprise schemes in Thailand, are based on their business characteristics (ChangeFusion, 2010). These include:

1. Product-oriented schemes, e.g. Ebannok.com which is a handicraft social enterprise business for helping poor rural families in the North of Thailand.
2. Service-oriented schemes, e.g. Open Dream Company which is an IT social enterprise company that helps non-profit or development organizations to develop their own websites.
3. Hybrid-enterprise schemes e.g. Grassroot Innovation Network which provides micro organic agriculture methods to help smallholders to increase their income.

ChangeFusion (2010) explained that the major roles of social enterprise in Thailand is providing the community with training and employment opportunities for unemployed people as well as supporting marketing and business options where private businesses or cooperatives are not able to provide essential goods and services (see ChangeFusion, 2010; Bangkokbiznews, 2010).

There are a number of successful social enterprises in agri-food business sector in Thailand such as the Royal Project and Green Net that help to integrate smallholders into modern trade chains. These social enterprises are good examples of successful social enterprise schemes that help small-scale farmers develop take advantage of modern supply chains. Hence, the present study is focused on the cases of Royal Project and Green Net as social enterprises in Thailand; it examines the role of these two social enterprises in integrating smallholders into modern trade chains.

2.5 Conclusions

This literature reviewed and discussed in this chapter constitutes the background to this research. It shows the significance of agriculture for Thai people due to the fact that the majority of Thais are working in the agricultural sector.

Current changes in local and global agri-food systems are posing challenges to farmers in Thailand. These changes are important factors that influence the switch of agri-food marketing systems from traditional markets to modern trade markets. Another factor is related to the organic or pesticide-safe movement. All these factors have provided new opportunities as well as threats for small-scale farmers in participating in modern trade chains in Thailand. There is a growing demand for innovations for producers' organizations to facilitate small-scale farmers to access modern supply chains through new marketing arrangements. This mean that a new model of farmers' organization, social enterprises is needed to help small-scale farmers to successfully participate in the modern trade chains, which will generate economic development as well as develop agri-food industry in Thailand.

In next chapter will present a literature review concerning global agri-food industry issues including an overview of the evolution of agri-food systems in order to deal with dynamic changes in the sector. It will also discuss the main theoretical considerations that support this present research.

LITERATURE REVIEW

GLOBAL AGRI-FOOD SYSTEMS, SUPERMARKETIZATION, ORGANIC/PESTICIDE-SAFE TRENDS, SOCIAL ENTERPRISES AND THEIR EFFECTS ON SMALLHOLDERS

3.0 Introduction

Chapter 2 examined current issues in Thai agriculture, supermarketization and organic trends, organic farming, smallholders and the role of social enterprises in modern supply chains in Thailand. This chapter reviews literature on agri-food system development, supermarketization, organic trends, organic farming and small-scale farmers, including the role of social enterprises in integrating small-scale farmers in modern trade chains. It provides a discussion on the importance of agriculture in developing economies and its traditional and current problems, the dynamics of global changes faced by the agri-food sector, the driving factors for the changes, and opportunities and challenges faced by small-scale farmers to enter new supply chains. This chapter is divided into eight sections as follows:

Section 3.1 justifies the importance and problems of agri-food systems. Section 3.2 discusses the factors driving change in agricultural markets. This is followed in Section 3.3 with analysis of supermarket expansion and small-scale farmers. Section 3.4 reviews the organic/pesticide-safe trends and small-scale farmers. Section 3.5 provides an overview of small-scale farmers empowerment and the role of producer organizations. This section narrows the analysis to the social enterprise schemes. This is followed by the literature on food chain analysis framework in Section 3.6 and conclusion in Section 3.7.

3.1 Importance and Problems of Agri-food Systems

Most developing countries rely heavily on agriculture as it is the main occupation of a large proportion of the population. The agriculture sector becomes extremely important not only for the livelihoods of the individuals but also the economy of the country. Rural population accounts for nearly 50 percent of the total population in developing countries, and the majority of the people living in rural areas are engaged in agricultural activities (FAO, 2008). Thus, agriculture can be said to be one of the most important sectors in social-economic developments of developing countries, especially when taking in to consideration its relationships with other sectors of the economy. Agricultural exports are a significant income source for developing countries.

The situations of farmers in all developing countries tend to be somewhat similar; they are likely to be in a disadvantaged position in the economic system, receiving low profitability from their agricultural activities (Saxowsky and Duncan, 1998; Reardon and Barrett, 2000; Levins, 2002; Blandon, 2006). Blandon (2006) pointed out that low profitability of agricultural activities could be explained by the competitive nature of the market where the agricultural products are usually sold; these markets, especially “traditional open markets” are “perfectly competitive” (ibid.: 15). Saxowsky and Duncan (1998) added that these markets usually feature products of the same or similar kinds with a number of buyers and sellers. These two conditions negatively influence the farmers’ capacity to negotiate prices and gain higher profits. Moreover, an individual farmer usually acquires inputs by themselves. The lack of group support decreases the possibility for farmers to buy agricultural inputs at lower prices (Beban, 2008).

The above conditions of agricultural markets have shaped the characteristics of the market transactions typified by low prices for farmers’ products and high prices for inputs and input services (IFAD, 2003). In case of developed countries, different government policies particularly subsidies, have been developed to deal with the income problem for farmers. Farmers in developing countries, especially small-scale farmers, typically do not receive the same level of attention from their governments with much less help from government interventions to improve their situation (Hellin and Higman, 2003). In addition to the long-standing problem of low prices and profits, farmers are now facing with new challenges caused by radical changes in agri-food systems, prompting farmers to co-ordinate with each other by forming farmers’ organization/association (see Hobbs, 2004; Blandon, 2006; Onumah *et al.*, 2007). These changes in agri-food systems can be viewed as opportunities as well as challenges for small-scale farmers at the same time (Saxowsky and Duncan, 1998; Reardon and Barrett, 2000; Masakure, 2005). Several studies suggested that there have also been major changes in agricultural transactions (for example Masakura, 2005; Blandon, 2006). Traditional markets are now giving way to modern trade markets. Farmers are facing new requirements when participating in the latter type of markets and these create new relationships between farmers and markets (Saxowsky and Duncan, 1998; Reardon and Barrett, 2000; Peterson *et al.*, 2001).

3.2 Factors Driving Change in Agricultural Markets

Agricultural marketing systems in both developed and developing countries have changed and will continue to change. The main driving factors behind the changes in agri-food marketing systems include agro-industrialization, globalisation and multinationalization, changes in technology, trade liberalisation, consumer demands and growing influence of supermarket/modern trade chains (see Reardon *et al.*, 2004; Brown, 2005; Blandon, 2006; Onumah *et al.*, 2007). These factors are discussed as below.

1. Agricultural industrialization

The agri-food business sectors have rapidly been globalized and industrialised (Cook *et al.*, 2001). Boehlje (1996: 30) defines agricultural industrialization as “the application of modern industrial manufacturing, production, procurement, distribution, and coordination concepts to the food and industrial product chain” while Saxowsky and Duncan (1998: 4) defines agricultural industrialization as the adoption of “business strategies to shift farm businesses away from perfect competition” through a variety of business arrangements in the agri-food systems. Wilkinson (1995) cited in Reardon and Barrett (2000: 2) also pointed out that agro-industrialization is associated with at least three main groups of factors, namely changes in processing and distributing inputs and agro-products, changes in linkages or relationships between companies and farmers enhancing “vertical coordination”, and changes in product composition, technology and market structures. In addition, Cook *et al.* (2001) state that the process of agricultural industrialization does not only requires major changes in organization and marketing, but also necessitates changes to the agri-food systems, especially its governance structures.

Agricultural industrialization creates a system in which a particular product is produced with controls on quantity, quality, delivery, frequency and timing, distributed by reliable suppliers to meet specific demands from buyers and retailers (Blandon, 2006). The buyers’ requirement for specific characteristics of products is often not usual in traditional markets, which decreases the role of this type of market in the agro-industrialised system. Nevertheless, these specific requirements create contractual relationships between farmers and modern trade markets which alter the relationship between farmers and markets compared to traditional markets (Boehlje, 1996; Reardon and Berdegue, 2002; Nadvi and Waltring, 2004). Agro-industrialization is now a global phenomena. Reardon and Barrett (2000) state that the process has been rapid in America and Europe, and the same process is now occurring in other parts of the world such as Africa and South Asia.

2. Globalization and Multinationalisation

Globalization has led to the integration of many different multinational agri-food companies. The main manifestations of globalization and multinationalization in agri-food system are the greater flow of Foreign Direct Investments (FDI), capital and information, exchange of technology and global economic integration. The increased flow of inputs enhances the process of agricultural industrialization and eventually supports vertical integration of agri-food systems (Reardon and Barrett, 2000; Pinstrup-Andersen, 2002; Abbot *et al.*, 2002; Blandon, 2006).

Onumah *et al.* (2007) pointed out that only a few multinational corporations and international market chains possess capacities to control purchasing power in the markets. These researchers added that the concentration of purchasing power within these small groups of companies has a negative effect on the bargaining capacities of producers, especially small-scale farmers, in both developed and developing countries. At the same time, large and integrated agribusiness firms have increasingly been pushing small-scale farms out of markets. Small scale farmers usually have difficulty to complete the requirements set by more powerful actors in the markets, such as larger companies. This creates oligopolies or markets that are dominated by few actors who are producers or sellers, affecting both the horizontal and vertical dimensions of agri-food systems (Sheldon and McCorriston, 2003). Such situation has been well documented in studies such as Reardon *et al.* (2004) and Reardon *et al.*, (2002), which showed the concentration of fresh fruit and vegetable retailers and its impact on traditional marketing systems in Latin America and South East Asia. These studies demonstrated how the system has moved from traditional markets to vertically-integrated markets or modern trade markets by emphasizing the role of contractual arrangements between agri-food buyers and small producers.

The characteristics of the new system have strengthened the advantaged position of the global and multinational companies. These multinational players are found to be especially enjoying their situation in agri-food modern trade markets in developing economy contexts (see for example Reardon *et al.*, 2004; Reardon 2004; Reardon *et al.*, 2005; Minten *et al.*, 2005; Humphrey, 2007; Onumah *et al.*, 2007). Market liberalisation is another important factor in the new system and it has given more advantages to the global and multinational players by shifting risk in the marketing chain to producers (Onumah *et al.*, 2007). For instance, the producers or farmers now often face the risk of contract default, and so they may find themselves selling products for prompt payment. Another risk is that state does not sell inputs directly to producers. Instead, inputs such as seeds, chemicals and fertilisers are now typically distributed by the private sector with little or no subsidy, limiting access to cheaper inputs for producers (*ibid*).

3. Changes in Technology

Rapid technological developments are also among important factors that cause changes in agri-food systems (Blandon, 2006). Advances in production, logistics, inventory, and information technologies improve the process and of commodity production and distribution in the supply chain system (see Blandon, 2006; Onumah *et al.*, 2007). While technologies help increase supply, they are also likely to reduce prices (Saxowsky and Duncan, 1998). The concern about prices forces farmers to produce products of different characteristics or types; some of them have found modern supply chains as one of the options to deal with the price problem as it helps add value to their products (Reardon and Barrett, 2000). The rapid development of communication technologies also facilitate the modern trade system by helping coordinate and manage businesses and ease the communication and relationships between buyers and small-scale farmers (Saxowsky and Duncan, 1998). Thus, technological advances can bring about a competitive environment among producers and buyers, as well as the opportunities to the actors that are able to change due to the new requirements of the modern trade markets (Blandon, 2006). Technological advances also improve transportation, information and biotechnology which are increasingly playing a significant role in supporting the production process and lowering transaction costs along the supply chains (see Reardon and Barrett, 2000). However, there are also barriers to faced by small-scale farmers in accessing technologies, when remains a challenge in many parts of the world.

4. Trade Liberalization and Policies

Trade liberalization agreements have now become common. These agreements have crucial impacts on trade in global agricultural and agri-food systems (see Reardon and Barrett, 2000; Onumah *et al.*, 2007). The agreements are usually done by means of international economic partnership agreements such as the General Agreement of Trade and Tariffs (GATT), the World Trade Organization (WTO), and Free Trade Agreement (FTA).

Some of these agreements come with the requirement for structural adjustment. These can be seen in programs or projects in developing countries promoted by International Monetary Fund (IMF) and World Bank, as well as donors such as the US Agency for International Development (USAID). Requirements for structural adjustments usually include changes in monetary policies, removal of tariff and non-tariff barriers to trade and of restrictions to foreign direct investments, and reduction of government intervention in the agri-food system (Blandon, 2006).

These changes are seen as important steps towards the globalization or integration of goods and capital markets around the world (Reardon and Barrett, 2000; Abbot *et al.*, 2002). The increasing development of trade liberalization and policies will certainly increase the trade flows between the different parts of the world. It would offer market opportunities to local producers, while increasing competition as producers may also distribute their own commodities within the same geographical area (Blandon, 2006). However, competition from imports and barriers such as sanitary and phyto-sanitary standards have emerged as real threats smallholders.

5. Consumer demand and growing influence of supermarket chains

The new agri-food marketing systems have been influenced by changing consumer behaviour with more dynamic demands (Blandon, 2006). Consumer purchasing behaviours have been shaped by increases in income, the process of urbanization, and lifestyle changes. People in modern society have found themselves having less time to cook. The changes in food markets can be viewed as the response to the changing lifestyles of consumers, who tend to look for more convenient ways when buying food and other products. The staple foods are being reduced by non-staples due to income increase. Consumers now demand products with high quality, food safety and other specific attributes related to tastes (see IFPRI, 1996; U.N. Economic and Social Council, 2000; Reardon and Barrett, 2000; Blandon, 2006). This development is not limited only to the developed countries. It is becoming more and more common in rapidly growing and urbanising developing economy contexts as well, such as India, China and Thailand. This development has stimulated and accelerated changes in the supply side of agri-food markets with the rise of modern trade chains, especially supermarket chains. Inevitably, this has affected the traditional production and marketing systems (Reardon *et al.*, 2001; Reardon and Berdegue, 2002; Reardon *et al.*, 2004).

Some consumers continue buying products from traditional markets because to an extent, it could offer more personal and traditional relationships between customers and sellers (see Schwentesius and Gomez, 2002; Estrada, 2004). Despite this, traditional markets are facing high pressure from modern trade markets, especially supermarkets. Modern trade markets usually have greater economic power and possess innovation capacities that are employed to spread their small branches into areas where traditional markets are located (for example Tesco Express and Carrefour City models)

New consumer demands in the modern trade markets are related to growing concerns about food safety, global warming and fair trade. As consumers' power grows modern trade markets respond to their demands through grades, standards and certification labels, which not only create new market segments, but also impose new constraints on conventional markets (Blandon, 2006; Onumah *et al.*, 2007). These trends have created new market segments for existing producers, such as fair

trade and pesticide-safe produce markets (Onumah *et al.*, 2007). The main challenge of new agri-food systems to meet consumers' demands is the supply of safe/low-chemical and low price products, which are grown or produced within an environmentally friendly system (Pinstrup-Andersen, 2002; Vanit-Annunchai, 2006). The rapid growth in market share of supermarket chains have opened up new opportunities for small-scale producers who produce high value food products to participate in the new market system on the condition that they are able to strictly comply with new requirements concerning food safety, quality standards and supply schedules. However, this means that small-scale farmers must adopt new production technologies and management skills. The production of organic and pesticide-safe products such as rice, fruits and vegetables by small-scale farmers could be an opportunity to enter modern trade markets and obtain premium prices. Nevertheless, obtaining appropriate certifications and maintaining supply chain management can be serious hindrances for small-scale farmers, especially in the context of developing countries, to participate in the modern trade system (Reardon *et al.*, 2001; Hellin and Higman, 2003; Vanit-Annunchai, 2006; Onumah *et al.*, 2007). The main factors driving change in agri-food marketing systems and impacts on smallholders are summarised in Table 3.1.

Table 3.1: The main factors driving change in agri-food marketing systems

	Factors changing markets	Actual / Potential impact on smallholders
Internal drivers	Market liberalisation	leads to the dismantling of marketing boards and limits the role of cooperatives. At the same time, small scale-farmers may find it difficult to compete in a system of liberalised markets encouraging the formation of new farmer.
	Urbanisation	leads to larger quantities of commodities or food being trade with the market system of a country. It discourages the defragmented marketing systems with larger wholesale markets emerged in the system. This could open up new marketing opportunities for small-scale farmer groups.
	Rise of supermarkets	found especially in Latin America, and parts of Asia and Africa. Depends on whether there is relatively high degree of urbanisation and increasing purchasing power. If small-scale producers and processors are not well managed, they may find it difficult to produce commodities that meet the requirements set by supermarket chains.
	Change in consumer behaviour	found in most countries during the last decade. This should enhance new supply chain management systems that will make smallholder improve their production and quality standards systems.
	Changes in technology	can be applied enhance the output quantity as well as facilitate the modern supply chain systems by helping coordinate and manage business. Smallholders may struggle to adapt, though.
	Strengthening of civil society movement	found in many developing countries during the last decade. This should enhance the formation of producers' organizations that will help improve negotiating power within the system and influence government policies.
External drivers	Globalisation	can be seen in different forms such as increasing international demand for specific high-value commodities, Non-tariff market barriers usually poses a difficulty for small-scale producers to enter the marketing chain. Major emerging economies such as China, India and Russia are likely to require increased supplies of both traditional and non-traditional export commodities. These contexts should provide opportunities for producers including smallholder farmers.
	Economic Partnership Agreements	strengthen capacity of producers to compete. The Economic Partnership Agreement's role includes investment in infrastructure both physical and institutional to improve market access.
	Global warming and environment concerns/issues	have impacts on supply chains, increase of renewable fuel use produced from natural resources, increase of international commodity prices, and favouring countries and producers with expected good production potential.
	Fair trade and organic produce markets	have grown rapidly especially in the UK and European countries. Fair trade for some products such as bananas provides smallholders with new marketing opportunities.

Source: Adapted from Onumah *et al.* (2007) and Blandon (2006)

3.3 Supermarket Expansion and Small-Scale Farmers

As mentioned before, one of the important factors driving the change in agri-food markets, especially in most developing countries, is the rapid rise of supermarkets. This rise of supermarkets has been stimulated by the change in consumer behavior, their awareness of food safety and environment, and their concerns about the importance of food quality. Other factors include the increasing role of information, innovation and advances in logistics and supply chains management. All these factors have brought about the drastic changes in global agri-food market (Reardon, 2004; Reardon *et al.*, 2005; McCullough *et al.*, 2008).

3.3.1 The expansion and consolidation of the global supermarket sector

There were dramatic changes in supermarket chains in developed countries around the world in the last few decades. The world has witnessed the constantly increasing market power of supermarkets not only in developed economies, but also in the wider global economy. The supermarket industry has continuously expanded in all national economic contexts, in both developed and developing countries. It is not surprising that recently researchers have paid much attention to the rise and effects of global supermarket chains in many different countries. A number of studies have been carried out in various contexts, from Latin America and to Asia and Southern Africa (see for example Cacho, 2003; Reardon *et al.*, 2003; Reardon, 2004; Shepherd, 2005; Vorley, 2005; Brown, 2005; Neven *et al.*, 2006).

Previous studies indicated that the growth in the supermarket industry has been significantly influenced by the expansion and increasing competition between supermarket chains in the global market; these expansion and competition are particularly noticeable in the market systems in the United States and Europe (see Shepherd, 2005). The competitive situation has brought about many different consequences depending on the economic contexts. For instance, big supermarkets have dominated in developed economies following competition. Smaller and less powerful retailers are forced to leave the market (*ibid*). Another important factor that facilitates the expansion of supermarkets is concerned with market liberalization, specifically the liberalization of rules relating to foreign direct investment in markets. This is also true in developing countries. The development of supermarkets in developing economic contexts is seen as the response to increasing consumer demand. These demands were found to be associated with social and economic phenomenon such as rapid urbanization, income growth, changes in family structure and life style, technology innovation, and the rise of global supermarket chain (Reardon and Berdegue, 2002; Reardon *et al.*, 2003; Brown, 2005; Shepherd, 2005). Different types of markets were also found to play different roles in different

contexts. For example, hypermarkets and supermarkets are now sharing two-thirds of all food retailing in Western Europe and in North America; Shepherd (2005) asserted that it could be nearly or more than 50 percent in some national economic contexts. The situation is somewhat similar in the developing areas such as Latin America, South Africa and Asia where supermarkets were documented to account for approximately 50 percent of the total food retail sector (Reardon and Berdegue, 2002; Reardon *et al.*, 2003; Brown, 2005; Hernandez *et al.*, 2007;).

In recent years, the world has witnessed a rapid rise of supermarkets in developing and middle-income countries, including Thailand. Several decades ago, supermarkets were traditionally considered as places where rich people spend their money. This view has changed to an extent during the last decade. The supermarket has become common in the developing world and it has increasingly been replacing traditional markets. Supermarkets with agri-food products are attracting different income groups of people not just the urban rich.

There are a number of studies focusing on the analysis of the rapid rise of supermarkets in developing economies. For example, studies such as, Reardon *et al.* (2003), Weatherspoon and Reardon (2003), Reardon and Swinnen (2004), Berdegue *et al.* (2004), Neven and Reardon (2004), and Neven *et al.* (2006) found that rapid development of supermarkets in Latin America, Africa, and Asia has transformed agri-food markets.

Supermarkets are dependent on the effective management of their supply chains in order to maintain and increase competitive advantage in agri-food business. It is true that the higher power in the supply chain a company has the more negotiating power they receive to deal with their producers and suppliers; such firms would be able to reduce cost and risks along their supply chain (Brown, 2005). New consumer demands have led to significant changes in methods of delivery, input and standard control in the production processes and pricing.

Supermarkets can achieve competitive advantage by means of good managements of their supply chain and their well managed marketing strategies with successful market positioning, promotional activities and pricing strategies (Brown, 2005; Huang *et al.*, 2008; McCullough *et al.*, 2008b; Singh, 2008). Effective supply chain management for supermarkets involves flexibility and reliability. Supermarkets do not usually store large quantities of perishable commodities. At the same time, they need to ensure adequate storage. Quality management in procurement is a particular hallmark of the supermarket business.

Supermarkets need also to consider other factors to be able to maintain their competitiveness in the market. These other factors are related the increasing customer's concerns over food and health safety and the environment. Successful supermarkets are likely to consider their customers' concerns in

order to provide products that meet their customers' demands, usually by setting high standards for their producers and suppliers (Brown, 2005; McCullough *et al.*, 2008a). This pressure of standards causes some problems for small-scale producers in many developing countries; only medium and large scale producers usually are capable of meeting the higher standards. Individual small-scale farmers may struggle due to the lack of capacity to supply their produce to meet the standards existing in this competitive market.

3.3.2 Forces and trends driving supermarket chains

A number of studies explored the forces and trends driving the agri-food value chain restructuring (see for example Bouma, 2001; World Bank Workshop Report, 2005; Taylor, 2005; Chen *et al.*, 2005; Global Commerce Initiative (GCI), 2006; Morgan *et al.*, 2006; Humphrey, 2007; Nathan and Kalpana, 2007; UN world development, 2008). These studies found that the changes in drivers occurred on both demand and supply sides. The key contextual or external trends that will shape the agri-food industry can be grouped into five main categories, namely trends related to economic issues, ecological issues, demographic changes, new technologies and regulation forces.

At the present time, these forces and trends have a significant impact on the supermarket chains in both developed and developing countries (Reardon and Berdegue, 2002; Reardon *et al.*, 2003; Brown, 2005; Krisnamurthi, 2004; Shepherd, 2005; Vorley, 2005; Chen *et al.*, 2005; Reardon and Gulati, 2007). Many studies implied that the number of supermarkets have been spreading rapidly almost everywhere in the case of developing countries and continued to increase their penetration (see for example Reardon and Berdegue', 2002; Reardon *et al.*, 2003; Neven *et al.*, 2006). Neven *et al.* (2006) pointed out that supermarkets are especially spreading at a fast pace in urban areas. Some researchers such as Traill (2006) have examined the determinants of supermarket penetration. He noted that supermarkets have spread from rich cities to poorer cities and smaller towns over the past decade. Traill (2006) also showed that the share of supermarket has risen and will continue to rise in both developed and developing economies (see Table 3.2). He pointed out that there were a number of factors associated with this expansion, such as the increased incomes, technology advances, changes in consumer behaviour, urbanization, the level of female participation in the labour force, and acceptance of Western culture accelerated by the globalized media and advertising. These factors are in line with the increasing role of market liberalization through liberalized trade and investment, which is occurring in most developing and middle-income countries due to the desire to exploit competitive advantage.

Table 3.2: Background data for 2002 and 2015 projected

	Supermarket share of retail food market% (c.2002)	Income per capita (US\$) (2002)	Projected income per capita (2015)	Urbanisation % (2002)	Projected urbanisation % (2015)	Openness Index 0-10 (1995)
Argentina	54	2,779	4,143	89.9	92.1	9.5
Austria	67	25,536	37,464	65.8	79.4	8.5
Bangladesh	1	351	530	23.9	29.5	0
Belgium	89	23,749	33,447	97.2	97.5	9.3
Brazil	49	2,593	3,951	82.4	88.4	3.6
Bulgaria	23	1,944	3,746	69.4	74	5
Chile	62	4,115	7,328	86.6	90.2	6.5
China	11	989	2,109	37.7	49.8	4.9
Colombia	47	1,850	2,693	76	81.3	6
Costa Rica	55	4,271	5,717	60.1	66.8	8
Croatia	42	5,025	8,383	58.6	64.6	2
Czech R	55	6,808	11,645	74.2	75.7	5.7
Denmark	75	32,179	43,628	82.1	86.8	8.8
Egypt	10	1,354	2,047	42.1	44.9	7.1
El Salvador	54	2,226	3,175	59.3	64.2	5
Finland	74	25,295	39,560	61	62.1	8.7
Germany	79	24,051	35,525	87.9	90	9.6
Greece	65	12,494	19,883	60.6	65.2	6.5
Guatemala	35	1,941	2,276	45.9	51.9	8
Honduras	42	966	1,286	45.2	51.3	5
Hungry	48	6,481	13,036	64.7	70	6.4
India	2	487	827	28.1	32.2	2.3
Italy	54	20,528	30,175	67.3	69.2	8
Kenya	10	398	497	38.2	51.8	8
Mexico	45	6,320	9,648	75.2	78.8	6.4
Morocco	5	1218	1,840	56.8	64.8	2
Norway	70	41974	56,521	77.6	86.4	8.6

Table 3.2 (Cont.)

	Supermarket share of retail food market% (c.2002)	Income per capita (US\$) (2002)	Projected income per capita (2015)	Urbanisation % (2002)	Projected urbanisation % (2015)	Openness Index 0-10 (1995)
Pakistan	1	408	521	33.7	39.5	2
Panama	50	4,182	6,623	56.8	61.7	10
Paraguay	35	1,000	1,109	56.6	64.3	10
Poland	44	4,894	9,237	61.8	64	5.2
Portugal	70	11,948	17,977	54.1	60.9	8.3
Romania	8	2,052	3,633	54.5	56.4	0
Russia	10	2,405	3,989	73.3	74.3	3.5
Slovakia	49	4,403	8,007	57.2	60.8	3.6
South Africa	55	2,299	3,340	56.5	62.7	4
Spain	60	15,961	25,302	76.4	78.1	8.3
Sweden	80	26,929	39,546	83.3	84.3	9.3
Switzerland	74	36,687	49,402	67.6	68.7	9.6
Tunisia	5	2,149	3,397	63.4	68.1	2
Turkey	37	2,638	4,334	65.8	71.9	5.5
UK	88	26,444	36,774	89	90	9.4
US	90	36,006	48,485	79.8	83.6	8.4

Source: Traill (2006)

A study by Gaiha and Thapa (2007) showed that there were high rates of growth in supermarket shares in some Asian countries, including Thailand (see Table 3.3).

Table 3.3: Supermarket Shares in Selected Asian Countries in 2015^a

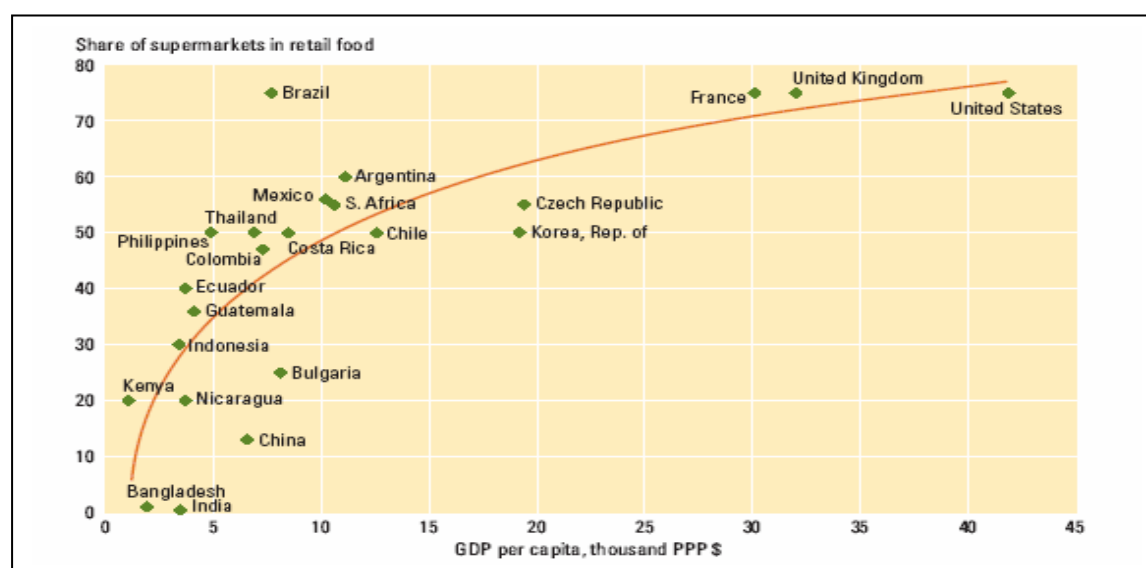
Country	Openness, plus projected income and urbanization	Base (predicted) share, 2002
Bangladesh	10	2
Pakistan	4	1
India	7	2
China	62	18
Thailand	48	27
Indonesia	27	14
Philippines	36	27
Malaysia	61	51

^a Projections are based on an extrapolation of recent trends in income and urbanization according to *World Development Indicators 2006*. The effect of openness is based on the assumption that the index takes the maximum value of 10.

Source: Gaiha and Thapa (2007)

The World Bank Development Report (2008) showed that the increasing per capita incomes of many developing countries such as Thailand, China, Philippines, Mexico and South of Africa have enhanced the growth of supermarkets. The share of supermarket in retail food in some of the developing economies has reached the level of 50 percent or higher (see Figure 3.1).

Figure 3.1: Raising per capita incomes drives supermarket growth



Sources: Reardon and Berdegue (2006); World Bank Development Report (2008)

3.3.3 Effects of supermarket chain development on small-scale farmers

The supermarket sector has increased its share of food retailing around the world, especially in developing countries. Supermarkets seek a highly efficient supply chain management and procurement system, the ability to keep down the cost of raw materials (see Brown, 2005) and meet regulatory requirements. Consequently, in many developing countries, small-scale farmers face many problems when trying to supply their produce to supermarkets/modern trade chains (Reardon and Berdegue, 2002; Reardon *et al.*, 2003; Boselie *et al.*, 2003; Brown, 2005; Neven *et al.*, 2006; Buurma and Saranark, 2006).

3.3.3.1 Supermarket development and small-scale producers

In recent years, the impact of supermarkets/modern trade chains on small-scale producers in developing countries has received much attention (see for example Reardon and Berdegue, 2002; Weatherspoon and Reardon, 2003a). A number of studies have explained the advantages and challenges faced by small-scale farmers in supplying produce to supermarkets (Boselie *et al.*, 2003; Reardon *et al.*, 2003; World Bank Workshop Report, 2005; Brown, 2005; Vorley, 2005; Barry, 2006; Buurma and Saranark, 2006; Temu and Marwa, 2007; McCullough *et al.*, 2008, World Development Report, 2008). Meer *et al.* (2006) pointed out that there are abundant examples of successful inclusion as well as painful exclusion of small-scale farmers supplying supermarkets, especially in developing economies. The main problems of small-scale farmers supplying produce to supermarkets can be categorized into three main areas, including quantity, quality and delivery standard problems (Reardon *et al.*, 2003; Brown, 2005; World Bank Workshop Report, 2005; Buurman and Saranark, 2006).

3.3.3.2 Benefits to small-scale farmers from growing for supermarkets

Under global supply chain development, contract farming becomes an attractive strategy for supermarket supply chain management. Literature review highlighted that global supermarket chain has positive effects on small-scale farmers under contract farming in most developing countries (Reardon and Berdegue, 2002; Reardon *et al.*, 2003; Shepherd, 2005; Chen *et al.*, 2005; Ramaswami *et al.*, 2005; Setboonsarng, 2006; Stoian, 2007; Reardon *et al.*, 2007; Delforge, 2007).

A number of studies noted that the motivations of small-scale farmers to grow for supermarkets were to respond to market failures and asymmetric information. Most farmers are motivated by multiple objectives such as earning income, managing risk, reducing transaction costs of accessing new markets, among other factors (see for example Simons, 2001; Ramaswami *et al.*, 2005; Setboonsarng, 2006; Delforge, 2007).

Furthermore, a number of studies also showed small-scale farmers can benefit from supermarket chain development in the long-run (see for example Minten *et al.*, 2005a, b). The study of Boselie *et al.* (2003) suggests that small-scale farmers can take advantage of new opportunities from the increasing demand for high-value product of supermarkets. In addition, Vorley (2005) also stated that supermarkets could provide opportunities for small-scale producers in terms of access to higher-value markets, prices stability and building on small farmers' comparative advantage. In addition, the incomes from contract farming can help small-scale farmers to invest in lumpy assets (Masakure, 2005).

3.3.3.3 Barriers to entry and risks of contracting on small-scale farmers

Sourcing from numerous small-scale producers increases transactions cost of procurement. Consequently, most supermarkets choose to source from large commercial growers (Boselie *et al.*, 2003). Therefore, small-scale farmers are often excluded from the supermarket chain due to capacity constraints in production (Neven *et al.*, 2006).

Quality is also an important issue. Consumers as well as regulatory authorities expect high product quality from supermarkets. This led to the situation where small-scale producers have to upgrade their quality standards to meet supermarket specifications. However, small-scale farmers face many problems in upgrading quality, such as the lack of inputs, infrastructure, technology development, management skills, among other factors (Boselie *et al.*, 2003; Shepherd, 2005; World Bank Workshop report, 2005; Neven *et al.*, 2006; Buurma and Saranark, 2006; Temu A.E. and N.W Marwa, 2007). A number of studies have also suggested that contract farming has excessive led to specialization and dependency of farmers (Brown, 2005; Setboonsarng, 2006; Neven *et al.*, 2006).

3.4 Small-scale Farmers and Organic/Pesticide-Safe Trends

Increasing consumer demand has resulted in rapid expansion of the organic/pesticide-safe market in the last decade (see Bourakis, 2004). The organic/pesticide-safe industry has been experiencing rapid growth in both developed and developing economies, particularly in European countries (see Makatouni, 2002). A number of studies (see for example Baourakis, 2004; Tsakiridou, *et al.*, 2004; Revoredo, 2004; McNamara, *et al.*, 2004; Knudsen, 2006) discuss the trends, potential and benefits of organic farming in developed and developing economies.¹³ Regarding organic farming benefits, Beban (2008) noted that organic farming helped to empower small-scale farmers and increase their opportunity of participation in modern supply chains. A number of reports on rural development also argue that organic agriculture can be a vehicle for poverty reduction as well as environmental conservation (see for example Lampkin, 2002; Parrott and Marsden, 2002; Kotschi, 2003). However, some studies also suggest that there are many constraints of organic/pesticide-safe agriculture sustainability such as limited market demand and limited price premiums, especially for small-scale farmers (Kotschi, 2003).

¹³ Products compliant with pesticide residue limits only, rather than fully organic products, are common in Thailand. However, due to the lack of official information on pesticide-safe farming, thus, this section focuses on organic farming system.

3.4.1 Organic agriculture defined

Organic agriculture is a part of the wider term “alternative/sustainable agriculture”, an umbrella term for a variety of development that has sprung up in opposition to the conventional agriculture ways. These developments seek to redress imbalances in the productivity model that causes producers to become increasingly dependent on agribusiness capital, and to seek to assert control over the commodity chain (Beban, 2008: 13).

However, within this paradigm there are many subsets, and the line between them is becoming increasingly blurred (Kristiansen & Merfield, 2006). Just as there are many forms of alternative/sustainable agriculture, there are also many forms of organic agriculture. Common definitions frequently focus on what organic lacks; the prohibition of most (but not all) synthetic inputs is a central aspect of the practice of organic farming (Beban, 2008: 14). Organic farming combines traditional farming knowledge with modern scientific understandings of crop rotation, composting, green manure, multiple cropping and other techniques to create a system that relies on minimal external inputs to keep up soil quality, and is therefore different from many notions of traditional agriculture (ibid).

In some developing countries like Thailand, there is also a market segment relating to maximum pesticide residue compliant products. In Thailand, these products are termed ‘pesticide-safe’. These products do not impose restrictions on synthetic fertilizer inputs. However, in recent years, a number of studies have attempted to bridge the divide between modern organic and traditional agriculture by highlighting the ecological benefits of traditional systems and the relative ease with which traditional small-scale farmers can convert to a certified organic system (Altieri, 2002; Vanit-Annunchai, 2006).

3.4.2 The impacts of organic farming

A growing number of studies have investigated the impacts of organic farming in developed and developing economies (Pretty and Hine’s, 2001; IFAD, 2003: 2005; Baourakis, 2004; Tsakiridou, *et al.*, 2004; Revoredo, 2004; McNamara, *et al.*, 2004; Halberg *et al.*, 2006a, b; Knudsen, 2006). Several studies argue that organic agriculture can be a vehicle for poverty reduction as well as protecting the environment (see Lampkin, 2002, Kotschi, 2003). For example, Pretty and Hine’s survey of sustainable agriculture (2001) and the International Federation of Agricultural Development (IFAD) studies in Latin America and Asia, which broadened analysis from basic yield and profitability to incorporate socio-economic impacts and food security (IFAD, 2003: 2005). The Food and Agriculture Organisation (FAO) assembled a report on organic agriculture’s potential to contribute to food security in 2002 and concluded that organics is a good strategy not only for export,

but for subsistence farmers attempting to meet family food requirements and perhaps to sell surplus in local markets (Beban, 2008). The German Federal Development Agency (GTZ) has recently undertaken a survey of their certified organic rice initiatives (Schmerler, 2006). The report confirms that organic initiatives have contributed to poverty reduction, especially amongst people around the poverty line.

Table 3.4 below reviews a number of studies into the impacts of organic agriculture from around the world, with results broken down into various aspects of wellbeing and empowerment. The table shows many aspects that have been shown to be positively affected by organic agriculture. A number of studies have also found that organic farming can result in higher overall incomes than conventional production due primarily to lower input costs. Impacts on economic empowerment are particularly positive. Community relations are also shown to improve in a number of studies. However, there are also studies in some settings (e.g. labour requirements and risks) showing conflicting or negative outcomes.

Table 3.4: The impacts of organic agriculture and small-scale farmers

Impact	Empirical evidences
Economic empowerment (Income/cost)	A number of researchers from various developing countries consistently point to lower production costs in organic systems because less external inputs are used (von Braun <i>et al.</i> , 2003; Rosegrant and Ringler, 2005). Also, organic price premiums of up to 300% may be gained on the export market (Setboonsarng, 2006: 8). Other studies have found that even without price premiums, farmers are adopting organic agriculture to save costs and achieve sustainable yields (Scialabba and Hattam, 2002). However, some studies found that organic farming was slightly more expensive to produce when labour cost was included (see for example Hutanuwart <i>et al.</i> , 2005; Parrott and Wright, 2007). The impact of organic conversion on yields is not clear; e.g. in Panyakul (2003) and Hutanuwart (2005) studies, rice farmers converting from traditional agriculture (low-input) systems to organic rice found that yields stabilised and outperformed previous yields, while farmers converting from high-input systems experienced a drop in yields during the transitional period (three-year) conversion. Even if yields drop for conventional farmers, several studies show that profits in organic farms are the same or higher than conventional farms, as any drop in yield is compensated for by lower input costs and price premiums (see for example Lampkin and Padel, 1994; Offeman and Nieberg, 2000).
Negotiation	A German Federal Development Agency (GTZ) study found that empowerment in negotiations with buyers was limited for organic farmers, because there is little competition between buyers in poorly developed markets and buyers are therefore able to control the market and give lower premiums to farmers (Schmerler, 2006: 22). However, organic farmers that are able to be organized into farmers' groups (for example cooperatives) have been shown to increase negotiation power with buyers, resulting in higher prices and stable contracts (Parrott and Wright, 2007).
Labour requirement	Almost all evidence shows an increase in labour requirements under organic systems (FAO, 2002; IFAD, 2003; Hutanuwart, 2005). The higher labour requirements may have a perverse impact on off-farm income and non-farm activities.
Risk levels	Organic systems may be more resistant against weather extremes due to soil quality and availability of water. A number of studies found that higher level of soil quality and availability of water are important factors helped in lowering farmer's risk (Sullivan, 2002; Hutanuwart, 2005). Diversification is common in organic systems, which decreases risk, and some initiatives favour the use of traditional varieties more resistant to local pest and disease problems (Setboonsarng, 2006:8). The FAO (2002) also found that diversification to high-value markets for organics can reduce the vulnerability of small farms by increasing the security of markets, the diversity of international markets and through capturing price premiums. However, other writers observe that difficulties controlling pests and diseases may increase risk in an organic system, especially in transitional conversion to organic and for farmers who do not have a high knowledge of alternative control methods (IFAD, 2003).
Community relations	Conversion to organic systems was found to stabilise employment and alleviate migrant labour problems in rural areas, as crop diversification under organics spread planting and harvesting times throughout the year (FAO, 2002, Panyakul, 2003). Schemerler (2006) reported high levels of team spirit and motivation amongst organic farmers' group members.
Migration	Organics could reduce the need for rural-urban migration by opening up income opportunities in rural areas. A report from Thailand found that migrant workers returned from urban jobs to their villages (especially after the financial and economic crisis in 1997) with the introduction of organic asparagus farming (Setboonsarng, 2006:18).

Source: Author

3.4.3 Constraints of organic agriculture

Some studies also suggest that there are many constraints of organic agricultural sustainability such as market demand and secure a price premium, especially for small-scale farmers (see for example Kotschi, 2003). Kristiansen & Merfield (2006) analysed a number of studies from around the world to develop a list of common constraints experienced by small-scale farmers converting to organics in developing countries. They suggested that there are six main constraints in organic farming:

- Lack of knowledge about organic agriculture;
- high cost of certification;
- lack of trade liberalisation that prevents development of exports;
- lack of economic and political advocacy;
- intensification from population pressures; and
- low literacy levels (record keeping is a problem)

Furthermore, FAO (2002) argues that land tenure security is also a major factor, as organics need a long-term commitment (certification often takes three years to achieve), and therefore, farmers need to feel secure in their control of the land. Institutional support is also seen to be vital for the further spread and success of organics, as the small size of the sector as a part of all commercial agricultural produce makes it difficult for organic farmers to influence trade, labour and agrochemical policies (Norse & Tschirley, 2003). Furthermore, several recent reports (Dao, 2004; Schmerler, 2006) have outlined significant constraints to the development of an organic industry in developing countries; these are synthesised in Table 3.5.

Table 3.5: Constraints to the development of organic farming in developing countries

Physical production	Marketing
lack of cooperation amongst agri-food supply chain actors such as farmer community groups, NGOs, government and business sector	lack of market information and knowledge
lack of production management skills (i.e. production planning), especially for modern trade markets' requirements	costs and knowledge to meet certification and modern trade markets' standards
disinclination toward community or group action, lack of social cohesion	low reputation and poor quality of products
lack of donor-interest in long-term development work	low levels of trust amongst stakeholders
shortages of main inputs use (water control, quality seed, credit (high interest rates), transport, increasing landlessness)	lack of private investment in agriculture
non-stabilization of government project and policy with limited technical capacity and resources	poor post-harvest infrastructure (including transport and roads, old machinery, expensive electricity etc.)
poorest people unable to access organic farming initiatives because of lack of land and irrigation	non-stabilization of government transaction policy
limited skill base amongst rural population, and low literacy	limited domestic demand
	on-farm processing with high post-harvest losses

Source: Author, based on Dao (2004), Schmerler (2006), Beban (2008)

3.4.4 Success factors in organic farming

The possible constraints to organic farming have been discussed, this sub-section consider the factors that may lead to successful empowerment of small-scale farmers. A number of studies show the factors that influence the potential of organic farming (Kotschi, 2000; Kilcher, 2001; Raynolds, 2002; UNESCAP, 2002). Raynolds (2002) suggested that there are three mains factors that influence the potential for organic farming:

- political and economic conditions (at local, national and global levels);
- networks and organisational capacity both within producer groups and linking to wider actors (i.e. business sector, government as well as international sector); and
- individual characteristics of farmers including resource access and ideological commitment.

The need for strong links to wider institutions such as development organisations or government support outlined by Raynolds is supported by further studies (UNESCAP, 2002) and demonstrated at a national level examples are the case of Cuba (Kilcher, 2001) and Brazil (Oliveira and Santos, 2004) where both have developed national organic strategies. Regarding to Raynolds second point about linking to wider actors, Kotschi (2000) argues that while wider links are essential, development

organizations should focus on building up local and national markets so that developing countries can have independent support systems for organic production and advisory services. Furthermore, in the absence of government support, strong development organisations and farmers groups are critical for success, such as the Kenyan Institute of Organic Farming, which now has the largest number of IFOAM member farmers in Africa and organizes training and support for its members (Parrott and Marsden, 2002).

3.5 Overview of Small-Scale Farmer Empowerment and the Role of Producer Organizations: Social Enterprise Schemes

As mentioned in previous section, networks and organizational support are keys to the success of small-scale farmers in organic farming systems. These may also be important in the case of modern trade chains.

3.5.1 Producer (farmer) organisations and the importance of networks for empowerment

This section describes the concepts of empowerment and network theory and integrates these with social enterprise concepts. With the limited functioning of the government and private sector in many developing countries, farmer groups are often seen as a way to improve negotiation capacity with other actors. There are a variety of producer organization types such as farmers associations, cooperatives, donor and NGOs-promoted producer organizations, and social enterprises (see for example Onumah *et al.*, 2007; Beban, 2008).

Shepherd (2007) identifies two main methods used to create farmer-market networks; either a top down approach which involves identifying market demand and then seeking farmers to satisfy it, or a bottom-up approach of first identifying farmers to work with and then finding markets they could supply. He further categorises donor interventions by the complexity of market relations: simple networks (e.g. creating farmer groups to improve negotiation within existing markets) may require only initial assistance, and links with new urban markets such as hotels and restaurants may still be achievable by a local NGOs or farmers group (i.e. cooperative), while more complex linkages of market relations (such as with supermarkets as well as export markets) may require support from several different agencies including social enterprises, NGOs, international organizations as well as the government (Beban, 2008: 44). Studies of farmer-to-market linkages often talk of the need to promote farmer empowerment by expanding entrepreneurial capabilities. Woolcock (1998) argues

that farmers need to build strong relationships with others in the industry, as well as authority figures, to have more control. He suggests that two forms of social capital ¹⁴are particularly important: firstly, strong internal relations within farmer groups to bind farmers together, and secondly, a multitude of ties to form bridges between different social and economic sectors. These two distinct forms of social capital were labeled by Robert Putnam (2000) as ‘bonding’ which refers to links between individuals within a particular community, and ‘bridging’ capital, which refers to links outside the immediate group or locality..

In the context of producer (farmer) organizations in development initiatives, aspects of networks - such as group cohesion and high levels of communication and trust are shown to be important success factors (where success is taken as longevity and membership) by a number of studies (see for example Stringfellow *et al.*, 1997; Shepherd, 2007), see Table 3.6. Stringfellow *et al.* (1997) argue that group cohesion is critical for success, with tight networks both between farmers at the local level and national as well as international levels necessary to gain power. Table 3.6 shows the success factor and reasons for failure in producer (farmer) organizations.

¹⁴ “Social capital can be understood as encapsulating the notion of social organization and the achievement of goals via networks of trust within an organization or community, and ties to outside communities and organizations, which improves the social and economic functioning of the group” (Stewart-Withers and O’Brien (2006) cited in Beban (2008: 44))

Table 3.6: Success factors and reasons for failure in producer (farmer) organizations

Success Factors	Reasons for Failure
- Group relationships – links at local, national, international levels	- Lack of market-support
- Effective management, entrepreneurship and leadership	- Loss of flexibility in enterprise choice
- High levels of communication and trust	- Dependency on donor (NGOs or government project) funds for group activities, resulting in breakdown when donor funds finish
- Resources available to farmers (land, water other assets)	
- Sustainability or long-term income/funding to build capacity	- Lack of trust between parties may lead to collapse
	- Tendency to expand activities beyond capacity of group
	- Farmers unwilling to take on hidden costs of meetings, training etc.

Source: Adapted from Stringfellow *et al.* (1997), Speer *et al.* (2001). Shepherd (2007), Onumah *et al.* (2007), Beban (2008)

3.5.2 Development of producer organizations

Shepherd (2007) noted that farmer organizations, especially cooperatives, in most developing countries are faced with a basic contradiction; they want to work with poor farmers, but suffer from a lack of business and poor access to resources as well as market information and networks. Besides, regarding response to the changes in agri-food systems, as discussed in previous sections, farmer organizations may have to transform their operations – becoming more like private companies and potentially compromising some fundamental cooperative principle (Onumah *et al.*, 2007).

Currently, new forms of producer organization have emerged in developed countries (MacPherson, 2003) while many developing countries now promote new forms of farmer organization led by government, NGOs and the private sector (see for example Onumah *et al.*, 2007; Thuvachote, 2007). There are many different types and forms of producer (farmer) organization in agri-food systems. These include the major producer organizational forms such as extension or commodity producer organizations, farmers' association, cooperatives, donor and NGO-promoted producer organizations,

as well as social enterprises (Onumah *et al.*, 2007; Thuwachote, 2007). New forms of producer organizations have been deployed to help small-scale farmers optimise benefits and/or minimise the adverse impact of changes in input/output markets, where small-scale farming is the norm and the capacity of producers to adjust to the challenges in the markets is more restricted (Onumah *et al.*, 2007). The new form of producer organisations promote linkage to niche/specialty markets, modern trade chains as well as international market chains.

In recent years, social enterprise schemes have become an important producer organizational form that has emerged in both developed and developing economies in integrating small-scale farmers with modern trade chains (Nicholls, 2006; Thuvachote, 2007). Thus, this study focuses on social enterprise schemes that act as a “bridging” function to organize relationships between the group (farmers) and the outside world (e.g. modern trade markets and international organizations).

3.5.3 Social Enterprise Schemes

OECD (2006: 17) defined social enterprise as “private not for profit organization that produce or exchange social utility goods or services aimed at pursuing general interest goals, which are carried out in a stable way and as a main economic activity”.

The umbrella term “Social Enterprise” includes a range of organizational types that vary in their activities, size, legal structure, geographic scope, funding, motivations, degree of profit orientation, relationship with communities, ownership and culture (Peattie and Morley, 2008: 7). Table 3.7 shows different forms of social enterprises.

Table 3.7: Different forms of social enterprise

Form	Description
Community Enterprises	Owned by, and operate for the benefit of the community. For example, community centres, social clubs or other types of enterprises.
Community Interest Companies	A new type of company, designed for social enterprise that want to use their profits and assets for the public good in perpetuity.
Cooperatives	Cooperatives are owned, controlled by and run for the benefit of their members.
Fair Trade Organizations	Committed to ensuring that producers are paid a fair price, and may get involved in supporting development projects amongst their suppliers.
Development Trusts	These are community enterprises which aim to develop a community, usually by owning and managing property.
Social Firms	Provide employment opportunities for individuals who might find it difficult to access jobs in the mainstream job market such as people with disabilities or mental health problems.
Community Development Finance Institutions	These provide loan finance and other types of investment for other, community-based social enterprises, and sometimes for small business.
Trading Arms of Charities	Set up by charities to undertake trading activity in order to raise money, e.g. charity shops, training and consultancy.

Source: Coventry and Warwickshire Co-operative Development Agency¹⁵

In recent years, social enterprise has emerged as a global phenomenon in the context of these business and social demand and supply side developments (Nicholls, 2006; Mair and Marti, 2006). Nicholls (2006) suggested demand and supply sides factors driving social enterprises growth are as shown in Table 3.8.

¹⁵ Available at www.cwcda.co.uk [Accessed June, 2010]

Table 3.8: Drivers behind the growth of social enterprise

Supply side	Demand side
- Increase in global per capita wealth	- Rising crises in environment and health
- Increase in environment and health issues	- Changing in business systems
- Improved social mobility	- Rising economic inequality
- Increased power of multinational corporations	- Government inefficiencies in public service delivery
- Better education levels	- Retreat of government in face of free market ideology
- Improve in communication	- More developed role of producer (farmer) organizations, NGOs and international organizations
- Increase in number of democratic governments	- Resource competition

Source: Adapted from Nicholls (2006)

Social enterprise has become an increasingly significant element of the economy in many countries (for example, United Kingdom has as many as 55,000 social enterprises making about 5 percent of all businesses in 2008 (Peattie and Morley, 2008: 2), since social enterprise has been contemplated as an important producer organization (Nicholls, 2006). However, most countries are trying to build their own social enterprise system based on their situation as well as endeavouring to encourage and foster social entrepreneurs.

3.5.3.1 Social Enterprise Models

Social enterprise models are designed to analyse how to operate an enterprise to accomplish its social mission. There are three main categories in this model including enterprise activities, social programmes and organization according to the level of integration between the social programmes and business activities, there are three main categories - embedded, integrated, and external social enterprise models (Alter, 2006). First, *embedded social enterprise*, in this category social enterprise business activities and social programmes are synonymous. The enterprise activities are 'embedded' within the organization's operations and social programmes. The organization and members could be recipients of the enterprise, either as the target market, a direct beneficiary, owner, an enterprise, or employee. This model can be taken as a sustainable programme strategy that reinvests the revenues into social programmes to gain certain trust and capital to sustain the operation of the enterprise and social programmes by achieving financial and social benefits simultaneously.

Second, *integrated social enterprises*, in this category social programmes overlap with business activities, programme attributes, and assets. The enterprise activities are ‘integrated’ with the organization’s operations, as they share costs and assets. What they get from the social programmes will be used to support the organization’s operations and social activities. The organization and members can both benefit from investments made in social programmes and earned income, but may or may not be involved in the enterprise’s operations. This type of social enterprise often leverages organizational assets, such as expertise, content, brand, or infrastructure as the foundation to start the business. Third, *external social enterprises*, in these category social programmes are separated from business activities. Compared with the previous two types, it differs in that the enterprise activities are ‘independent’, not involved in the organization’s operation and social programmes. Organizations create external social enterprises to fund their social programmes and operating costs. The social enterprise members are indirect beneficiaries of revenue and rarely participate in the operation of social enterprise. In this case, social enterprises have to be profitable since the pursuit of social benefit is not prerequisite of business activities.

3.6 Food Chain Analysis Framework

The previous sections have so far focused on changes in agri-food systems and to role of social enterprise in integrating small-scale farmer with modern supply chains, wherein all relationships are seen to have dynamic power structures. This section identifies analytical framework that will be used to map the supply chains of agri-food products in Thailand and analyse its impacts on small-scale producers.

In recent years, the international development community has become increasingly interested in linking farmers to markets; especially for modern trade chains, using predominantly value chain and network methodologies to analyse the potential for farmers to access high-value or modern trade markets (Kaplinsky and Morris, 2002; Roduner, 2004; Springer-Heinze, 2004; Taylor, 2005; Anh *et al.*, 2006; Fearn *et al.*, 2009). Several development organisations such as Food and Agriculture Organization (FAO) (FAO, 2010¹⁶), World Bank (2003), Helvetas (Arndt *et al.*, 2005), Oxfam (Clay, 2005) and UK Sustainable Development Commission (SDC) (SDC, 2007) are promoting value chain analysis. However, there is a critical question whether value chain analysis will prove to be another in-vogue development concept that is snapped up uncritically by donors only to be left behind when it

¹⁶ Available at <http://www.fao.org/economic/est/agricultural-market-analysis/value-chain-analysis/en/> [accessed December, 2009]

seems not to work (Shepherd, 2007 cited in Beban, 2008: 39). Koehler (2000) also pointed out that there is not much theorisation about what these are and how they work (Koehler, 2000, cited in German NGO forum, 2005: 33). Therefore, there is a need to critically analyse the agri-food chain frameworks that have entered into development discourse particularly value chains as this is more popular in the development literature and assess whether these are appropriate and useful in different contexts (Beban, 2008). This section explores the origins of various frameworks and directions in which the literature has developed; the study then attempt to critically assess the usefulness of these frameworks for the study.

3.6.1 The development of food chain frameworks

This sub-section provides an overview of the various approaches, motivations and critiques in the literature on conceptual frameworks in order to assess the utility of such frameworks in this study; these approaches are summarised in Table 3.9. The table shows frameworks that highlight physical production and distinct power relations in food chains. Many of frameworks represented in Table 3.0 are based on political economy approaches and are useful for highlighting the potential abuse of power by large firms in commodity trade.

Porter first mentioned the “supply chain” concept into the business world. He argues that in order to maximise profit, the supply chain that links farms to firms, distributors and final consumers must be analysed. More recently, the concept of “value chains”, which emphasize cooperation between all actors in the chain to maximise value-added profit has become popular in business literature and development studies literature (Gereffi, 1994). Value chain methodology has become an increasingly popular method of analysis in many aspects of agricultural and rural development, and value chain instruments: Approaches, Manuals and Handbooks that describe the uses of the value chain method have also been developed by a several number of organizations including

1) Consultative Group on International Agricultural Research (CGIAR): Participatory Market Chain Approach (PCMA) from Thomas Bernet,

2) WISE Development: Participatory Value Chain Analysis for pro-poor enterprise development (PVCA) from L.Mayoux,

3) Agriculture and Food Council of Alberta (AFCA): Value Chain Handbook,

4) International Development and Research Centre (IDRC): A Handbook for Value Chain Research,

5) Institute of Development Studies (IDS): Manual for value chain research on home workers in the garment industry from McCormick, and

6) GTZ: Info-Cadena, Instruments to foster value chains from Springer-Heinze (see Roduner, 2004).

Table 3.9: Approaches to conceptualising the food chains

Approach	Key authors	Purpose/Areas of focus
Chain approaches		
Commodity chain	Derived from world systems theory (Hopkins and Wallerstein, 1986)	Worldwide spatial relations
Filiere	Lauret (1983)	National political regulation and institutions
Value chain/Supply Chains	Porter (1990)	Business organisations, profit extraction
Systems of Provision (SOP)	Fine and Leopold (1994)	Horizontal relations and spaces with systems
Global Commodity Chain (GCC)	Gereffi (1994)	Large firm power producer or buyer driven chains.
World Economic Triangle	Messner (2002)	Link horizontal (cluster development) and vertical approaches (value chain).
Hybrid approaches (chain/network)		
Net chains	Uzzi (1997)	Attempts to incorporate horizontal and vertical aspects of chain.
Network approaches		
Actor Network Theory (ANT)	Latour (1993)	Relational, context-based, inclusion of human and non-human actors.
Food networks	Arce and Marsden (1993)	Analysis of global processes embedded in local contexts.
Conventions approaches		
Mapping food relations	Holloway <i>et al.</i> (2007)	Mapping range of social spaces.

Source: Author, based on Leslie and Reimer (1999); Jarosz (2000); Lockie and Kitto (2000); Raynolds (2002a); Roduner (2004); Beban (2008)

Roduner (2004) compared the similarities of four of the above mentioned value chain appraisals as shown in Table 3.10. A number of analyses of alternative food systems in a development context have used value chain and supply chain methodology to analyse opportunities for producers (Kaplinsky and Morris, 2001; Dolan and Humphrey, 2000; Roduner, 2004; Hellin *et al.*, 2005; Schmerler, 2006). However, most studies have not explained the determinants of buyers' (companies) decision to change the supply chain management systems and producers' (farmer) decision to supply the new channel.

Table 3.10: Comparison of value chain (VC) approaches

Generic sequence of steps/key stages	INFO-Cadena, GTZ	PVCA, WISE	VC Handbook, AFCA	A Handbook for VC Research, IDRC
	(1) Identification of context and relevant actors <ul style="list-style-type: none"> - Selecting markets and products to invest in - Growth potential in agricultural and natural resource sectors 	(1) Scoping the analysis	(1) Evaluating <ul style="list-style-type: none"> - Evaluate the idea and the market - Review strategy - Assess resources, risks and rewards 	<ul style="list-style-type: none"> - The point of entry of VC analysis - Mapping VC - Product segments and critical success Factors in final markets - How producers access final markets - Benchmarking production efficiency - Governance of VCs - Upgrading of Value Chains - Distributional issue
	(2) Situation analysis <ul style="list-style-type: none"> - Comparative advantage of smallholders - Possibilities and need for public support - Identifying the level of intervention - Determining the support strategy 	(2) Preliminary value chain mapping <ul style="list-style-type: none"> - Mapping the chains, networks and systems - Mapping the geographical spread - Identifying key stakeholders 	(2) Planning <ul style="list-style-type: none"> - Select partners - Build relationships - Agree on Goals and Measures 	
	(3) Decision on and implementation of supportive action <ul style="list-style-type: none"> - Process facilitation - Analysis of business opportunities and chain analysis - Chain integration of rural producers and chain-specific services 	(3) Participatory value chain analysis <ul style="list-style-type: none"> - Measuring the relative value chain - Identifying governance structure - Mapping the interventions - Clarifying the direct, indirect of unintended impacts 		
	(4) Monitoring and evaluation <ul style="list-style-type: none"> - Observation of the business environment - Monitoring of the subsector or chain development process - Observation of subsector and chain performance - Observation of the implications of sustainable development 	(4) Setting up sustainable structures for sectoral and inter-sectoral accountability <ul style="list-style-type: none"> - Exploration of the different alternative levels of intervention or strategy 	(3) Managing <ul style="list-style-type: none"> - Launch pilot project - Integrate systems - Build and adapt 	

Source: Roduner (2004)

3.6.2 Conceptual framework (based on economic elements) of companies' decision to modernize procurement and farmers' decision to supply to the modern channel

Reardon *et al.* (2009) outlined a conceptual framework of company's (modern food retail) decision to modernize procurement and farmers' decision to supply for modern channels. The framework is drawn on elements such as monitoring, incentives, selection, and socialization, which were also found in studies (Key and Runsten, 1999; Keneth et. al., 2000; Reardon *et al.*, 2003; and Swinnen, 2007). They considered these broadly as decision of adoption of "technologies" of procurement and of output marketing. Reardon *et al.* (2003) point out that there are two sets of determinants for company when making a decision to modernize procurement and for farmers to supply for the modern channels. Kenneth et al (2000) discuss strategies for managing opportunism that were classified into four main governance strategies, which are monitoring, incentives, selection and socialization. They discussed that the general purpose for monitoring the managing opportunism are to reduce information asymmetry and to facilitate the deployment of incentives (Celly and Frazier 1996). Secondly, the purposes of incentive strategy are to reduce payoffs from opportunism and align the interest on managing the opportunism (Williamson (1975; 1983). Thirdly, selection strategy has purposes to reduce information asymmetry, which is similar to the monitoring and incentive strategies. However, selection strategy also allows the participants to have their own selection (Orbell and Dawes 1993). Lastly, the socialisation strategy aims at promoting goal convergence to effectiveness on applicability of role across situations (Uzzi 1996). The crucial purpose of governance strategies (Kenneth et al 2000) [monitoring, incentives, selection, and socialisation] are to help build consumer trust in the retailer and manage risks.

Hence, the four governance strategies for managing opportunism were compressed and discussed in the two determinants that are the key focus in this context. The two determinants are *incentives* and *capacities* (Williamson, 1975; Keneth et. al., 2000; Reardon *et al.*, 2009: 1720). Williamson (1975) discusses that incentives is the ability to manage in an organization that reduce the payoff from opportunistic behaviour, whilst Keneth et al. (2000) agree in similar direction and explain that the reducing payoff from opportunistic behaviour could be achieved in relationships between independent firms. The literature could be summarized that incentives offered by the modern trade chain relative to those offered by the traditional chain. Capacity means the internal abilities of the company or the farm that allow them to participate in producing farm products for modern trade chains (ibid) such as financial and managerial capacities. These determinants can be summarized in Table 3.11.

Table 3.11: Determinants for modern retail companies' decision to modernize procurement and farmers' decision to supply to modern channels

Determinants of decision function	Company (modern retail)	Farmer
Capacities	<ul style="list-style-type: none"> - Companies should have financial and managerial capacities to enable their investment in modernizing their procurement Reardon <i>et al.</i> (2009) - Company should have financial capacity to make above-market-rate payments to induce farmers to not violate the contract (such as side-sell to other markets) Reardon <i>et al.</i> (2009) 	<ul style="list-style-type: none"> - The farmers must have farm's assets. The most important element is the farmland. Other non-land assets can be crucial. These include the issues of soil quality, and irrigation.. Reardon <i>et al.</i> (2003) - The farmers also need to have collective capitals. These capitals do not need to be money. They can be vehicles and warehouse that are shared among members of a farmers' organization as well as access to public infrastructure Reardon <i>et al.</i> (2003) - The farmers must be in a position or location that allows them to gain access to company or farmers' organizations or social enterprise, NGOs and government assistance in terms of credit, inputs, and information Reardon <i>et al.</i> (2009)
Incentives	<ul style="list-style-type: none"> - The companies will consider the price of products before the investment. The products must be valued with relative prices after considering the farm-gate price and the transaction cost Reardon <i>et al.</i> (2009) - The cost of the modern procurement technology is an important determinant. These include distribution centre, and management and government costs, which need to be relatively low Reardon <i>et al.</i> (2009) - All risks must be taken into consideration, especially the market risk such as suffering shortfalls in supply or of contract violation. Market conditions with low risks are good incentives Reardon <i>et al.</i> (2003) 	<ul style="list-style-type: none"> - Farmers expect to be offered with a relatively good net price for their product. This can be influenced by the farm-gate price and transaction costs. The less, the more preferable for the latter cost Reardon <i>et al.</i> (2009) - Another incentive for the farmers is related to the cost and risk that the farm may encounter when they have to produce to meet the standards of product quality and transaction set by the modern markets Reardon <i>et al.</i> (2009)

Source: Adapted Reardon *et al.* (2003; 2009)

From both determinants as previously discussed in table 3.11, social enterprises intervene the trade processes to both modern retails and farmers. Social enterprises then get involved and seen as organizations with high potential for integrating small-scale farmers into modern trade chains. They are capable to providing and reducing transaction costs, which influence the potential small-scale farmers to cooperate with the social enterprises in return.

3.7 Conclusions

The literature reviewed and discussed in this chapter constitutes the background to justify the importance of this research. It shows the significance of agriculture in rural livelihoods and food security in developing economies. Even though agriculture is important in developing countries, the sector is associated with rural poverty especially for small-scale farmers. In recent years, changes in agri-food systems are posing new challenges to farmers. One of most noticeable change is the switch of market transaction from traditional markets to modern trade markets.

The main driving factors of this change are agricultural industrialization, globalization and multinationalization, change in technology, trade liberalization and policies as well as consumer demand and growing influence of supermarket chains. The change from traditional agriculture to new systems could be in forms of organic farming systems that is assessed under the perspective of the global value chain governance, where coordination amongst producers, buyers, and public and private institutions are key characteristics. Coordination between producers and buyers can occur in different ways. In the case of small-scale farmers and modern trade chain, the most common way of coordination used is contract farming. Even though these changes could be beneficial to small-scale farmers because they offer new opportunities to them, changes also bring challenges to farmers because they have to adjust their production and marketing systems to meet new market demands.

Producers or farmers have emerged as a potential key success factor small-scale farmer participation in modern trade chains. Besides, in responding to the changes in agri-food systems, farmers' organizations have to be transformed. In recent years, social enterprise schemes have emerged to engage in integrating small-scale farmers with modern trade chains.

The next chapter is the main key research questions of the study will be presented in order to deal with the analysis of the effect of small-scale farmers' participation in the social enterprise schemes in producing for modern trade chains. However, there is only little research looking at how social enterprise has performed in terms of linking small-scale farmers to modern channels, and this is the rationale for the study.

PROBLEM STATEMENT AND KEY RESEARCH QUESTIONS

4.1 Introduction

This chapter develops a problem statement and major research objective which are addressed by the research questions of the study. Problem statement provides the context for the study. The key research questions of this study are presented.

4.2 Problem Statement

Evidences from literature show that as part of globalization modern trade chains have been expanding and consolidating in both developed and developing countries. This is especially noticed in developing countries where they have been rapid rise of multinational supermarkets over the past few decades (Cacho, 2003; and Reardon *et al.*, 2003; Reardon, 2004; Brown, 2005; Shepherd, 2005; Vorley, 2005; Neven *et al.*, 2006).

In Thailand, the rapid growth of the economy led to a strong expansion of modern trade chains. The financial crisis of July 1997 provided foreign retail companies (e.g. Tesco, Makro, Carrefour, and TOPs) with unusual opportunities to become major market players in Thai agri-food market.

Over the past decades, the market share of the modern trade markets has increased to roughly 50 percent (see Wibbonponse and Sriboonchitta, 2004; TDRI, 2002; Shannon, 2009). Thereby reducing drastically the initial majority share enjoyed by the traditional markets.

Meanwhile, changes in the commodity chain control by the modern trade chains have increased competitive advantage for the agri-food markets. These results have influenced the development of purchasing and procurement systems in agri-food supply chains in Thailand. Thai food sector is undergoing two major transformations:

- supermarketization and
- demand for Thai food products tending towards organic and low-chemical products, locally as well as internationally.

This presents opportunities as well as threats for small-scale producers (see Reardon *et al.*, 2003; Reardon, 2004; Shepherd, 2005; Brown, 2005; Vorley, 2005; Neven *et al.*, 2006). The opportunities lie in the ability of small-scale farmers to cultivate their crops all year round, assured market for their produce, better price for their produce also opportunity of planning other cash crops. However, the high standards set by modern trade market chains in terms of quantity, quality, delivery, timing, packing, safety, etc., can prevent small-scale farmers from exploiting such opportunities because of the significant changes required in their production and marketing systems. Furthermore, the associated coordination and transaction costs can drive buyers toward a smaller supply base on large or specialist producers.

Although, the consequence of these threats seem to have been minimized by two major sources of assistance; government and social enterprise (and collaboration between these two) integrating small-scale farmers with modern trade chains in Thailand.

Thus, this research attempts to diagnose the role of social enterprises in integrating small-scale farmers with modern trade chains. Also, the study attempts to determine and assess the factors that explain farmers' participation in the social enterprise schemes in producing for modern trade chains in Thailand.

4.3 Research Questions and Objectives

The main objective of this study is to apply the value chain framework to assess the impact of small-scale farmers' participation in the social enterprise schemes in producing for the modern trade chains. This study focused on ten further research questions (RQ) in order to inform the main research objective, with specific objectives relating to each question that determined the research methodology pursued:

- RQ 1** What is the current agri-food supply chain of small-scale producers and modern trade chains in Thailand?
- RQ 2** What are the forces and trends driving the restructuring of agri-food value chain and food sector transformations in Thailand?
- RQ3** What is the role of social enterprises in integrating small-scale farmers into modern trade chains?

***Objective 1.** To analyse the changing value chain and transformation in the agri-food industry of small-scale horticulture producers and modern trade chains in Thailand.* The objective is to provide the general map of the supply chain for agricultural products in Thailand, including the traditional market and modern trade channel.

- RQ 4** Do they have proper contracts, or are the transactions more informal and ad-hoc?
- RQ 5** Do contracts change over time and why?
- RQ 6** How do suppliers/producers adjust to bargain with modern retail supply chains?

***Objective2.** To outline the terms under which small-scale producers interact with social enterprises in producing for modern trade chains.* The objective is to provide a general outline under which small-scale farmers interact with social enterprises in producing for modern trade chains. The qualitative analysis will explore the terms and conditions in the development of contracts for the contract farmers.

RQ7 What are the determinants of small-scale farmers participating in the social enterprise schemes?

RQ8 What are advantage and challenges faced by small-scale farmers in supplying for modern trade chains?

***Objective 3.** To analyse the motivations and challenges of small-scale producers participating in the social enterprise schemes in producing for modern trade chains in Thailand.*

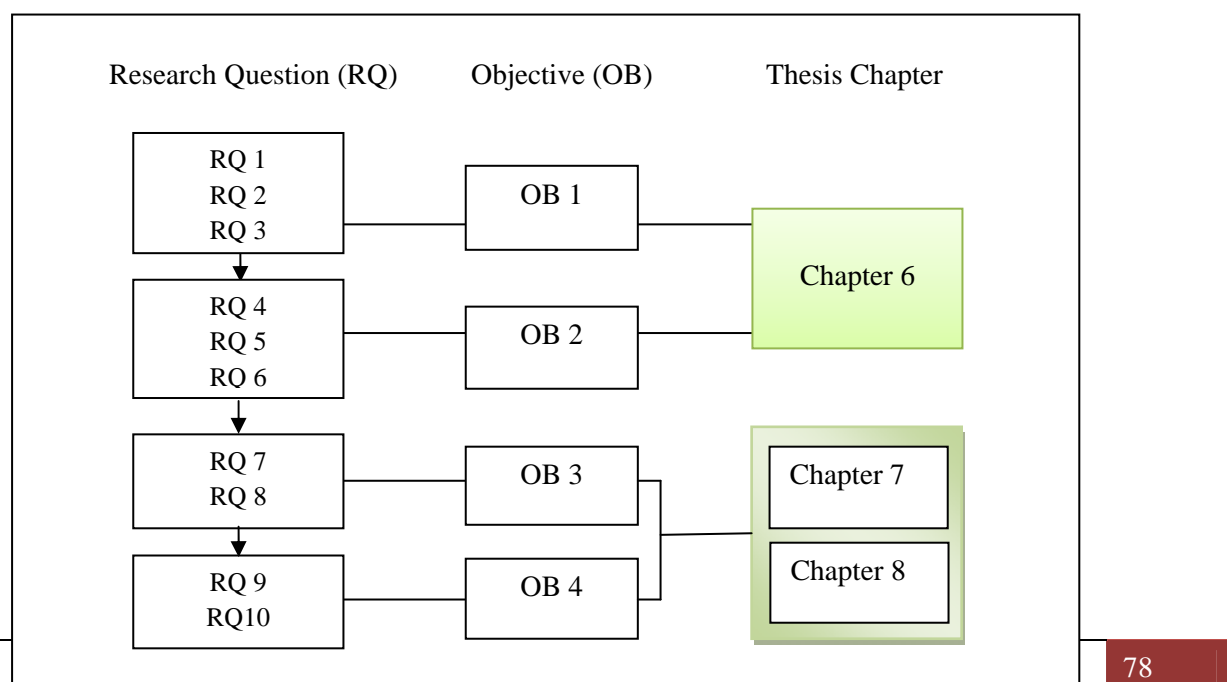
RQ 9 Do producers participating in the social enterprise schemes for modern trade chains obtain better outcomes (profits/income) compared to non-participants?

RQ10 Do producers participating in such schemes gain other broad benefits from participation?

***Objective 4.** To analyse the impact on small-scale producers in participating in the social enterprise schemes.*

Figure 4.1 provides a summary of research questions, the associated objectives of the study and chapters in which they are answered.

Figure 4.1: Summary of objectives and key research questions



RESEARCH METHODOLOGY AND DATA ANALYSIS

5.0 Introduction

This chapter reports on the research methodology used in this study. This study investigates the way that smallholders cope with food sector transformation by focusing on the role of social enterprises in integrating small-scale farmers with modern supply chains in Thailand. Both qualitative and quantitative data collection were carefully planned and collected in order to achieve the objectives of the study. An overview of stages of data collection, data discussion, scope of the study, sample and case studies selection, analytical framework and methods of analysis are discussed. This research adopted mixed the methods approach, which combines both qualitative and quantitative approaches.

Qualitative data was adopted to develop a general mapping and characteristics of the agri-food value chain and the role of social enterprises in integrating small-scale farmers with modern supply chains in Thailand. This information provided an essential input to design a survey for collecting quantitative data. Furthermore, the information derived from qualitative approach was used to support and complement the quantitative results.

Quantitative data was analyzed by using statistical and multivariate data analysis techniques such as Probit regression, Multiple regression (Gross margin regression) with selectivity bias solution (Propensity Score Matching method), and Factor Analysis. All these qualitative and quantitative methods are summarized and discussed in this chapter.

5.1 Overview of Stages of Data Collection

The stages of data collection were divided into five steps as follows:

In the First stage, prior to the data collection process at the field work in Thailand, a thorough review of secondary information was undertaken. It consisted of the review of related literature and previous studies. This stage provided information and assisted in contacting key informants.

Accounting to the value chain analysis framework, institutions and organizations play a vital role in transaction of economic agents. Thus, the *second stage* of this research consisted of interviewing key informants from both public and private organizations such as supermarkets, cooperatives, NGOs, farmers' organizations, universities, government's institutions, and donors. The semi-structured interviews aimed to gather (Appendix I) the information on how agri-food value chains are changing, with reference to smallholder coping with food sector transformation. The objective of in-depth interviews was to determine the roles of institutions and organizations in helping small-scale farmers in integrating them with modern supply chains. The interviews explored the involvement of the institutions and organizations in production and marketing, as well as their current and future plans and limitations.

Furthermore, this study is adopted the value chain analysis framework focusing on inter-organizational relationships in agri-food industry based on transaction cost economic perspective (additional detail is discussed). Therefore, the present study aimed to investigate an understanding of the nature and governance characteristics of such relationships. Thus, the *third stage* of this study consisted of interviewing main key actors in the case studies such as buyers; supermarkets, hypermarkets, suppliers/brokers, wholesalers and social enterprises (Green Net and the Royal Project). These main key actors were interviewed by using semi-structured questionnaires (details presented in Appendix I, III) to gather information about their relationships, contract farming systems, marketing activities, procurement systems, and marketing development, respectively. The main information to be gathered was the current situation and possible future issues that might arise as a result of participating in the modern supply chains. These interviews helped identify the nature and level of participation of small-scale farmers in modern supply chains. They also provided the information about market opportunities and threats offered to small-scale farmers by modern trade market chains, the constraints faced by small-scale farmers trying to enter such modern supply chains, and key success factors associated with small-scale farmers being able to gain access. Furthermore, market observation was employed with the help of research assistants. Modern trade market leaders and major wholesale markets in Bangkok and main cities such as Chiang Mai and Khon Kaen provinces were observed.

In the fourth stage, in-depth interviews and focus groups were undertaken with farmers participating in the social enterprise schemes (participant farmer) and farmers selling in the traditional markets (non-participant farmers) (details presented in Appendix III). Interviews encompassed factors that facilitated or impeded their participation in the social enterprise schemes such as transaction costs and

collective action. The interviewing participant and non-participant farmers enabled the exploration of the motivations, benefits and key success factors of these two groups, including problems faced by participating farmers and the barriers to entry faced by non-participants. This stage provided information to develop the quantitative questionnaires in the fifth stage.

The fifth stage, involved the quantitative data collection consisting of surveying a sample of participant and non-participant farmers in order to collect quantitative information about the issues addressed in the in-depth interviews and focus groups. The survey instrument was pre-tested twice (for more detailed discussion, see Section 5.3.3).

This stage provides quantitative data on the benefits, constraints faced by farmers and key success factors of participating farmers.

5.2 Data Discussion

From the five stages of data collection, data discussion was divided into two main phases according to type of analyses and objectives of the study.

The *First phase* aimed at collecting qualitative information. Secondary information was collected from Department of Agriculture, Department of Agriculture and Extension, Ministry of Agriculture and Cooperatives, Office of the National Economics and Social Development Board, Asian Institution and Technology, Kasetsart University, Chiang Mai University. In-depth interviews by using Semi-structured questions was also administered on modern trade representatives, NGOs, cooperatives, government institutions' representatives, Director of the World Vegetable Centre (AVRDC) and academic lecturers. In addition, focus groups with participant and non-participant farmers were conducted to learn. The respondents, reactions on the phenomenon of interest and create a rich understanding of participants' own opinions, beliefs, perceptions, feeling, attitudes and experiences (Carson *et al.*, 1996).

This phase referred to the patterns of changes in the different modern food supply chains in Thailand and the impact of policy on these changes including the role of social enterprises in integrating small-scale farmers with modern supply chains. The general aims of this phase were to make a general mapping and characterization of agri-food value chain in Thailand and collect inputs for the questionnaire design in the second phase. The information from this phase addressed research question 1 to 6. These were carried out between the periods April 2008 – July 2008. In addition, it aimed at market observation from modern retail market leaders in Bangkok and main cities.

The *Second phase* aimed at collecting quantitative data about determinant factors of small-scale farmers' participation in the social enterprise schemes. This phase was carried out between August 2008 – November 2008 for the Royal Project case study and September - November 2009 for Green Net case study. The Green Net case consists of rice producers while the Royal Project case consists of vegetable producers. In both case studies participant and non-participant farmers were surveyed. The participant farmers are contract farmers in the social enterprises producing for modern trade chains. This phase involved field survey and data collection with the usage of structured questionnaires.

5.3 Scope of Data Collection

5.3.1 Qualitative data collection

Qualitative data collection provides the opportunity to approach research participants and make a preliminary characterization of the situation in the field. In addition, qualitative information provides valuable inputs for designing the quantitative phase as stressed by Blandon (2006), and Denzin and Lincoln (2000) qualitative data is very useful in interpreting and explaining quantitative results.

In the study, the qualitative phase was carried out between April and July 2008, consisting of in-depth interviews and focus groups with different actors involved in the agri-food sector including public and private sectors, social enterprises, NGOs, farmer organizations and farmers.

A total of 20 in-depth semi-structured interviews were conducted with representatives from organizations and institutions (AVRDC, Tesco Lotus supermarket, Big C supermarket, TOPs supermarkets, Department of Agriculture, Department of Agriculture and Extension, University of Kasetsart, University of Chiang Mai). The objectives of the in-depth interviews were to elicit information on the participation of key actors, their formative experiences and to understand the operation of the modern supply chain in Thailand, which were used as the basis to design the survey.

In addition, focus groups were used to collect information with 10 small-scale farmers participating in the modern trade chains and 10 small-scale farmers selling to traditional markets (5 participant and 5 non-participant farmers in each case study). Focus groups were selected in this study for several reasons. According to Morgan (2007) and Maltotra (2004). Focus groups can be used as an idea generator tool in order to provide first-hand experience in observing and hearing producers talk about their perceptions of modern supply chains. Secondly, focus groups can help explore the emotional and textual aspects of participants' and non-participants' responses. Morgan (2007) and Maholtra (1996) also added that a focus group is as a preliminary step to aid the development of the later stages of the

research, qualitative and/or quantitative. Thus, in this study focus groups were selected to aid the hypotheses development with regard to producers' attitudes, perceptions, and decision-making. Moreover, The data from focus groups may provide insights into producers' farming systems, production costs, demographics and marketing systems.

Data collection strategies

A “*Snowball*” sampling was used to contact the research informants (see for example Blandon, 2006; Robson, 1993). The original list of the informant was based on secondary information (internet search) and referred by the key informants. Afterwards, the interviewees recommended other representatives from institutions and organizations that should participate in the study, including participant and non-participant farmers in the modern supply chains.

Semi-structured interview schedules were specifically designed for organizations and institutions, buyer/wholesalers, social enterprises and farmers; participants and non-participants.

The interviews in this study were conducted following the three-step guidelines given by McGivern (2003). He explains that the interview includes an introduction and ‘warm up, the main interview, and the wind down. In the present study, at the beginning of each interview, the researcher introduced the research project and the interview process. The greetings and introduction were conducted using the normal business protocol of Thailand. The key informants who participated in this study were encouraged to discuss freely each of the production and marketing activities in which they engaged or to which they had made changes with minimum interruptions from the interviewer. If participants' responses were short, provided insufficient details, or were too far beyond the scope of the study, the participants were asked relevant probing questions.

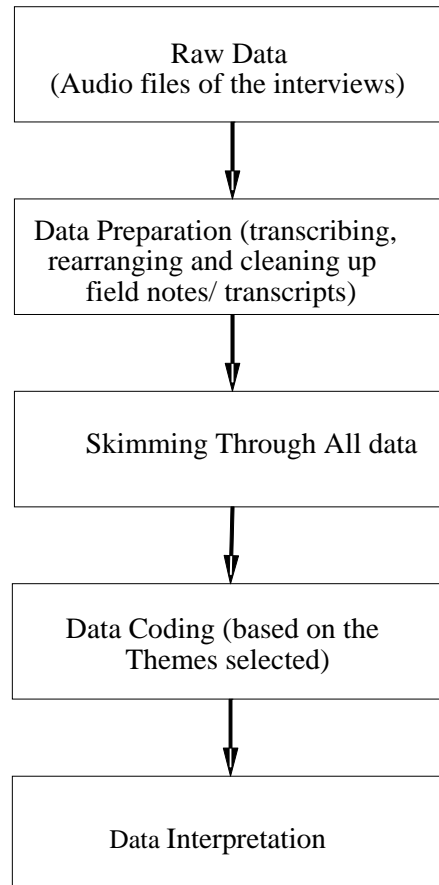
Each interview lasted from one hour to one hour and a half. In the case of farmers, most of the interviews were conducted on their farms. For each interview hand-writing notes and/or tape-recorders were taken for analysing and reviews. In analysing the data, notes and tapes were reviewed. This analysis helped mapping the agri-food system and identifying categories related to the research objectives, including collecting inputs for the questionnaires design used in the second phase.

Analysis and validity of qualitative data

The qualitative data collection and analysis are usually done simultaneously (Marshall and Rossman, 2006) since different stages of qualitative data analysis are highly interrelated and interactive (Creswell, 2009). Because the interactive nature of the qualitative data collection and

analysis makes it difficult to show the flow in diagram, the process of qualitative data analysis used in this study is summarised in simplified linear manner in Figure 5.1.

Figure 5.1: Qualitative data analysis process



Source: Adapted from Creswell (2009)

The collected interview data were transcribed, and each in-depth interview was assigned a number from 01 to 20 to provide anonymity to the key informants that participated in the study and to assist in the identification of which organization had participated in which marketing activities and for what reasons. In addition, each focus group was assigned a number from 01P-05P to provide anonymity to the participant farmers and 01NP-05NP for non-participant farmers. All of the transcripts and field notes were reviewed to get the general understanding of the data before the data were coded. A table format was used to input and summarise the data in order to reduce the complexity of the data for the analysis, following Silverman (2005) and Miles & Huberman (1994).

To explore the major factors that affect the participants' decisions to make changes to their farming and marketing activities (to answer the first part of research), the data analysis began with the

identification of the types of farming and marketing activities that indicated the changes. After the review of all interview transcripts, the broad categories of marketing activities were identified to use in the data analysis and interpretation.

The interview transcripts were reviewed the reasons that the participants addressed during the interviews on deciding to make changes to their producing and marketing activities. The major factors were grouped into external and internal factors. The external factors, such as market competition, and economy, were then grouped into the major categories of environmental uncertainty proposed by several researchers such as Dorwood (2001) and Miller (1993) as the major key themes of the external factors. Miller's (1993) classification facilitated the researcher to compare the qualitative and quantitative findings. The major internal factors were identified based on the qualitative data collected from the farmers who participated in the qualitative part of the study. The internal factors were then combined with the list of external factors to create the data-coding scheme that would help identify the most important factors that affected the farmers' decisions to participate in the social enterprise schemes supplying for modern trade chains.

The data were then coded and analysed using thematic analysis, a 'matrix based method for ordering and synthesising data' (Ritchie *et al.*, 2003, p. 219, cited in Bryman, 2008, p. 554). In this study, the themes of the major factors that affected the decision to make changes to farming and marketing activities were put in columns. The themes and subthemes of the farming and marketing activities were summarised and displayed rows. Summarising the data in this fashion provided the researcher with the opportunity to link the specific factors that affected the decisions to make changes with the specific marketing activities. It allowed the researcher identify the relative importance of each factor for each of the farming and marketing activities.

Validity of data

Validity of data is an important issue that needs to be taken into account when analysing qualitative research. According to Maxwell (1996), the most significant (threats to the validity of qualitative data) is inaccurate and incomplete data. Additionally, Maxwell (1996) believed that the researcher must attempt to systematically understand the respondents' ways of thinking which can be done by paying continuous attention to any differences in the data and considering alternative explanations of the phenomena being studied. Moreover, interviewers' bias needs to be taken into account when conducting qualitative research. Maxwell (1996) stated that the qualitative research goal "is not to eliminate the influence of the researcher, but to understand it and use it productively" (p.91). Smith *et al.* (1996) considered the internal coherence and consistency of the sample increase the validity of

qualitative results. For that reason, the focus group discussions in the study were video – and voice-recorded, and later as transcribed. The transcripts were used in the analysis which also helps deter the researcher from imposing his own meaning in the analysis.

Furthermore, according to Krueger (1998), pilot testing is a cardinal rule of research; therefore, focus groups were piloted with potential participants. More specifically, two pilot focus groups were organized and conducted in the farmers' organization, including the vegetable producers and the rice producers who supplied to modern trade chains (participant farmers) and traditional market (non-participant farmers). The participants were recruited through a screening questionnaire to ensure that all participants met the criteria for the focus group.

To follow a coherent and structured approach throughout all focus groups, two discussion guides were designed. Piloting the focus groups help improve the discussion guides. The two discussion guides had several questions in common to facilitate the comparisons between the participant and non-participant farmers. However, a series of unique questions for each group of participants were included in the discussion guides. In general, the discussion guides served as a checklist for all issues that had to be covered in the focus groups. The main issues covered in both discussion guides are represented in Table 5.1.

Table 5.1: Main issues covered in the discussion guides

Questions	Discussion Guide for Participant Farmers	Discussion Guide for Non-participant Farmers	Sub-Research Questions
Agri-food chain systems and changes in farming and marketing activities	✓	✓	Sub-research Question One
Perception of Modern Supply Chains	✓	✓	Sub-research Question Two
Main reasons/factors for participating in the social enterprise schemes supplying for modern trade chain	✓		Sub-research Question Three (Participant)
Main reasons/factors for not participating in the social enterprise schemes supplying for modern trade chain		✓	Sub-research Question Three (Non-participant)
Main problems faced in selling in modern trade chains	✓		Sub-research Question Four (Participant)
Main problems faced in selling in traditional markets		✓	Sub-research Question Four (Non-participant)

Throughout the focus groups, various interesting issuers, which directly or indirectly influenced the decision of farmers to produce, were identified. Because the purpose of this chapter is not to provide a definitive and exhaustive description of the subject and focus groups were of an exploratory nature and, only the results relevant to the research questions presented in chapter 4 are highlighted.

5.3.2 Quantitative data collection

The objective of the second phase was to collect quantitative information about the variables that determined the participation of small-scale farmers in social enterprise schemes producing for modern trade chains. For this purpose, a survey including participant and non-participant farmers was carried out between June 2008 and November 2008 for the Royal Project case study and between September and December 2009 for the Green Net case study.

The quantitative portion of the study was based on the small-scale producer analyses (vegetable and rice producers) in supplying agricultural products to modern trade chains as well as international markets. The survey questionnaires were administered using face-to-face interviews of 240 small-scale farmers (120 farmers for each case study) excluding pilot tests. At this stage some attempts were made to follow a random sampling procedure but field reality may result in convenience based sampling.

The questionnaire comprised of questions about socio-economic characteristics, farm and household characteristics, marketing and organizational characteristics of farmers. In the questionnaire, different scales of measurements were used such as nominal, ordinal, interval and ratio scales.

Since the qualitative data collection preceded the quantitative data collection, the section first outlines the schedule for qualitative data collection and then shows how the transition into the quantitative part in Table 5.2.

Table 5.2: Steps in quantitative survey data collection

Task	Description of task
1	Information gathering and preparation of materials for the in-depth interviews
2	<i>Pre-test</i> : Semi-structured interviews, focus group
3	In-depth interviews conducted on a group of key informants
4	In-depth interviews conducted on a group of suppliers/buyers/wholesalers
5	In-depth interviews and focus groups conducted on a group of small-scale farmers and social enterprises
6	Initial analysis of results from in-depth interviews and comparisons to provide inputs for the development of the quantitative part (commencing in step 7 below).
7	Development of initial questionnaire for pre-testing
8	<i>Pre-test</i> of questionnaire on a sample of participant farmers
9	<i>Pre-test</i> of questionnaire on a sample of non-participant farmers
10	Evaluation of questionnaire for possible corrections and re-designing of questionnaire
11	Final administration of questionnaire on sample of participant farmers
12	Review of questionnaire data to ensure clarity and uniformity (New information revealed was added to the questionnaire).
13	Final administration of questionnaire on sample of non-participants
14	Review of questionnaire data to ensure clarity and uniformity (New information revealed was added to the questionnaire.)
15	Revisiting of farmers by the same interviewer to clarify ambiguous issues and ensure consistency

5.3.3 Administration of questionnaire and survey

The questionnaire was developed following five steps suggested by Aaker *et al.* (1998) and Masakure (2005). According to administration, step one involves *planning what to measure* (revisiting research questions, focusing on research issues and getting additional data from secondary and exploratory research). Step two entails *formatting the questionnaire* (determining the content of questions, the framing for each question). Step three involves consideration of *question wording* (evaluating each question according to how respondents would comprehend and their ability to answer). Step four consists of *sequencing and layout decisions* (ordering of questions to create a single questionnaire). Finally, step five includes *pre-testing the questionnaire and correcting problems*. The entire design was guided by the in-depth interviews and focus groups as shown in steps in quantitative survey data collection (Table 5.2). In this present study, the research supervisor (Prof. Bhavani Shankar), who visited Thailand, was also involved in this step by evaluating the questionnaire for possible corrections and re-designing.

The producers' questionnaire was divided into five sections (Appendix II). Section one of the questionnaire contained questions related to basic household information. Section two collected data on farm characteristics including costs and returns. Section three focused on income and assets of household. Section four assessed the marketing details and the factor of choosing markets. Section five focused on the history and experience of growing agricultural products (vegetable and rice). In the questionnaire, different scale of measurements were used, such as nominal, ordinal, interval and ratio scales (for example Oppenheim, 1992; Masakure, 2005; Blandon, 2006). It is important to note that multi-item scales are widely used in marketing research to measuring phenomena that cannot be captured directly with one attitude-based question (Masakure, 2005). They are particularly useful when it is not possible to rely on behaviour as an indication of phenomena (Oppenheim, 1992). For example, in this study a multi-item scale was used to measure the perceptions of small-scale farmers in participating in the social enterprise schemes as opposed to using a single item. One of the advantages of multi-item scales is that specificity of items can be averaged when all items are combined and the researcher can differentiate between individuals and factors through combining these items (Masakure, 2005).

Once the draft questionnaire was completed, pilots' survey was conducted with 20 farmers (10 farmers each case study). On completion of each pilot questionnaire, respondents were asked to comment on the content and any problems they had in understanding and answering the question. Wording of the questions was adjusted based on these comments.

The final questionnaire was administered by personal interview after the completion of each pilot questionnaire. Two trained research assistants from Mae Fah Luang University and Chiang Mai University were recruited to help in this task. The researcher carried out half of the interviews. Respondents were selected using a two-stage stratified sampling procedure based on the number of social enterprise centres operated and the geographical areas of operation.

To aid the interview process, the researcher and research assistants first met farmers at an informal gathering. Farmers were free to ask questions relating to the research. Participant farmers were told that the information generated would be used solely for academic purposes. Each interview began with a brief explanation of the research objectives and its purpose. Questionnaires were filled in by the interviewers. The process was adjourned several times to enable farmers to undertake their farming activities.

Reliability and Validity Analysis of Quantitative Data

Reliability Analysis

The collected data were also checked for internal consistency reliability based on Cronbach's alpha. A summary of the means, Cronbach's alpha, inter-item correlations of the major variables in this study is shown in Table 5.3.

If the items used to measure the same concept have internal consistency, they are expected to be correlated with one other (Sekaran, 2000; Nunnally, 1978). According to Malhotra (2004), to achieve satisfactory internal consistency reliability, the value of the coefficient alpha should not be less than 0.60, and ideally, the value of the Cronbach's alpha should be above 0.70 (Pallant, 2005; Nunnally, 1978). Almost all items in this study had a satisfactory level of internal reliability since they had a coefficient alpha above 0.70. The internal consistency was also assessed using inter-item correlation. It is suggested that the value of the inter-item correlation be more than 0.50 (Robinson, Shaver & Wrightsman, 1991). The preliminary reliability analysis showed that almost all of the inter-item acceptable level of internal consistency. All of constructs in this study were refined further through the use of Principal Component Analysis (PCA), which is summarised and explained in Chapter 7 and Chapter 8.

Table 5.3: Mean, Cronbach's Alpha and Inter-Item Correlation

Measurement Item Green Net	Mean	Cronbach's alpha	Inter-Item Correlation
Potential benefits of participation	2.12	0.74	0.24-0.61
<i>Market uncertainty</i>	2.71	0.86	0.52-0.76
<i>Indirect benefits</i>	1.97	0.77	0.25-0.65
<i>Transaction costs</i>	1.44	0.78	0.32-0.72
Determinant factors of participation	2.33	0.84	0.35-0.88
<i>Market demand</i>	2.48	0.88	0.40-0.75
<i>Logistics and purchasing systems</i>	2.40	0.86	0.36-0.86
<i>Transaction costs</i>	1.89	0.70	0.30-0.72
<i>Market requirements</i>	1.96	0.75	0.20-0.66
<i>Market conditions</i>	2.21	0.77	0.33-0.74
Problems faced	1.43	0.74	0.47-0.70
<i>Labour and input supply</i>	1.60	0.76	0.25-0.68
<i>Production system</i>	1.42	0.79	0.40-0.75
<i>Technology investment</i>	1.09	0.78	0.35-0.66
<i>Financial aspects</i>	1.50	0.72	0.37-0.78
<i>Production capacity</i>	1.48	0.84	0.40-0.75
Measurement Item Royal Project	Mean	Cronbach's alpha	Item-Item Correlation
Potential benefits of participation	3.78	0.74	0.40-0.79
<i>Indirect benefits</i>	3.98	0.77	0.56-0.65
<i>Market uncertainty</i>	3.51	0.67	0.21-0.47
Determinant factors of participation	3.59	0.79	0.35-0.78
<i>Market demand</i>	4.04	0.75	0.27-0.64
<i>Transaction costs</i>	3.63	0.70	0.20-0.73
<i>Logistics and purchasing systems</i>	2.78	0.78	0.36-0.72
<i>Market requirements</i>	3.02	0.67	0.29-0.65
<i>Market competition</i>	4.38	0.76	0.28-0.73
Problems faced	1.96	0.72	0.39-0.78
<i>Labour and input supply</i>	2.01	0.75	0.23-0.64
<i>Crop failure</i>	1.99	0.73	0.29-0.65
<i>Technology investment</i>	1.67	0.72	0.31-0.75
<i>Market requirements</i>	2.70	0.65	0.46-0.72
<i>Production management</i>	1.34	0.66	0.29-0.58

Validity Analysis

Validity refers to the extent to which the collected data reflect what they were intended to measure (Malhotra, 2004). In this study, two strategies were adopted to ensure the content validity. First, the content of the survey instrument was reviewed by experts in agricultural and food economics field (Prof. Aree Wiboonponge (Chiang Mai University), Assoc. Prof. Samporn Isvilanonda (Kasetsart University), Prof. Bhavani Shankar and Dr. C. Srinivasan), and several changes were made based on their comments and suggestions. Second, the questionnaire was pilot-tested with a sub-population (i.e., twenty farmers) to determine whether the farmers would have any difficulty understanding the content of the survey.

Data Analysis within the Mixed Methods Designs

Since this study adopted the concurrent embedded multistrands mixed methods design, in which quantitative and qualitative studies are seen as different approaches of research that provide answers to different kinds of questions, the data analysis technique considered appropriate for this design is the ‘parallel mixed data analysis’ technique (Blandon, 2006). In this technique, two major separate steps are implemented. In the first step, the quantitative and qualitative data analyses are analysed and interpreted separately based on their own standards (Creswell *et al.*, 2007). Even though the two sets of data analysis were conducted independently, each analysis was linked with each other to increase understanding of related issues being examined (Teddlie & Tashakkori, 2003).

In the second step, both types of data are analysed and interpreted together in order to provide an overall picture of the research. In this step, both types of data are expected to inform each other in order to achieve the overall inference of the research (Teddlie & Tashakkori, 2009). In the context of mixed methods research, the term ‘inference’ refers to the process that involves the “elements of creativity, intuition, and meaning making as well as the ability to compartmentalise components or aspects of a phenomenon, understand each, and then reconstruct them for a full understanding” (Teddlie & Tashakkori, 2003, p. 289). In other words, the inference process is the process of interpreting and making sense of the overall data analysis. The process is sometimes referred to as the ‘meta-inference process (Blandon, 2006).’ A mixed method study could result in the consistencies and discrepancies between the qualitative findings and quantitative results. In case of the divergent results, researchers would have to take an extra step to explain thus discrepancies (Masakure, 2005). The findings of the quantitative and qualitative analyses are linked and discussed in the last chapter of this thesis

5.3.4 Case studies

In this study secondary information from different sources (triangulation) and the information from in-depth interviews with key informants was a key to identify the case studies. The research design, data gathering, analysis and interpretation were based on two case studies approach. Case study was employed because it is better at investigating contemporary phenomenon within its real life context, especially when the boundaries between the phenomenon and context are not clear (Westgren and Zering, 1998; Yin, 1994). The case study approaches are also powerful in combining qualitative and quantitative data and provide a description and test theory or even generate theory (Masakure, 2005). since, this research used a value chain analysis framework, focusing on inter-organizational relationships in agri-food systems from a transaction cost economic perspective which is mostly

concerned with the role of social enterprises, assist smallholders with production and marketing for modern trade chains; therefore, case studies are more useful in addressing the implications of the restructuring of agri-food value chains on small-scale farmers. Furthermore, this study was based on two case studies, Green Net and the Royal Project. Below is a brief overview of the current case studies.

5.3.4.1 Green Net (Organic Rice Supplier)

The Green Net was established in 1993 by a group of people wishing to support the environmental and social responsibility business. At present, Green Net is one of the largest producers and suppliers of organic food in Thailand. It also serves as an important social enterprise in supporting sustainable development for better livelihood of small-scale producers and consumers as well as a clean environment for Thailand. At present, there are over 20 product assortments (for example organic rice, vegetables, fruits, teas, cotton etc.) sold through approximately 40 retail outlets in Bangkok and around the country. Beside domestic market, Green Net operates fair-trade exports to Europe and the nearby countries in Asia. (details about Green Net Cooperative are presented in Chapter 6: sub-section 6.3.1.1).

Green Net currently purchases farm produces from farmer groups in the North-eastern, Northern and Central regions of Thailand. Regarding organic rice, a major product of GN, main organic rice producers for Green Net are farmer organizations and cooperatives in Yasothorn Province (North-eastern of Thailand). It is important to note that Yasothorn province is also one of the largest organic rice growers in Thailand. The main organic rice producers for Green Net in Yasothorn province are Naso Organic Rice Cooperative and Bakruea Organic Rice Cooperative. In consequence, this study focused on these cooperatives' members who are small-scale farmers growing organic Jasmine rice as participant farmers.

5.3.4.2 The Royal Project (Pesticide-safe and Organic Fruits and Vegetables Supplier)

The Royal Project (RP) has been serving as an important social enterprise in developing and promoting quality of life for the highland small-scale farmers in various aspects. The RP has become one of the important agri-food producers and suppliers for both domestic and international markets especially for pesticide-safe and organic products. The RP has developed the household subsistence farming into the commercial-based production under Good Agricultural Practice (GAP) emphasizing on quality and safety standards in all links of the supply chain. In consequence, the RP, has represented the linkages between the small-scale farmers and modern trade chains to help them in growing useful crops which enable them to have better benefits. (see more details about the Royal Project in chapter 6:sub-section 6.3.1.2).

The RP has 4 research centres and 37 Agricultural Development Centres within 5 provinces in the North of Thailand: Chiang Mai, Chiang Rai, Lamphoon, Phayao and Mae Hong Sorn provinces. The Agricultural Development Centre serves as a main collaboration centre between farmers and the RP to support the RP production and marketing plans. There are 27 Agricultural Development Centre in Chiang Mai (72.79%), 6 centres in Chiang Rai (16.22%), 2 in Mae Hong Sorn (5.1%), 1 centre in Phayao (2.70%) and 1 centre in Lamphoon (2.70). In addition, there are 26,174 household members, 257 villages from 5 provinces under 37 RP development centres. Most farmers are in Chiang Mai (69.25%), Chiang Rai (16.27%), Lamphoon (7.38%), Mae Hong Sorn (4.90%), and Phayao (1.51%) respectively.

Vegetables and fruits production are the main income resources of the RP. In 2008, the RP had total income of about 427.47 million Baht. The main income resource came from vegetables 56.29%, fruits and coffee 16.97% (coffee is about 4.61%), and flowers and trees 5.88%. Furthermore, Chinese cabbage, one of the important crops for the RP, sells all year round to modern trade chain markets. Regarding in-depth interviews and survey, this second case study focused on the RP members who are Chinese cabbage producers in Chiang Mai province as participant farmers. It is important to note that Chiang Mai province is one of the largest vegetable (cold weather vegetables) producing regions in Thailand. The participant famers are from 3 Agricultural Development Centres in Chiang Mai province namely Nong Hoy, Mae Hyia and Huy Luk. The following table (Table 5.4) shows the summary of the scope of the study.

Table 5.4 Summary of scope of the study

Phase of study	Analysis	Data sources
Phase 1 :Qualitative Trends	Changes in food retail point's policy.	Documents/interviews from key informants, organizations and other administrations.
	Change in producer and supplier points, and contract policy.	Documents/interviews from key-informants from supermarkets, suppliers, social enterprises and farmers.
Phase 2: Quantitative Producers' access	Small-scale producer analyses: members and non-members of: - <i>Royal Project: pesticide- safe vegetable producer</i> - <i>Green Net: organic rice producer</i> (Total was 240 farmers)	Surveys of small-scale farmers (participant and non-participant) in the social enterprise schemes producing for modern trade chains, 60: 60 PER CASE STUDY

5. 4 Validity, Reliability and Practicability

Regarding data collection and research methodology, one important issue to take into account in this study is that measurement tools must meet the criteria of validity, reliability and practicability. A research instrument is valid if it is able to measure what it is supposed to measure; reliable if it provides accurate and stable measurements; and practicable when it is appropriate according to economic, convenience, and interpretability criteria (Robson, 1993; Blandon, 2006; Cooper and Emory, 1995). The quantitative research is usually associated with the terms of validity and reliability. It is also looks for alternative ways to deal with credibility issues (Blandon, 2006). The above measurement criteria are very difficult to evaluate. However, according to Janesick (2000) and Robson (1993), an alternative and important tool is triangulation which refers to the use of several data sources (triangulation) and/or the use of multiple methods in the research. Furthermore, qualitative and quantitative results can mutually validate. Therefore, in this research, qualitative data came from different sources (for example, modern trade markets, buyers/suppliers, social enterprises, cooperatives, NGOs, farmers and donors,). Moreover, several statistical and multivariate research techniques that facilitate methodological triangulation were used in the quantitative analyses.

In addition, several authors have raised concern about the issue of selectivity bias, or self-selection bias (for example Shankar and Thirtle, 2005; Ali and Abdulai, 2010). In this study, for example, farmers were not randomly assigned by the researcher into participant and non-participant groups, and instead self-select themselves into groups. There are many solutions to the selectivity problem, including Heckman correction models, panel data methods, etc. In this study, therefore, the propensity score matching method was used to address this issue.

Finally, the practicability was also taken into account, especially for the quantitative phase, which was conducted in two case studies. The case studies selected for the survey are important social enterprises in integrating small-scale farmers with modern trade chains. They are also important agri-food producers/suppliers for modern trade chains in Thailand. In addition, kind of products and the geographical selections were very practical in terms of budget and crop season limitations as well as in term of socio-economic and geographic conditions.

5.5 Analytical Frameworks

This section presents and discusses the main theoretical considerations that support this research analytical framework. This study focuses on the use of econometrics and value chain analyses in analysing the impact of social enterprises and small-scale farmers' relationships for coordinating modern supply chain interdependence.

The study employs econometrics analytical framework from Minot and Roy (2007) as an analysis guideline for measuring the impact of participating in modern trade chains on small-scale farmers in the social enterprise scheme. Two main research questions are to be measured including the impact of crop for modern trade chains on farmers' incomes, and the impact of modern marketing on farmers' activities. It is important to note that the study considers measuring the impact through farmer benefits both direct (income) and broad benefits along the modern trade supply chains. Therefore, it is necessary to adopt analytical frameworks that help investigate these impacts of the complex environment faced by small-scale farmers in modern agri-food industry in the current situation.

The Needs of an Analytical Framework

Given the complex environment faced by small-scale farmers in developing countries in the context of current changes in agri-food systems (modern trade chains), it is necessary to look for an analytical framework that helps us to understand these changes. The *Value chain Analysis and New Institution Economics (NIE) based on transaction costs* framework have been adopted in the present study.

Value chain analysis framework portrays the management of the chain through an assessment of the relationships between different stakeholders coupled. A generic value chain analysis methodology has been developed and tested on several case studies (for example see Taylor and Simons, 2005; Fearne *et al.*, 2009). However, there are many different dimensions of Value Chain Analysis techniques (for example see Kaplinsky and Morris, 2002; Springer-Heinze, 2004; Roduner, 2004; Fearne *et al.*, 2009).

A number of researchers have used the value chain analysis approach to analyse the economic rationale of farmers' decisions and the implications of their participation in farmer organizations and/or contractual relationships in the supply chain of agri-food industries (for example see Corne Van Dooren, 2005; Daniel and Dudhade, 2007).

Furthermore, following growing interest in network forms of economic organization, several researchers (for example Dekker, 2003; Chaddad and Rodriguez-Alcala, 2010) adopted the value chain and/or supply chain approaches as a conceptual framework in their analysis of inter-organizational relationships in the agri-food systems. According to the literature on value chain analysis, vertical interdependence requires a systemic understanding of resource allocation and information flow between firms engaged in sequential stages of production and the relationships between different stakeholders (Fearne *et al.*, 2009). It is important to note that these areas are also inter-related with inter-organizational relationships based on transaction cost economics perspective.

The value chain analysis approach to contracting and organization in agri-food focusing on collaborative or network organizations has been one of interesting issues in agri-food industry analysis. In recent years, in adopting a value chain framework, agri-food researchers have applied transaction cost economics in conjunction with other new institutional theories of the firm to describe and analyse the emergence of the inter-organizational arrangements between agri-food value chain participants (see Dekker, 2003; Cook *et al.*, 2008; Fearne *et al.*, 2009).

On the other hand, NIE focuses on analysing market imperfections (e.g., limitation of small-scale farmers to participate in vertically-coordinated markets (modern trade chains) (Harris *et al.*, 1995). NIE has its origin in the works of Coase, North and Williamson and focused on the role of institutions in economic transaction (Menard, 2000).

According to the mainstream economic theories, economic agents (farmers in this case) will coordinate their actions if the benefits of participating outweigh the costs. However, in the real world this does not always happen regardless of the potential gains (Harris *et al.*, 1998). One reason for such behavior is that while economic agents (farmers) are limited of the information, inherently rational and frictions in trade hamper them in this pursuit, such that they are rationally bounded (Bandon, 2006, Williamson, 2000; Harris *et al.*, 1998).

Reardon and Berdegue (2002) highlighted the importance of the growth of modern trade chains (supermarkets) in developing countries and considered it as a huge market opportunity that can be used as an engine for poverty alleviation and development. The question that arises is what the factors that hamper small-scale farmers to participate in social enterprise to supply modern trade chains are. The traditional market is considered to be 'inefficient' under the new agri-food system, thus modern trade chains look for coordinating relationship with their suppliers. Nevertheless, small-scale farmers continue using the traditional market because it is where they are used to selling because of potential gains. A reasonable hypothesis is that farmers face positive transaction costs that limit their participation in coordinated markets such as the supermarket and exporting supply chains.

New Institution Economics (based on transaction costs)

With the current changes in agri-food systems, where contractual arrangements are noticeably increasing, a traditional paradigm of the firm may not be sufficient to understand the relationships between buyers and sellers along the agri-food supply chain (Hobbs, 1996). Instead of single product firms, homogeneous products, and perfectly competitive industries, modern supply chains, such as those of supermarkets and export markets, focus on differentiated products and operate through vertically-coordinated relationships (Bandon, 2006; Young and Hobbs, 2002).

Williamson (2004, p. 27) compared the 'traditional' ideas with the 'new ideas' introduced by NIE to analyze market organization and reported that while 'traditional' economic ideas assume that individuals face zero transaction costs and make individual 'rational choices' to maximize their utilities, new institutional economics gives importance to contractual relationships, considering positive transaction costs, and assuming bounded rationality. In addition the characteristics of modern trade chains (supermarket supply chains), based on product specification and contractual arrangements, suggest that NIE is suitable to analyze small-scale farmers' participation in modern trade chains.

Hobbs *et al.* (2000) pointed out that supply chains cooperation can significantly contribute to the reduction of transaction costs. Coase (2000) emphasized the importance of institutions (to facilitate coordination) and lower the costs of economic transactions. For this reason, NIE attempts to incorporate the role of institutions and institutional arrangements in the coordination of the activities of economic players (Blandon, 2006; Harris *et al.*, 1998; Menard and Shirley, 2005). NIE builds on neoclassical economics, keeping underlying assumptions such as scarcity and competition but relaxing the assumptions of inherent rationality and perfect information. Additionally, NIE incorporates institutions into the economic analysis, which are not explicitly included by neoclassical economics (North, 1995).

Many authors have used the NIE approach to analyze the economic rationale of farmers' decisions and the implications in their participation in farmer organizations and/or contractual relationships in the supply chain of modern agri-food supply chains (for example Dorward, *et al.*, 1998; Harris *et al.*, 1998; Rehber, 2000; Cook and Iliopoulos, 2000; Allen and Lueck, 2005). Even though there is no consensus about what should be included under the umbrella of NIE, Nabli and Nugent (1989) considered that contractual uncertainty (transaction and information costs) and collective action are the salient points. Harris *et al.* (1998) associated contractual uncertainty with information costs and asymmetry, transaction costs, and hold-up problems; and collective action with collective goods, common pool resources and free-ride problems. Recent publications consider that the main areas of NIE cover transaction cost economics, contractual relations, and property rights (Furobotn and Richter, 1997; Menard, 2005). However, all these areas are inter-related.

Transaction costs are associated with the process of exchange, and their extent determines the organizational forms of economics activities (Furobotn and Richter, 1997). Thus, through the analysis of transaction costs, the characteristics of different forms of organizational arrangements can be understood (Menard, 2005). Economic transactions usually face problems of asymmetric information, which may lead to bounded rationality and/or opportunism by one of the parties. Contractual relations can provide guidelines for relaxing these problems (Menard, 2005); however, it is practically impossible to write complete contracts (Williamson, 2000). The common principal-agent problem which may result in moral hazard and adverse selection is a typical problem caused by asymmetric information (Miller, 2005). Finally, the presence of 'well-defined' property rights in economic transactions and appropriate enforcing institutions is important for NIE since it can help to reduce conflicts, facilitate cooperation, and thus reduce transaction costs (Nabli and Nugent, 1989; Furobotn and Richter, 1997; Menard, 2005). For the purpose of this research, the ideas about the main areas of NIE are encompassed in the analysis of the role of transaction costs and collective action in small farmers' participation in new agri-food systems, specifically the SSC for FFV.

Transaction Costs and Participation in the SSC

Coase (1937) is considered to be the first author to introduce transaction costs into economic analysis. He challenged the assumption that the economic system is merely governed by the “price mechanism”. He stressed that relevant prices have to be searched in order to use the price mechanism. Furthermore, there are costs associated with negotiating and contracting; consequently, the need of economic organization to reduce those costs. Transaction costs are classified as 1) search and information costs, 2) bargaining and decision costs; and 3) supervision and enforcement costs (Furubotn and Richter, 1997, p. 44). Lack of information is a major impediment for economic players to be inherently rational. Also in decision-making processes, economic players need information, which often is costly and difficult to analyze (Harris *et al.*, 1998).

According to Ostrom *et al.* (1993) the costs needed to achieve an agreement can be classified as ex ante and ex post. Ex ante costs are associated with: 1) obtaining the relevant information needed to plan a particular undertaking; 2) negotiating with counterparts; 3) making side-payments to those who oppose the undertaking; and 4) communicating with all relevant participants in order to participate in modern supply chains small-scale farmers need appropriate information about products and markets as well as potential partners with which to establish strategic ventures. In the same way, modern trade markets need information about their potential suppliers, which is also costly (Blandon, 2006). Modern trade chains, lacking information about farmers, may make arrangements with ‘inappropriate’ producers. As a result, modern trade chains have to drop farmers in subsequent years once they do not meet the requirements, thereby increasing the transaction costs of the firm (Alvarado and Charmel, 2002). The searching and information costs make it difficult to establish contractual arrangements (negotiation) between agribusiness firms and individual small-scale farmers (Blandon, 2006).

Ex post costs are associated with governing, monitoring, sanctioning and renegotiating particular agreements (Ostrom *et al.*, 1993). With the increase use of grades and standards in agri-food systems (Reardon *et al.*, 2001) small-scale farmers face the risk that their products will not meet the required characteristics of products (e.g., distinguishing between pesticide-safe from conventional products). Relationships between buyers and sellers that include trust and reputation are recommended to reduce supervision and enforcement costs, which could help with the risk of hold-up problems (Chambers and King, 2002).

Williamson (1985) considered that the way that a transaction is organized (e.g., spot or coordinated market) depends on “rational economic reasons.” He suggested three principal dimensions of these reasons: 1) uncertainty; 2) asset specificity; and 3) frequency. Williamson who pointed out that uncertainty is usually derived by the incompleteness of contracts given imperfect information, which can lead to opportunism of one of the parties to an agreement. In addition, asset specificity deals with

the degree to which a particular asset can be redeployed to alternative uses; as well as frequency refers to the rate of recurrence of a transaction could cause the uncertainty.

Uncertainty. Williamson (1985) pointed out that uncertainty is usually derived by the incompleteness of contracts given imperfect information, which can lead to opportunism of one of the parties to an agreement. In the case of contract farming, small-scale farmers commonly do not understand the content of the contracts. This facilitates modern trade chains to act opportunistically (Bandon, 2006). However, firms also face uncertainty, when farmers do not honour the contracts (moral hazard). These firms usually do not sue farmers because of the legal and social costs of using small-scale farmers (Singh, 2002). Uncertainty can also be caused by environment factors such as pest damages and/or weather variability. For instance, in the contract farming scheme, farmers face a great risk of totally losing a cash crop production, which is usually related to relatively high investments. Consequently, a small-scale farmer may be discouraged to produce a cash crop (Bandon, 2006).

Asset specificity. When transactions involve assets with high specificity (especially for modern supply chains), the party that makes the investment face the risk that the other party behaves in an opportunistic way. This occurs because this party knows that the trader is tied to the agreement through the limited alternative uses of its assets (Harris *et al.*, 1998). For instance, in the production of organic/pesticide-safe vegetables, farmers need to make investments in greenhouses and irrigation systems not requiring in the traditional crops production. When a contractual relationship between small-scale farmers and agribusiness firms is ended, these assets have little alternative uses. High asset specificity can cause hold-up problems. This can occur, for instance, when a particular product is already produced and there is only one specific buyer, who is tempted to adopt opportunistic behaviour in buying the product on terms that disadvantage the seller (Bandon, 2006). Critics of contract farming schemes usually argue that monopolistic characteristics of agribusiness firms, which contract small-scale farmers, allow the first ones to behave opportunistically (Grosh, 1994; Little and Watts, 1994; Singh, 2002).

Frequency. The frequency with which transactions occur can also affect the way that transactions are organized, and hence their associated transaction costs. Modern supply chains demand products with particular characteristics in a consistent and frequent way, which make traditional (spot) markets inappropriate for some commodities (Boehlje, 1996) due to the need of constant monitoring (David and Han, 2004). Therefore, governance structures and trust between parties (buyer and seller) are needed to reduce transaction costs associated with frequency. Williamson (1991) considered that according to the degree of asset specificity, uncertainty and frequency, the governance of transactions can be managed in markets, hybrids and hierarchies. Thus, the way minimize transaction costs should be used. Generally, in the presence of high asset specificity, uncertainty and frequency, the use of

market governance increases transaction costs, and consequently, the need of coordination (David and Han, 2004; Blandon, 2006).

Transaction costs approach offers appropriate insights to address the relationship between small-scale farmers and the modern trade chains (participating in the social enterprise schemes supplying to modern trade chains). It is hypothesized in this research that several forms of transaction costs are associated with participating in the social enterprise schemes producing for modern supply chains. The modern trade chains demand specific requirements in terms of quantity, quality, and frequency. Therefore, small-scale farmers are uncertain if they will be able to supply the quantity and quality demanded. Information about grading and terms of contract also pose uncertainty on farmers (Table 5.5). In the same way, in order to participate in the social enterprise schemes producing for modern trade chains, small-scale farmers need specific investments that allow them to continuously produce and meet the standard and frequency required in the modern supply chains (Table 5.5). Facing high transaction costs to enter the modern trade chains, small-scale farmers may prefer to sell in the traditional market because it has lower requirements, and they are better known by farmers. Nevertheless, acting in the modern trade chains via social enterprise schemes, farmers in the long-run would access the potential benefits of participating in the modern supply chains.

Table 5.5: Transaction costs associated with the participation of small-scale farmers in the modern trade chains

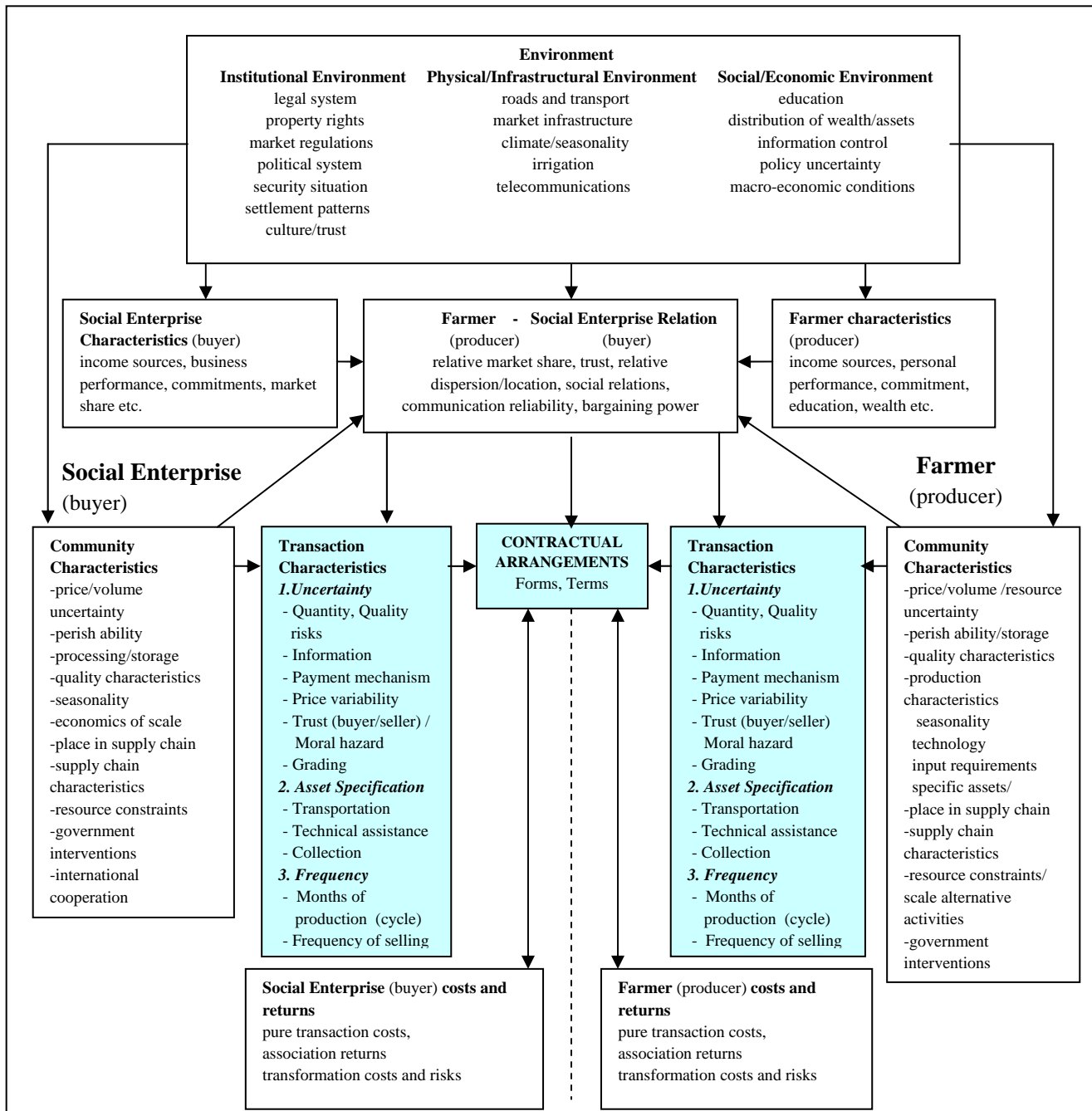
No.	Transaction Costs		
	Uncertainty	Asset Specificity	Frequency
1	Quantity risk	Transportation	Months of production (cycle)
2	Quality risk	Technical assistance	Frequency of delivery
3	Information	Collection	
4	Payment mechanism		
5	Price variability		
6	Trust (buyer/seller) / Moral hazard		
7	Grading		

Source: Own elaboration based on hypothetical transaction costs associated with small-scale farmers' participation in the social enterprise scheme supplying for modern trade chains.

From the related literature, an explanation of the case observations in this study is based on organizational theory and transaction costs economics. The important theoretical issues in the case study relate to the coordination of value chain activities. The explanation of the case finding, thus, provides some theoretical underpinnings for the use of value chain analysis in inter-firm relationships based on transaction cost economics perspective (Figure 5.2).

Figure 5.2 provides a diagrammatic treatment of value chain analysis in inter-firm relationships based on transaction cost economics perspective of small-scale farmers' participation in the social enterprise schemes in producing for modern trade chains.

Figure 5.2: A diagrammatic treatment of value chain analysis in inter-firm relationships based on transaction cost economics perspective



Source: Adapted from Dorwood's transaction cost model for contract farming (2001)

Transaction costs approach offers appropriate insights in addressing the relationships between small-scale farmers and social enterprises in supplying agri-products to modern trade chains. It is hypothesized in this research that several forms of transaction costs are associated with participating in the social enterprise schemes producing for modern trade chains. The modern trade chains demand specific requirements in terms of quantity, quality and frequency. Therefore, small-scale farmers are uncertain if they could supply the quantity and quality demanded. Information about grading and terms of contract also pose uncertainty to farmers. In the same way, in order to participate in the social enterprise scheme, small-sale farmers need specific investments that allow them to continuously produce and meet the standard and frequency required in the modern supply chains. Facing high transaction costs to enter the modern trade chains, farmers may prefer to sell their product in the traditional markets because it has lower requirements. Nevertheless, acting in the modern trade chains via social enterprise schemes, farmers in the long-run would access the potential benefits of participating in the modern supply chains.

Relationship of New Institutional Economics (based on transaction costs) with the main research hypotheses

Following Blandon (2006) and Nabli and Nugent (1989), Three general hypotheses can be summarized : 1) farmers participating in the social enterprise schemes supplying for modern trade chains are better off than farmers selling in traditional markets in terms of factors such as sales, income, performance, satisfaction; 2) high contractual uncertainty (transaction costs) impedes small-scale farmers to participate in the modern trade chains; and 3) participation in the social schemes supplying for modern trade chains helps farmers to reduce contractual uncertainty.

The relationship between the first hypothesis and NIE is based on the potential contribution that institutions can make in achieving economic development. NIE has been even seen as a “theory of development”, especially, because of the role that institutions play in the economic performance of a country (North, 2005; Dorward et al., 2005; North, 1995, Harris et al., 1995). In this sense, it is important to see if modern trade chains (new marketing systems) such as vertical coordination along the supply chain, (seen as institutional arrangements), bring benefits to small-scale farmers in most developing countries. The relationship between small-scale farmers and modern trade chains has been seen as a huge market opportunity that can contribute to economic development (Humphrey et al, 2004; Readon and Berdegue, 2002; Dolan and Humphrey, 2000). For testing this hypothesis, participant and non-participant farmers in the modern supply chains are interviewed and surveyed. Farmers are compared in terms of their farming and marketing systems. Tangible (e.g. income) and intangible (e.g. satisfaction) variable are considered (Masakure and Henson, 2005; McCulloch and Ota, 2002).

The secondary hypothesis has a very close relationship with transaction costs (Table 5.5). It is expected that farmers will choose the market channel that minimizes their transaction costs. If the hypothesis one is confirmed, the explanation for the non-participant farmers in the modern supply chains. Would be the bounded rationality of famers could be due to the transaction costs associated with their participation in the modern supply chains. This may impede them from getting the potential benefits offered by modern supply chains. NIE faces methodological issues, such as the measurement of transaction costs (Menard, 2001). Nevertheless, several proxy variables are used in this research in attempt to measure transaction costs, such as those described in Table 5.5.

For the third hypothesis, it is expected that participation in the social enterprise schemes, in the form of institutional and organizational arrangements, would help reduce transaction costs. Social enterprise schemes can contribute to increasing bargaining power of farmers to negotiate with buyers through the pooling of output. Similarly, by pooling resources farmers can access key assets that cannot be acquired on an individual basis. If the participation in the social enterprise schemes supplying for modern trade chains has a positive effect in reducing transaction costs, the core idea of NIE that “institutions matter” would be confirmed. Nevertheless, the participation in the social enterprise schemes supplying for modern trade chains faces the methodological issues of measurement. As in the case of transaction costs, several proxy variables are used in this research in attempt to measure the participation effects.

5.6 Methods of Analyses

The methods of analyses are divided into two parts according to the objectives of the study, which are:

1. Value Chain Analysis – qualitative analysis part in order to achieve the objectives 1 and 2.
2. Econometric and Statistic Processing of survey data – quantitative analysis part in order to achieve the objectives 3 and 4.

5.6.1 Value chain analysis

Since the study was performed with the sole aim of enhancing understanding of agri-food marketing, a clear understanding of the value chain concept, prior to its application is therefore necessary.

Value chain analysis framework portrays the management of the chain through an assessment of the relationships between different stakeholders coupled. A generic value chain analysis methodology has been developed and tested on several case studies (for example, Taylor, 2005; Fearne *et al.*, 2009) However, there are many different dimensions of Value Chain Analysis techniques (for example Kaplinsky and Morris, 2002; Roduner, 2004; Springer-Heinze, 2004).

This study adopted an approach to follow a simple practical methodology proposed by Info-Cadena, GTZ (Roduner, 2004) and Holtzman (2002) found in the World Bank's online "Guide to Developing Agricultural Markets and Agro-enterprises".

Value chain work plan

The combination of the approaches leads to the development of a 10 step work-plan describing the sequence of efforts needed to construct a viable and representative value chain map for the selected case studies. The overall procedure is depicted as a flow chart in Figure 5.2.

Figure 5.2 Employed work methodology: chain construction and sector analysis

Part I	Establish Initial Understanding of Commodity Subsector
Step 1	Subsector/product selection
Step 2	Review of existing literature & data
Step 3	Preliminary interviews/fieldwork
Step 4	Identification key issues & questionnaire design
Step 5	Drawing of preliminary (Value Chain) map
Part II	Refine Map and Subsector Understanding
Step 6	Extensive fieldwork: interview of chain actors
Step 7	Visiting of physical facilities & institutions
Step 8	Quantification and refinement of map
Step 9	Re-assessment of results by actors and map finalization
Part III	Develop Recommendations and Policy
Step 10	Identification of potential points of leverage and analysis of chain dynamics and major constraints

Figure 5.2 provides the steps of value chain analysis work plan which help to addresses the following issues:

- Mapping value chains
- Adding critical information to the map
- Product segments and critical success factors in modern chains

1. Mapping value chains

A value chain map helps to answer the key questions such as “What is being done in the chains?”, “Who are the key players that are doing it?”, “How is the product/service reaching end markets?” and “What market channels are available to reach those end markets?”.

2. Adding critical information to the map

Having identified the value chain in question, the task is then to put numbers and values to the variables under investigation. Variables chosen reflect the primary questions being addressed in the study. The value chain analysis gained from collecting the following critical information:

- The physical flow of commodities along the chain
- The flow of services and skills along the chain
- Destination of sales - for example to wholesalers and retailers; concentration of sales amongst major buyers; number of buyers
- Domestic and exports, and to which region

This information comes from secondary or primary data sources

3. Product segments and critical success factors in final markets

Contemporary markets comprise a number of key characteristics which need to be analysed to understand value chain dynamic. The critical components are market segmentation, critical success factors, order-requirements and characteristics, and market volatility. The study examines various key respondents to point out these issues.

This analysis part helps to understand the patterns and characteristics of agri-food supply chains including business potential such as markets, inter-firm relationships, critical constraints that limit small-scale farmers' growth, industry competitiveness, forces and trends driving the future food retail value chain and market development, including the role of social enterprises in integrating small-scale farmers with modern supply chains.

However, it is important to note that this analysis part mostly focuses on inter-organizational relationships in agri-food supply chains from a transaction cost economics perspective especially the relationship between social enterprises and small-sale farmers in integrating them with modern supply chains. The information from this analysis facilitates the interpretation and explains action of the quantitative results.

5.6.2 Econometric and statistical processing of survey data

While qualitative research focuses on interpreting reality as a process, quantitative research focuses on measuring and analysing causal relationships between variables. In this study, two different sets of econometric models were applied in processing the survey data:

1. **Probit models** of the determinants of small-scale farmers participating in the social enterprise schemes in producing for modern trade chains: With data on participants and comparable non-participants in place, these models estimated the following kinds of relationships:

$$\text{Probability of Participation} = f(\text{demographic, socio-economic, attitudinal variables})$$

Here, demographic information includes variables such as age and education of household head, etc; socio-economic variables may include income, experience in farming, farm size etc.

2. **Regression models** of the determinants of farm economic outcomes (profits):

$$\begin{aligned} \text{Profits (per rai)} = f(\text{farm variables, socio-economic characteristics and} \\ \text{farmer variables, participating in the social enterprise} \\ \text{scheme producing for modern trade chains}) \end{aligned}$$

These models help determine the effect of participation on the social enterprise schemes producing for modern trade chains on key farm outcomes, while controlling for other variables that may affect outcomes. Selectivity/endogeneity issues are addressed during the estimation.

In addition, the statistical tool; Factor analysis, was applied in processing the collected survey data;

3. **Factor analysis** of the motivations, potential benefits and problem faced by participant farmers:

This analysis focuses on the factors of motivation, potential benefits and problems faced by participant farmers. The factor interpreted by identifying are the variables that have a large loading on the same factor.

These methods are described below.

5.6.2.1 Probit regression analysis.

In the analysis of dependence when the dependent variable is discrete, choice or probability models are used. A particular dependent variable used in this research is the participation in the social enterprise schemes producing for modern trade chains. Explanatory variables were used to determine the probability of the participation in the social enterprise schemes producing for modern trade chains. Probit regression is associated with the estimation of the probability of participation (for example, Green, 2000; Lattin *et al.*, 2003; Bandon, 2006).

To test the determinants of participation in the social enterprise schemes in production for modern trade chains, a probit model is estimated in which the dependent variable equals 1 (one) if the farmer is participating in the social enterprise schemes and zero otherwise:

Let I_i^* is the latent dependent variable of participant in the social enterprise scheme, which depends on a number of variables such as demographic, socio-economic, farm variables. The latent equation for the random effect probit model to be considered is given as

$$I_i^* = \beta Z_i + u_i, \quad (1)$$

where $I = 1$ if $I_i^* > 0$, otherwise

$$I = 0, \text{ and}$$

$$\text{Probability } (I_i = 1) = \text{Probability } (u_i > -\beta Z_i) = 1 - F(-\beta Z_i),$$

$$\Pr(I_i = 1) = \Pr(I_i^* > 0) = \Pr(u_i > -\beta Z_i) = 1 - F(-\beta Z_i), \quad (2)$$

where F is the cumulative distribution function for u ¹⁷. The β is the maximum likelihood estimates. Z is a set of exogenous explanatory variables such as demographic, socio-economic, farm variables. u_i is assumed to be distributed $N(0, \sigma_u^2)$.

The theoretical concept of the probit model application with a list of factors that have been identified by the previous studies (for example Braun *et al.*, 1989 and Bandon, 2006) is the following:

Income potentially earns non-farm determines the opportunity cost of working on-farm. In the long-run, farmers face a choice of earning non-farm income versus on-farm work. This choice is

¹⁷ For a description and discussion of the probit model, see for example, Maddala 1983 page 22-27.

determined by the non-farm versus on-farm opportunity costs of family labour. Endowment of human capital and established non-farm employment opportunities determine these relationships for a specific household. It is noted, however, that income and proportion of non-farm income should be regarded as co-varying with participation rather than causing it.

In the present study, it is hypothesized that the choice to become a participant farmer would be determined by the expected increase of income, which can be assumed to be determined by the resource endowments of the farm (farm size, soil quality, land elevation, distance of farm from main road and distance of farm to market).

It is further hypothesised that the household labour force size and composition (women's share) may be a factor for adoption. A higher share of women's labour may enhance participation in the modern trade chains crop market as a result of female are at disadvantage in terms of accessing off-farmwork and thus available for farm work. Since the key decisions are mainly those of the head of the household, their age, education level and experience in farm are other factors that have hypothetical impact on participation in the social enterprise scheme.

Based on these hypotheses, the participation model is specified as follows:

$$\text{Participation} = f(\text{Labour}, \text{Female}, \text{HHsex}, \text{HHexp}, \text{HHedu}, \text{Expf}, \text{Froad}, \text{Fmkt}, \text{Fsize}, \text{Land}, \text{Qsoil}, \text{Hincome}, \text{Nfincome}, \text{NfinL}, \text{WealthIndex})$$

The empirical analysis was conducted using the STATA statistical package. The probit estimates was used to derive probability of participating in modern trade chains crop markets, which can be approximated by marginal effect (dF/dx).

Table 5.3 shows a list of socio-economic, farm characteristic variables that hypothetically determine small-scale farmers participating in the social enterprise schemes producing for modern trade chains which has been used in probit regression. This original set of variables was chosen according to the literature review (see for example Braun, Hotchkiss and Immink, 1989; Blandon, 2006; Blandon *et al.*, 2009) and the information provided by the in-depth interviews and focus groups. Further discussion about these variables will be presented in the results of appendix 1, 2. The expected relationships of the explanatory variables and the probability of participating in the social enterprise schemes are presented in the table 5.6:

Table 5.6: Explanatory variables and descriptive statistics determining participation in the social enterprises scheme in producing for modern trade chains

Variables	Abbreviation	Description	Expected Sign
<i><u>Dependent Variable:</u></i>			
Participation in the social enterprises scheme	PART	1=yes, 0 = no	N/A
<i><u>Independent variables:</u></i>			
Total labour available in household	Labour	person	+
Share of female labour in house hold	Female	person	+
Sex of head of household	HHsex	Male = 1 Female = 0	+
Age of head of household	HHage	Years	+
Education of head of household (years of schooling)	HHedu	Years	+
Experience in farm of head of household	HHexp	Years	+
Distance of farm from main road	Froad	km	-
Distance of farm from market/SE	Fmkt	km	-
Area of farm size	Fsize	rai	-
Land elevation	Land	1 very low land – 4 high	+/-
Quality of soil	Qsoil	1 very bad - 5 excellent	+
Yearly household income	Hincome	Baht	+
Proportion of non-farm income	Nincome	%	-
Wealth Index*	WealthIndex	n/a	+

Note: * Wealth Index, calculated from house area and household's assets for example car, bicycle and TV using Principal Component Analysis (PCA) method to get a new variable.

The expected signs of variables used in this study have been chosen based on the literature review (see for example von Braun *et al.*, 1989; Blandon, 2006; Blandon *et al.*, 2009) and the information provided by interviews and survey as illustrated in Table 5.7.

Table 5.7: Discussion of the Variables Expected Signs

Variables	Expected Sign	Discussion
House size (members in the family)	+	- <i>House size</i> was assumed to indicate family labour which participated in the social enterprise schemes needed more family labour
Total labour available in household	+	- <i>Labour</i> , available person of working age in household tended to diversify into farm income generating activities
Share of female labour in household	+	- <i>Female</i> were at disadvantage in terms of accessing off-farm work (von Braun <i>et al.</i> , 1989) and thus available for farm work
Sex (gender) of head of household	+	- <i>Sex of head of household</i> ; <i>male</i> was assumed to indicate higher farming than female for modern coping
Age of head of household	+	- <i>Age</i> was assumed to indicate human capital endowment of household.
Education of head of household (years of schooling)	+	- <i>Education</i> was assumed in order to indicate human capital endowment of household.
Experience in farming of head of household	+	- <i>Experience in farm</i> was assumed to indicate human capital endowment of household.
Distance of farm from main road	-	- <i>Distance of farm from main road</i> was assumed in order to indicate transaction costs
Distance of farm from market	-	- <i>Distance of farm from main market</i> was assumed to indicate transaction costs
Farm size	-	- Modern trade chains require higher standards and more labour used which may not be suitable for large <i>farm size</i>
Land elevation	+/-	<i>Land elevation</i> was assumed in order to indicate the availability of water used in farm with lower land had more availability of water hence suitable for rice while vegetables do well on higher elevation
Soil quality	+	- <i>Soil quality</i> was assumed in order to indicate the capability of growing for modern trade which especially was required for organic and chemical-safe crops
Yearly household income	+	- <i>Yearly income</i> was assumed in order to indicate the capability of credit and input supply
Proportion of non-farm income	-	- Increase in <i>proportion of non-farm income</i> was assumed in order to indicate the lower labour availability on farm activities
Wealth index	+	- <i>Wealth Index</i> was assumed in order to indicate the capability of farm management

5.6.2.2 Regression Analysis (Gross Margins Regression)

Several authors have used recursive econometric models to determine the income effect on small-scale farmers' participation in a scheme or adoption of an innovation (for example Shankar *et al.*, 2005). A similar framework was applied in this study. Participation in the social enterprise schemes producing for modern trade chains and the resulting income generation are conceptualized as a sequential decision making process.

This study used multiple regression analysis by finding the best prediction from a linear combination of the possible explanatory variables to explain how the variation in farm economic outcomes (or dependent) variable depends on the variation in a predictor (or independent or explanatory) variable.

Regression models were employed to explore the determinants of farm economic outcomes which helped determine the effect of participation on key farm outcomes (profits per rai) while control for other variables that may affect outcomes.

It was hypothesized that the farm outcomes (profits) were determined by the farm variables, socio-economic characteristics, farmer variables and participation in the social enterprise scheme in producing for modern trade chains.

Based on the hypothesis, the profits regression model can be specified as follows:

$$\text{Profits (Gross Margins)} = f(\text{farm variables, socio-economic characteristics and farmer variables, and participation in the SE})$$

Regarding the profit regression model, profit, P , allocated to a particular gross margin, is a function of a vector, X , consisting of exogenous variables and participation in the social enterprise scheme, I , such that

$$P = \beta_j X + \gamma I + \mu_j \quad (3)$$

While participation in the social enterprise scheme has been hypothesized as influencing greater profit than non-participant farmers, past research rarely considered the potential simultaneity bias that could be raised from including participation as a regressor in the profit equation.

The problem arises because unmeasured household level variables affect both participation, I , and profits, P . With the resulting endogeneity, OLS regression of P on participation in the social enterprise scheme I is likely to result in inconsistent estimates. For consistent estimation, a variant of the standard sample selection model is applied;

$$I^* = \beta_i Z + \mu_i, \quad I = 1 [I^* > 0] \quad (4)$$

$$P = \beta_j X + \gamma I + \mu_j \quad (5)$$

where $I = 1$ if $I^* > 0$ and $I = 0$ otherwise, β is a vector of parameters to be estimated.

Equation (3) states that profit, P , depends on another set of variables, x , and participation with social enterprise scheme, I . The second equation (4) states that I , participating in the social enterprise scheme depends on a set of variables represented by Z . The problem of simultaneity bias arises when equation (5) is estimated by OLS. This is because the random error terms, μ_i and μ_j , are likely to be correlated and assumed to be normally distributed since unobserved household variables affect both I and P . A two-stage procedure can be used to produce unbiased and consistent estimates of participation, when participation in the social enterprise scheme is an endogenous variable (Ali and Abdulai, 2010; Zeller, Diag and Mataya, 1997). In the first stage, an estimate of I , I^* , is obtained from probit maximum likelihood method of equation (4). The predicted probability is then used in the second stage to obtain estimates of the profit P of farmers. In the second step of the recursive model, the effect of participation in the social enterprise scheme on farm gross margin is estimated, by controlling other factors, such as endowment in farm variables, socio-economic characteristics and farmer variables. The dependent variable is the gross margin from the household's crop production.

In this study, the empirical analysis was conducted using the STATA statistical package. In addition, a selectivity/endogeneity issue addressed during estimation are shown in the next section (section 5.6.2.3).

5.6.2.3 Selectivity bias

The above gross margin regression analysis explores the determinants of farm economic outcomes which helps determine the effects of participation on key farm outcomes. There is, however, one very important econometric issue with the gross margin regression which needs to be addressed. This is the issue of “*selectivity bias*” or “*self-selection bias*” because farmers are not randomly assigned by the researcher into participant and non-participant groups. Instead, they are self-selected into groups. In consequence, the observed difference in profitability does not necessarily mean that participation has possible effects since it would be caused by selectivity bias (for example Blundell and Costa Dias,

2000; Smith and Todd, 2005; Ali and Abdulai, 2010). It is possible that more talented or more enterprising farmers tend to become members of social enterprises. Since more talented farmers make higher profits than less talented farmers, it may appear that social enterprise membership is increasing profits. In reality, it may be the higher underlying talent levels of participating farmers that creates extra profits. If this is true, the regression coefficient of gross margins on participation would not really reflect the effect of participation, but rather the mix of the effects of participation with the underlying talent levels.

Given that the decision of households to participate or not to participate in the social enterprise scheme producing for modern trade chains may be associated with the benefits of participation, the selectivity remains an initial issue. To demonstrate the significance of selectivity/self-selection, consider a reduced-form relationship between the participation in the social enterprise scheme and the outcome variable is considered such as

$$P_i = \alpha_0 + \alpha_1 I_i + \alpha_2 Z_i + \varepsilon_i \quad (6)$$

where P_i represents a vector of outcome variables for i^{th} household, for example farm variables and socio-economic variables. As shown in the previous section, Z represents household characteristics and ε_i and error term, which $\varepsilon_i \sim N(0, \sigma)$. The issue of selectivity bias arises if unobservable factors influence both the error term of the participation choice, μ_i , in equation (4) and the error term of outcome specification (ε_i), in equation (6), leading to a correlation between the two error terms.

When the two error terms are correlated, OLS regression techniques tend to produce profit (gross margins) biased estimates. There are many solutions to the selectivity problem, for instance Heckman correction methods, panel data method, etc. This study employs statistical matching, “*propensity score matching*” method, to attempt to resolve the problem of selection bias. This involves pairing the participant and non-participant farmers who are similar in terms of their observable characteristics (Dehejia and Wahba, 2002; Ali and Abdulai, 2010). The basic idea behind propensity score matching method is as follows. The probit model of participation produces a probability of participation for every observation in the samples including participants and non-participants. This predicted probability (called the propensity score) is based on the observed values for the independent variables and the coefficient estimates from the probit model.

In one version of propensity score matching, every participant is compared to a non-participant based on similarity of propensity scores. Their outcomes are compared, *i.e.*, the difference between their gross margins. Once this is done for all participants, the differences are averaged and reported as the average difference. This version is called ‘*nearest neighbour*’ matching (NNM). The intuition is that,

controlling for the probability of participation, by comparing participants and non-participants with similar propensity scores, similarly to random assignment to control and treatment groups.

Another method of propensity score matching is called ‘*kernel-based*’ matching (KBM). In this method, the outcome of each participant is compared to the weighted average outcomes of all non-participants, where the weights depend on the probability of participation.

The output illustrates a row called the Average Treatment effect on the Treated (ATT). The values in this row, shown as ‘difference’, are the average difference between gross margins of participants and non-participants after matching. It also gives a t-statistic that is used in a t-test.

It implies that the expected treatment effect for the treated population is the main focus, and it is given by

$$\tau_{I=1} = E(\tau | I = 1) = E(P_1 | I = 1) - E(P_0 | I = 1) \quad (7)$$

where τ is the average treatment effect for the treated (ATT), P_1 denotes the value of the outcome for participant farmers, and P_0 is the value of the same variable for non-participant farmers. As noted earlier, a major problem is that $E(P_0 | I = 1)$ is not observed. Although the difference $[\tau^e = E(P_1 | I = 1) - E(P_0 | I = 1)]$ can be estimated, it is potentially biased.

A number of authors (for example Dehejia and Wahba, 2002; Ali and Abdulai, 2010) have observed that propensity score-matching model can be used to account for sample selection bias in the absence of experimental data.

The propensity score-matching model (PSM) is defined as the conditional probability of a participant farmer, given pre-participation characteristics, (for example Rosenbaum and Rubin, 1983; Ali and Abdulai, 2010). The propensity score-matching model employs the unconfoundedness assumption also known as Conditional Independence Assumption (CIA) to create the conditions of a randomised experiment which implies that once Z is controlled for, participation is random and uncorrelated with the outcome variables. The PSM can be expressed as,

$$p(Z) = \Pr \{I = 1|Z\} = E\{I|Z\} \quad (8)$$

Where $I = \{0, 1\}$ is the indicator for participation and Z is the vector of pre-participation characteristics. The conditional distribution of Z , given $p(Z)$, is similar in both groups of participants and non-participants.

After estimating the propensity score, the average treatment effect for the treated (ATT) can then be estimated as

$$\tau = E\{R_1 - R_0 | I = 1\} = E\{E[R_1 - R_0 | I = 1, p(Z)]\} = E\{E\{R_1 | I = 1, p(Z)\} - E\{R_0 | I = 0, p(Z)\}\} \quad (9)$$

5.6.2.4 Factor Analysis

Factor analysis explores the motivation and main problems faced by participant farmers. In this study, the respondents were presented with a list of factors identified from the literature, focus group and in-depth interviews suggesting potential problems faced by small-scale farmers. They were asked to indicate the important issues on a Likert scale ranging.

First, the mean important score method was used to indicate the important motivations and main problems faced by participant farmers. Then, to enable the factors of participation and problems faced by participant farmers to be better understood and classified into subsets, the importance score were subjected to Factor Analysis.

Factor analysis is a multivariate method of exploring the structure of data with the object of data reduction and interpretation, particularly in marketing research which may have a number of variables that must be reduced to a manageable level. Therefore, factor analysis allows the researchers to look at a group of variables that tend to be correlated to each other and identify underlying dimensions that explain these correlations (Kline, 1993; Malhotra, 2007).

In terms of the results, the variables included in this analysis are categorised into groups of variables. The next step is testing the appropriateness of the factor model. Useful statistics are the Kaiser-Meyer-Olkin (KMO) and Bartlett's test (a test to see if dependent variables are correlated and data is multivariate normal). The data is appropriate for Factor Analysis only if a value of KMO is greater than 0.5.

Once the factor analysis is confirmed to be a proper technique for analysing the data, Principal Component Analysis (PCA), which is one of the basic approaches of factor analysis, is implemented.

There are several procedures for determining the number of factors (or so-called, principal components). The common approaches are based on Eigenvalue, scree plot (a plot of the Eigenvalue against the number of factors) and the percentage of variance, etc. In the analysis the first determination is done by using only factors with an Eigenvalue equal to 1 or greater.

Finally, the factors can be interpreted by identifying the variables that have a large loading on the same factor. In addition, the factor rotation following the "Varimax" method by means of

orthogonalization of the factor can help the interpretation to become simpler and more accurate (for example Sharma, 1996; Hair *et al.*, 1998; Malhotra, 2008).

In term of the results, the loadings represent the correlation between the new variables, component One, and component Two and so on, meaning that they are not correlated. The simple correlations between the original variables are important in forming the new variables. The higher the loading, the more important the variable is in forming the principal component score and vice versa. Consequently, the first component contributes the major share and the last contributes the least. The strategy help derive fewer components and to achieve data reduction but preserve as much variance information as possible. Greater correlation amongst the variables results in greater data reduction and vice versa (Sharma, 1996). These loadings are then used to interpret the meaning of the principle components. The interpretation is achieved by deriving a collective name for those variables most strongly related with the principal components.

Finally, the study gathered the qualitative information from the first stage (value chain analysis and discussions) and the quantitative insights from the second stage to comment on what has been added to the existing knowledge on how smallholders cope with food transformation and the roles of social enterprises in Thailand as well as to make broad policy recommendations for the agri-food sector.

The decision tree of analysis techniques in this study is summarized in Table 5.8

Table 5.8: Decision tree of analysis techniques

1. Quantitative Analysis

Econometrics Methods				
Research Questions	Number/kind of dependent variable	Number/kind of independent variables	Analytic strategy	Goal of analysis
RQ7	Multiple (discrete)	Multiple (continuous)	Probit Analysis	Explaining probability and distribution
RQ9	Multiple (continuous)	Multiple (continuous)	Multiple Regression: Gross Margin Regression	Relationship between several independent or predictor variables and a dependent or criterion variable
			Strategy: Propensity score matching method	Solving the problem of <i>selectivity bias</i> , or <i>self-selection bias</i>
Statistical Methods				
Research Questions	Variables		Analytic strategy	Goal of analysis
RQ8	Multiple (continuous)		Factor Analysis	Correlation linear combination of dependents variables with independent variables
RQ8 Significant difference of mean scores?	Multiple (continuous)		Strategy: Wilcoxon Signed rank (0.05%)	Significant difference of paired mean scores

2. Qualitative Analysis

Research Questions	Index	Analytic strategy	Goal of analysis
RQ1, RQ2, RQ3, RQ4, RQ5, RQ6	FIGURES 6.1, 6.2	Value Chain Analysis	Understanding the patterns and business potential such as markets, relationships, and critical constraints that limit small-scale farmers growth and industry competitiveness.
	TABLES 6.2, 6.3, 6.4, 6.5, 6.6	Strategy: inter-firm relationship and transaction costs approach	

5.7 Conclusions

In this chapter the data, analytical framework and research methodology in this study were presented and discussed. The data collection was divided into five stages (two phases) in order to facilitate the achievement of the research objectives. Both qualitative and quantitative information were carefully collected. The first set of information consisted of secondary information and focus group/in-depth interviews (using semi-structured questionnaires) with different key actors in the agri-food value chains and important social enterprises in Thailand. This information was utilized in for making a general characterization of the agri-food value chain restructuring and the role of social enterprises in helping small-scale farmers participate with modern trade chains it was also used in designing the questionnaire used for collecting quantitative data through a survey of participant and non-participant farmers in the modern trade chains. In the same way, qualitative information complements the interpretation of quantitative results.

Also, in this chapter the analytical framework of this research was discussed. Considering the increased vertical coordination of current agri-food systems, the relationships between small-scale farmers and the modern supply chains were analysed using “participation in contract scheme” following several researchers (for example Williamson, 2004, 2005; Bandon, 2006;) recommend. This study considered that adoption of value chain analysis and New Institutional Economics (NIE) approach based on transaction costs provide a suitable analytical framework, because it keeps basic assumptions of neoclassical economics such as scarcity and competition, but relaxes others factor such as inherent rationality and perfect information. Furthermore, value chain analysis incorporates the role of institutions in economic analyses as a means to reduce transaction costs. Therefore, this study adapted a diagrammatic treatment of value chain analysis in inter-firm relationships from the transaction cost economics perspective of small-scale farmers’ participation in the social enterprise schemes producing for modern trade chains (as seen in Figure 5.2).

A summary and discussion of quantitative methods were provided in this chapter. Furthermore, the analytical frame works used were discussed. Probit regression analysis was employed to assess the determinant factors of small-scale farmers participating in the social enterprise schemes producing for modern trade chains.

In addition, gross margin analysis with selectivity bias solutions helped compare the profitability of participant and non-participant farmers. Moreover, the mean importance scores and factor analysis helped assess the impact of farmers of a number of problems (factors) on the small-scale farmers.

The following chapters (Chapter 6, Chapter 7 and Chapter 8) place the study within the findings regarding to the impacts on small-scale producers participating in the social enterprise schemes which produce for modern trade chains in Thailand.

FOOD SECTOR TRANSFORMATION AND CHALLENGES OF SMALLHOLDERS IN THAILAND

6.0 Introduction

This chapter provides a general overview of how smallholders cope with the transformation of the food sector in Thailand. The data were collected from semi-structured interviews and other secondary sources (See interview questions in Appendix I). This study also assimilates information from the interviews into commentary and discussion. In addition, this chapter presents the changes and development in agri-food systems, forces and trends driving the future food value chain in Thailand and, the challenges and opportunities faced by smallholders in modern trade chains. Finally, the role of social enterprises in integrating small-scale farmers into modern supply chains is discussed.

6.1 The Retail Food Sector's Transformation in Thailand

This section focuses on the results derived from literature review, focus group discussions and in-depth interviews. It explains the retail food sector's transformation in Thailand. For the purpose of the study, modern retail food sectors are respectively aggregated into one category, though it is acknowledged that this level of aggregation may limit the analysis and conclusions of this study since procurement, purchasing, supply chain management and marketing systems usually vary by retail sector chains.

The retail food industry has changed drastically. Those changes have spread across developed as well as developing economies thanks to changes in consumer behaviour, evolving food safety and environmental concerns, increased importance of food quality, and the increasing role of information and logistics management (Reardon and Berdegue, 2002; Reardon *et al.*, 2003; Brown, 2005; Shepherd, 2005; McCullough *et al.*, 2008). The Thai retail food industry has experienced many of the same changes as those experienced by some other countries.

6.1.1 Development of the Retail Food Sector in Thailand

In past decades, Thai people bought food for their daily consumption from traditional markets such as wet markets (fresh markets) and the local grocery store. Food consumption habits of Thai people living in urban areas have been changing since the foreign investment in modern trade chain started in 1964. The development of the retail food sector in Thailand can be classified into 6 periods, as follows.¹⁸

Traditional Food Retail from 1950 to 1964

Traditional retail food formats were small, independent retailers who provided services to customers. These traditional types were local stores, wet markets, or street vendors. These traditional retail food formats have changed since the “Department Store” was established in 1964 (Tokrisna, 2006).

Development of the Department Store from 1964 to 1982

In 1964, the Thai Daimaru department store was established and the retail sector developed and transformed away from the traditional retail types into department stores. In 1968, the Central Department Store (Thai company), was established. Because of its success, Thai Daimaru launched a new shopping centre in Bangkok. Other shopping centres such as Robinsons which has become one of the most important department stores in Bangkok and in other main cities, were launched as a result of the success of earlier stores.

The Expansion of Department Store Branches in Bangkok Suburbs from 1983 to 1988

Due to an increase in per capita income, an increased population and real estate development (Tokrisna, 2006), the Bangkok residential area expanded into the suburbs. Because of the problems associated with significant automotive traffic, department stores expanded their branches into suburban areas to accommodate changes in lifestyle of the people living in Bangkok and suburban areas.

The Rapid Rise and Over-investment in Modern Retail Food Trade from 1989 to 1996

The high economic growth rate (bubble economy) and the real estate development from 1987 to 1989 resulted in the expansion of the modern retail trade sector (Kitivatchapokawat, 2008). The policy of financial liberalization which allowed foreign investment in Thai economy influenced and facilitated the rapid rise and over-investment in the modern retail trade sector. High consumer income and

¹⁸ Based on TDRI (2002), Tokrisana (2006), Shannon (2009), Kitivatchapokawat (2008), press reports and company websites.

speculative real estate investment resulted in an overinvestment in department stores (Tokrisna, 2006).

In 1989, Makro (A joint venture between CP Co. Ltd. [Thai company] and the Netherlands Group) launched the first hypermarket in Bangkok. At the same time, 7-Eleven (a convenience store operated by the CP Group) had developed into an important retail food presence with more than 5,000 branches throughout Thailand.¹⁹ AM-PM and Family Mart launched convenience stores in 1990 and 1992 respectively. This rapid rise of convenience stores, hypermarkets and department stores consequently created competitive advantages in Bangkok and the suburbs.

Thai Retails Taken Over by Foreign Companies from 1997 to 2002.

The economic crisis, the rapid expansion of modern retail trade, foreign loan funding, and the Baht devaluation all contributed to and resulted in an inability to pay debt and loan defaults. . Consequently, the restrictive provision of The Alien Business Law which requires Thai shareholdings to account for at least 51 percent of company ownership was removed (Shannon, 2009). Thai businesses were sold or merged with foreign-owned companies since foreign investors were then allowed to own 100 percent of the business. . For example, Central Group sold their 51 % share of TOPs to Royal Ahold. A 40 % share in Carrefour was sold to French Carrefour, and a 20 % share in Big C was sold to Casino Group. CP Company also sold the major share (98%) of Tesco Lotus to British Tesco and a 14 % share of Makro to the Netherlands SHV. These changes in the leading retail food companies' ownership are shown in Table 6.1.

Table 6.1: Ownership and the number of major retail food branches in Thailand

Type	Name	Before economics Crisis				After economics crisis					
		Ownership	%	Branches	Year	Ownership	Branches				
						Ownership	%	2000	2001	2002	2008*
Hypermarkets	Tesco Lotus	CP	100	13	1998	CP	2				
						Tesco	28	24	33	43	69 full 27 small
	Big C	Chirathivat	33			Chirathivat	13				
		Robinson	15			Casino	66				
		Land&House	11								
		Other	41	19	1997	Other	21	25	30	33	54
	Carrefour	Central Group	40								

¹⁹ Based on company website available at <www.cp.co.th> [Accessed January 2010]

		French Carrefour	60	7	1998	French Carrefour	100	12	14	17	27
	Makro	CP	24			CP	10				
		SHV Group	44			SHV	90				
		Other	32	15	1997	Group		18	20	21	41
Supermarkets	TOPs	Central Group	51								
		Royal Ahold	49	40	1998	Royal Ahold	100	41	43	52	92
	Food Lion	The Mall	45								
		Sahapat Group	10								
		Delhaize Group	45	5	1998	Delhaize Group	49	15	22	28	35=0, in 2004
						Food Lion	51				

Source: Adapted from Ruangrai Tokrisna (2006) and TDRI (2002) * Information from press reports and company websites.

Evolution and development of smaller store formats during 2003-2008

In the last decade, the speed of change drove the expansion of modern retail trade chains and brought a revolutionary change to the modern food retail trade in Thailand. The Tesco Lotus hypermarket had the third largest market share of Tesco's international markets in 2009²⁰ and played a role as one of the food retail leaders in the modern food trade in Thailand. Traditional retail shops decreased from about 400,000 to roughly 250,000 during the decade which followed the expansion of the modern retail trade (Shannon, 2009). As a result, the Confederation of Thais Opposing Foreign Retailers was formed in 2006, arguing that small-scale retail shops were being put out of business. Zoning laws were strictly enforced in 2003. These laws required a retail building with a usable area exceeding 1,000 square meters. The building had to be located at least 15 kilometres outside a municipal area and it had to satisfy several infrastructure requirements (Elsevier Food International, 2008). This trend toward increased regulation led to the evolution and development of small store formats such as Tesco Express, Mini Big C, TOPs Daily, and CP Fresh Mart.

The growth and expansion of major food retailers in Thailand can be seen in Table 6.2, and the types of food retailers in Thailand are reflected in Table 6.3.

Table 6.2: Major food retailers in Thailand: Year of entry and number of outlets, 2008

Store type	Year entered Thailand	Outlets 1997	Outlets 2002	Outlets 2007
Hypermarkets				

²⁰ Information from the company website in 2009

				69 full sized hypermarkets 27 smaller 'Value' hypermarkets
Tesco Lotus	1994 (Tesco 1998)	12	43	
Big C (Casino)	1993 (Casino 1999)	19	33	54
Makro	1989	15	21	41
Carrefour	1996	6	17	27
<i>Sub-Total</i>		60	128	218
Supermarkets				
Tops	1995	27	52	92
Food Lion (Delhaize)	1997	1	28	35-0, closed in 2004
Tesco (Talad) Supermarket	2003	0	0	39
Foodland	1972	7	8	9
Home Fresh Mart	1985	7	8	9
Villa	1973	8	8	11
Jusco	1984	8	14	7
Leader Price	2001	0	6	6
<i>Sub-Total</i>		50	110	173
Convenience Stores				
7-Eleven	1989	880	2,100	4,300
AM/PM	1988	260	-	-
Family Mart	1992	-	310	600 > 500
108	2003	1,180	2,410	750
<i>Sub-Total</i>		1,320	4,820	5,550
Discount Convenience Stores				
Tesco Express	2001	0	8	320
Mini Big C	2007	0	0	35
CPFresh Market	2006	0	0	350
Tops Daily	2006	0	0	8
<i>Sub-Total</i>			8	713

Source: Press reports and company websites.

Table 6.3: Retail food formats in Thailand

Particulars	Traditional Food Retailers		Modern Food Retailers				
	Wet-market	Grocery Stores	Supermarkets	Hypermarkets	Convenience Stores	Discount Convenience Stores	Wholesale Cash and Carry (Classified under Hypermarkets by the McKinsey study)
Patterns of business	Retail	Retail	Retail	Retail	Retail	Retail	Retail/Wholesale
Target customers	People in General/local people	People in general/low income	People in general / medium income	Low-medium incomes	People in general	People in general	Small retailers
Main strategies	Small-sized consumer products/ specialized products	Small - medium sized consumer products	Consumer products	Basic products/ consumer products at cheap price	Small-sized consumer products	Small-sized consumer products	Large-sized packing
Sale space (square meters)	-	< 1,000	2,000-5,000	10,000-15,000	1,000-2,000	100-1,000	10,000-15,000
Numbers categories of products (items)	-	< 5,000	5,000-8,000	60,000-70,000	<5,000	<5,000	60,000-70,000
Categories of products	General products/specialized products	General products	Consumer products	Consumer products	Consumer products (limited brands)	Consumer products (limited brands)	Consumer products
Location	Communities/ Wet markets	Communities	Communities/ Downtown	Communities	Communities	Communities	Communities/ Major cities
Located under the zoning and building legislation	-	-	>15 km outside the municipal area	>15 km outside the municipal area	-	-	>15 km outside the municipal area
Example	Wet-market (fresh market)	Mom and Pop shop	TOPs, Foodland, Food, Home Fresh Mart	Tesco Lotus, Big C, Carrefour	7-Eleven, AM/PM, Family Mart	Tesco Express, Mini Big C, TOPs Daily, CP Fresh Mart	Makro

Source: Adapted from Venkatesh and Puntsagdavaan (2007).

6.1.2 Driving forces and trends in the changing retail food sector

In Thailand, supermarket growth is the result of fierce competition among modern trade chains, resulting from an increased demand for the goods and services they provide. In addition to increased competition, the following factors, in no order of importance, have been driving forces fuelling supermarket growth and the major changes in the retail food sector:

1. Income growth
2. Consumer tastes and changing behaviour
3. Urbanization
4. Food safety concerns
5. Advances in infrastructure and technology
6. International and globalization influences

1. Income Growth

Supermarket chains are rapidly growing to meet the needs of more affluent consumers (Wongsakul 2005; Tokrisna, 2006). Consumers have become more affluent and better educated. Their shopping and eating habits, trends and lifestyles have likewise changed drastically over the years. The people of Thailand, especially those in urban areas, prefer to shop in modern retail outlets which offer them one-stop shopping options (Shannon, 2009). Traditional markets which are conveniently located in residential and workplace, however, are still popular.

2. Consumer Tastes and Changing Behaviours

Thai consumers' lifestyle has been evolving and changing in part because of rising income and education level (Shannon, 2009). High profile international retailers and the global mass media have also played a hand in shaping consumer-buying behaviour. Foreign owned hypermarkets (e.g. Tesco, Carrefour) are fast gaining popularity in Thailand, attracting customer with their 'one-stop' and 'all under one roof' concept (Shannon, 2009). This popularity has naturally lead to rapid expansion of foreign retailers in Thailand.

3. Urbanization

A growing population and trend toward urbanization has increased market density and has caused an increase in economies of scale of processing and retail units and a decrease in transaction costs (Tokrisna, 2006). In Thailand, the urbanization rate was approximately 34% in 2009 with an annual rate of increase of approximately 1.7% between the years 2005-2010 (Wiboonponse & Sriboonchita, 2006).

4. Food Safety Concerns

In addition to being better educated and having a higher level of income, Thailand's consumers have become more aware of health and environmental issues. This has resulted in a shift in shopping habits towards healthy eating (Wiboonponse & Sriboonchita, 2006; Vanit-Anunchai, 2007).

5. Advances in Infrastructure and Technology

Quality infrastructures, combined with advances in technology in Thailand, have made the rapid rise of supermarkets in Thailand possible. Nearly 85 percent of households in Thailand have refrigerators. Approximately 20-25 % of the homes in Thailand have a microwave oven. This number continues to rise. (NSO, 2009).

6. International and Globalization Influences

Prior to the 1980s, a significant percentage of the Thai population was 0 to 4 years old.. In recent years, these former "infants" developed into a group of 20 to 40 year old workers with significant purchasing power. (Tokrisna, 2006). The young population tends to be more adventurous in food purchasing and eating habits. This group has been increasingly exposed to global and western influences and will be a driving force in Thailand for higher value products, including food (ibid.).

The accelerating rate of change and competitiveness in the retail food sector will drive the evolution of the retail food value chain over the next decade. Modern retail businesses have accelerated their expansion scheme to open more branches and new (mini) formats in an effort to obtain a larger market share. To do so, most retail businesses follow a similar model of focusing on low prices, providing and a wider selection of products while meeting higher standards of quality. To achieve these goals, they have had to change their supply chain management systems. These changes affect both suppliers and producers, especially in agri-food supply chains where they must achieve higher standards and requirements which have become part of the modern trade market. The trends in retail food supply chain requirements in Thailand are summarized in Table 6.4.

Table 6.4: Trends in retail food supply chain requirements in Thailand

	Traditional Markets	Modern Trade Markets
Product -	- do not require contracts/agreements	- require agreement or contract (can be formal or informal contract).
Production	- prefer short-run production and usually unplanned - do not have any specifications on diversification or intensive chemical/input use - do not require traceability and/or chemical residue check	- prefer long-run production under suppliers/organizations plan - have some specifications on farming systems and chemical/input used. - require product traceability and/or chemical residue (safety standard) check in most markets
Purchasing	- do not have regular order system	- use regular order systems in advance
Purchasing Price	- use market price	- use market price and price under contract farming scheme (usually higher than market price)
Procurement systems	- prefer traditional chains such as wholesale markets and direct chain from producers	- prefer modern supply chains such as suppliers, brokers and social enterprise companies
Coordination	- use relationships or informal connections	- use formal connection via contract or agreement (nowadays most are informal contract) - prefer company/organization/institution relationships along the chain

Source: Author

6.2 Agri-food Supply Chain Restructuring and Effects on Small-Scale Farmers in Thailand

This study explores the changes in the agri-food supply chain and the difficulties faced by smallholders in Thailand because of these changes. This section explains the development of the agri-food supply chain and its effects on small-scale farmers and focuses on the results of focus group and in-depth interviews.

Before discussing the development of the agri-food supply chain in Thailand, the nature of each key informant's role in the modern trade chain, social enterprise, and buyer/trader contexts will be discussed.

Mr. TL from Tesco Lotus Supermarket, Mr. BC from Big C Supermarket, Mr. TP from TOPS Supermarket, Mr. A from a modern trade company (supplier/trader), Mrs. J from J&K Company (broker/buyer), Mr. RP from Royal Project and Mr. GN from Green Net Cooperative all provided information about their companies' operations in the agri-food industry. Their many years of experience provided them with a thorough understanding of the industry making them a rich source of relevant information.

6.2.1 Development of the Agri-food Supply Chain

The above referenced informants represented three main groups in the industry; supermarkets, buyers/traders and social enterprises. They provided information about supply chain management systems and structure that impact the restructuring of the value chain in Thailand's agri-food industry. The participants discussed numerous aspects of their respective organizations that contribute to the successful operation and management of their companies. Purchasing and procurement systems, supply chain management systems, and individual capabilities in relation to their respective businesses will all be discussed below.

Mr. BC, Mr. TL (supermarkets' representative), and Mr. A (supplier/trader) stated that the main reason that most Thai smallholders sell their products in traditional (local) markets is because of the accessibility of the market and their experience with local buyers.

“Smallholders usually sell their products in local markets because they can access the markets and they are familiar with local buyers/traders because of many years of experience with them.” (Mr. BC, [supermarkets' representative])

Mr. TL (supermarkets' representative) and Mr. A (buyer/trader) agreed with Mr. BC. Mr. TL further explained that most farmers sell their products in one of two ways. Farmers either transported their product to the market in their own or rented vehicles for sale or they sold their products to middlemen during harvest.

“Most farmers had two channels to use to sell their products; they could sell their products in traditional markets by delivering/transporting them to the market, or by selling their products to buyers/middlemen who then managed the transportation of the product.” (Mr. TL, [supermarkets' representative])

The food market has changed. The modern market has become the new core market. This is exemplified by the major change in agri-food supply chain systems. During the interviews, several participants agreed that one of the primary changes in agri-food supply chain systems that had a significant impact on small-scale farmers is the change in procurement and purchase systems in modern trade markets. Procurement and purchase systems in modern market chains have been developed or planned according to consumer demands and market competition.

“I think there are many factors which influence the changes in agri-food supply chain systems, specifically consumer demand and market competition. However, the change in purchase and procurement systems in the modern supply chain is the main factor.” (Mr.TP, [supermarkets' representative])

Several supermarket representatives discussed trends in managing agri-food modern supply chains.

“My company had developed a new supply chain management system to respond to the changes in market competition and consumer demand. We used specialized agents instead of small-scale suppliers because of cost and quality control.” (Mr.TP, [supermarkets' representative])

“We used a centralized procurement system with enhanced coordination with suppliers and social enterprises.” (Mr.BC, [supermarkets' representative])

Mr. TL (supermarkets' representative) and Mrs. J (buyer/trader) agreed with Mr. TP and Mr. BC, Mr. TL also explained that farmers' organizations (social enterprises / cooperatives) have become more important in the modern agri-food supply chain by integrating small-scale farmers and getting them to participate in the modern trade chains.

Based on the above, the agri-food supply chain for modern trade markets includes the following:

- A centralized procurement system through use of a distribution center with high standards of quality, a demanding certification, and a contract for services (formal or informal);
- Use of specialized agents/dedicated wholesalers who sometimes acts as sole suppliers;
- Concessionaires who lease sales space in stores for private agribusiness companies;
- Social enterprise companies, that become important players in maintaining and creating a market with high product quality standards (e.g. organic/ safe pesticides);
- Enhanced chain-coordination through the use of contracts with suppliers, brokers, social enterprises and high potential growers

In addition, all supermarket representatives and buyers/traders agreed that they purchase from specialized suppliers or dedicated wholesalers to reduce transaction costs, generate economies of scale by buying larger volumes, and dealing with fewer suppliers. Most specialized suppliers have an efficiency of quality and freshness control system.

... “specialized suppliers have more business potential. They reduce transaction costs when businesses cooperate, much more so than small-scale suppliers...”

(Mr. TL, [supermarkets’ representative])

“We prefer to purchase from specialized or large-scale suppliers more than from small-scale suppliers in order to reduce transaction costs, to increase efficiency of quantity and quality control and to generate economies of scale.” (Mr.TP, [supermarkets’ representative])

In recent years, social enterprise companies such as the Royal Project (pesticide-safe fruit and vegetable producer/supplier) and Green Net (organic rice producer/supplier) have become important suppliers of high standard agri-food products (organic/pesticide-safe) for modern trade markets in Thailand, which usually have to respond to quality, delivery, and quantity requirements from the markets. The growth rate of agri-food sales in the modern trade market has increased each year at an annual average of 10 to 20 percent.²¹

“Our business growth rate is more than 15 percent per year. It is especially high in the agri-food section.” (Mr.TP, [supermarkets’ representative])

²¹ Average of information from interviews in 2008/2009.

“I believe agri-food sales in the modern trade market have been increasing a lot last few years with average increases of 10-15 percent per year.”

(Mr. TL, [supermarkets’ representative])

Modern trade markets attempt to address changing consumer trends and demands Practices of farm-shop linkage between small-scale producers and modern trade supply chains, were developed to address these changing demands, especially those created by department stores owned by foreigners). This has had several effects on the agricultural product supply chain.

“My company was recently concerned with the development of supply chain management systems to help satisfy consumer demand. In addition, we recently opened more avenues of cooperation with many types of small-scale farmers (e.g. social enterprises and cooperatives) to be able to meet the continually increasing.” (Mr. TP, [supermarkets’ representative])

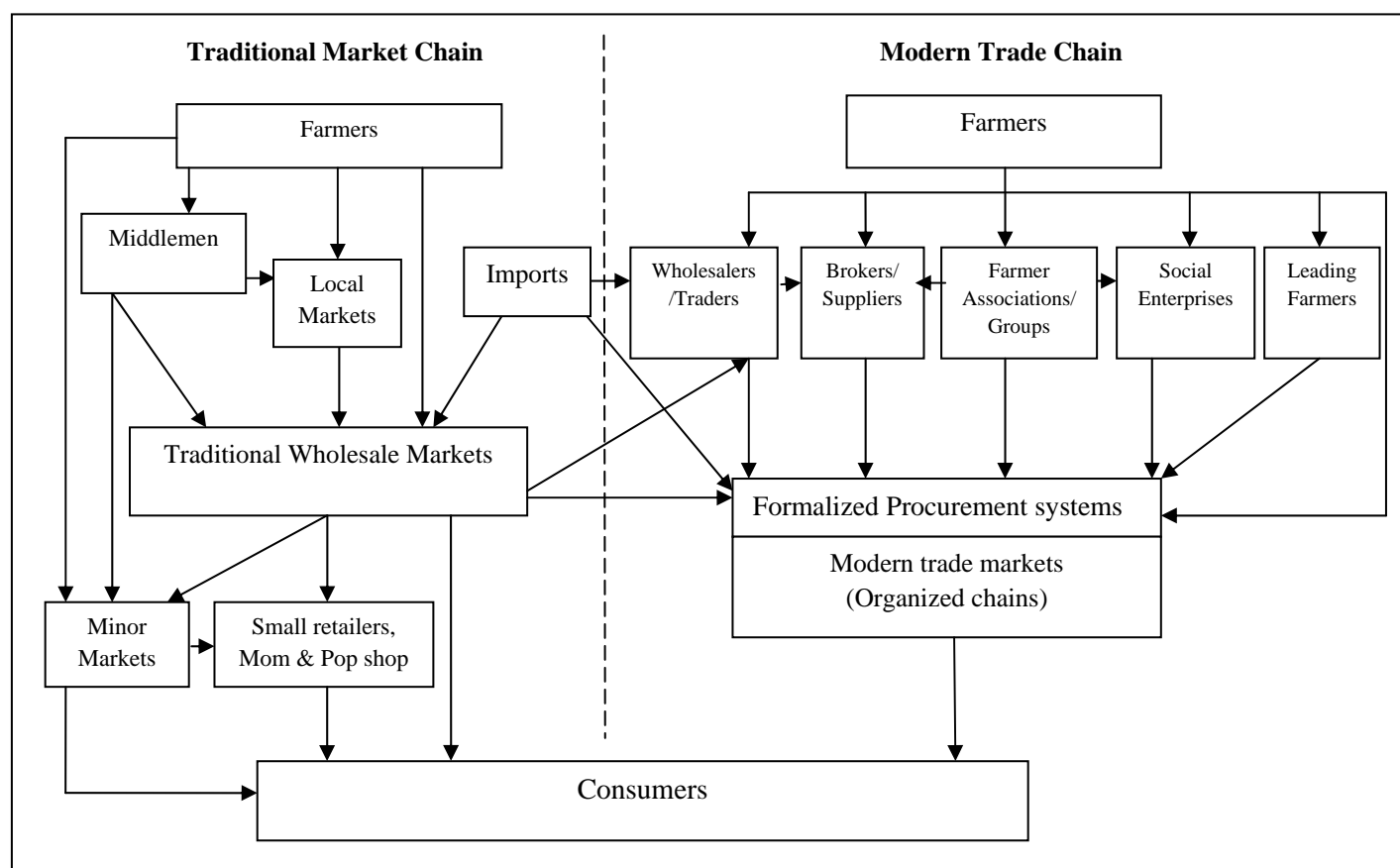
Mr. TL agreed with Mr. TP and pointed out that the development and growth of modern trade chains provided more opportunity for small-scale farmers to participate in modern trade chains.

“I think that small-scale farmers have more opportunity to participate in the modern trade chains though the use of different channels such as brokers, cooperative chains and social enterprise schemes.” (Mr. TL, [supermarkets’ representative])

Most participants explained that there were two main agri-food market chains in Thailand; traditional and modern trade market chains (see Figure 6.1). The traditional market is still the most common market.. However, modern trade markets have become increasingly more common.

[Discussing market share of agri-food markets] “I think the market share of modern trade markets continues to increase. Now it is nearly 50 percent of the total market.” (Mr. BC, [supermarkets’ representative])

Figure 6.1: Agri-food supply chains in Thailand



Traditional Market Chains

As can be seen in Figure 6.1, farmers have four selling channels; directly selling to minor markets, using middlemen, using local markets, and using traditional wholesale markets. Mr. BC stated that the nature of the difference between farmers affected the choice of the marketing channel.

[Discussing market chains in traditional markets] “I think there are many different market chains for farmers to use to sell their products such as middlemen, local markets, wholesale markets and minor markets. Traditionally, however small-scale farmer use middlemen because of the middleman’s familiarity with transaction costs.” (Mr. BC, [supermarkets’ representative])

Mr. TL, Mr. GN and Mrs. J agreed that large scale and small scale farmers use different channels when selling their products. .

“In traditional market chains, large-scale farmers usually have more marketing potential than small-scale farmers, thus, they can deliver/transport their products to local and traditional wholesale markets.” (Mrs.J, [trader])

Mrs. J (buyer/trader) explained using a middleman and her experience marketing through a middleman. She pointed out that small-scale farmers who have less capacity to delivery/transport their products to markets usually sell their products through middlemen who deliver/transport the products to traditional wholesale and minor markets. Mr. A (broker) similarly stated:,

“Farmers who sell their products in the traditional markets do so because of their experience and relationship with buyers/traders. Most of them are familiar with farming and selling systems in traditional markets.” (Mr. A, [broker])

Mrs. J and Mr. A state that farmers in traditional market chains may receive a lower price and less benefit when compared with farmers in modern trade chains. However, farmers in traditional markets do realize benefits from non-farm activities.

“I think that farmers in traditional market chains can realize non-farm income even though they may get a lower selling price when compared with modern trade chains. Thus, farmers in traditional and modern trade markets are not much different in terms of total income.” (Mrs. J, [buyer/trader])

Mr. A, Mrs. J, Mr. BC and Mr. GN stated that farmers in traditional markets have more transaction costs and they must deal with price and demand uncertainty and instability to a greater degree than farmers in the modern trade market. Yet, farmers selling their products in traditional markets have less uncertainty in terms of quantity and quality requirements.

“From my experience, most small-scale farmers in traditional markets experience more price uncertainty and high transaction costs than farmers in modern supply chains. However, quality and required standards should be of least concern to them.” (Mr. A, [buyer/trader])

Mr. RP explained the wholesale market chain in which farmers who have high potential in farming and marketing management usually sell their products through traditional wholesale markets.

“I believe that farmers (especially large-scale farmers) who have a high potential in farming and marketing resources will sell their products through wholesale markets because they may get a better price than if they sell through other traditional chains.” (Mr. RP, [social enterprise representative])

Mr. TP (supermarkets’ representative) and Mrs.J (buyer/trader) agreed with Mr.RP. They also indicate that high potential farmers (especially large-scale farmers) in traditional wholesale market chains sometimes work for traders/brokers who supply modern trade chains. Most of them may not realize that they are producing for modern trade chains. As a result, they may not need to meet modern trade standards and requirements. This, however is not a formal modern trade supply chain. Mr. J pointed out that traders/wholesalers who supply modern supply chains may sometimes buy products from traditional wholesale markets if they need more products to supply the modern trade markets.

“I bought some products from traditional market chains to meet the extra demand of modern trade chains. However, I had to select high quality products to meet the modern trade standards and requirements.” (Mrs. J, [buyer/trader])

During focus group discussions, participants suggested that the wholesale market chain seems to be a better chain for traditional markets in terms of getting better prices. However, there are many limitations on small-scale farmers in using wholesale market chains to sell their products. For instance, selling volume and frequency as well as transportation costs limit the effectiveness of using a wholesale market chain. Often, the transaction costs do not cover the price received. As such small-scale farmers use other market chains.

“Many small-scale farmers decide not sell their products in wholesale markets because they have many limitations such as small sales volume and high transaction costs.” (Mr. GN, [social enterprise representative])

To summarize, information obtained from focus group discussions and interviews, four main traditional market chains can be identified; selling through middlemen, selling at local markets, selling at traditional wholesale markets, and selling through minor markets. Several participants, including Mrs. J, Mr. A, Mr. TL and Mr. TP, stated that which market suited a farmer, and which market a farmer decided to use, depended on farming and marketing potential and anticipated transaction costs (See, 6.2.3 and Table 6.7 below).

“Small-scale farmers usually sell their products through middlemen or local markets because of their farming and marketing limitations. Potential transaction costs also limit the use and sale of products through other market chains”. (Mrs. J, trader)

Modern Trade Market Chains

As can be seen in Figure 6.1, farmers have six potential selling channels in the modern trade market; selling directly to modern trade markets, to large farmers, to wholesalers/traders, to brokers/suppliers, to farmer associations/groups and to social enterprises. According to Mr. TP, the marketing channel chosen depends on the type of farming and available marketing system;

[Talking about modern trade market chains] “I think there are many different markets chains for farmers to use in selling their products in the modern trade chain such as, selling through wholesalers/traders, brokers/suppliers, farmer associations/groups and social enterprises. Which channel is chosen depends on their farming and marketing systems.” (Mr. TP, [supermarkets’ representative])

Mr. TL agreed with Mr. TP and further pointed out that large-scale farmers can sell their products directly into modern trade chains. Small-scale farmers, however, can sell their products indirectly into other modern trade channels.

“My company usually buys agri-food products directly from high potential farmers (large-scale farmers) who meet our standards and requirements. However, we also cooperate with small-scale farmers in different market channels by buying through social enterprise schemes and cooperatives.” (Mr. TP, [supermarkets’ representative])

Mr. TL and Mr. TP both stated that in regards to growth and competition in modern trade markets, modern trade companies pay more attention to purchasing and procurement systems. Because of market competition, consumer demand and operation costs, modern trade companies are more concerned about the capability of their suppliers to meet higher standards and demand.

“With increased market competition and changing consumer demand, we have to be more concerned with the capability of the suppliers. They must have the ability to meet our high standards of quality, quantity and delivery and to reduce operation costs and overall economic impact.” (Mr. TL, [supermarket representative])

Mr. TP mentioned that most modern trade markets now focus on high quality, safe products such as organic products or safe pesticides, to meet an increasing consumers' demand.

[Talking about products sold in the supermarket] "Our company is selling only high quality and safe products. All vegetables and fruit in our supermarkets are organic/pesticide-safe products." (Mr. TP, [supermarkets' representative])

Mr. BC (supermarkets' representative) agreed with Mr. TP:

"We purchase agri-food products from suppliers who meet our (residual chemical) quality and can deliver as much and as often as we need".

As a result of their rapid growth, modern trade markets now pay more attention to small-scale farmers, thus creating more opportunities for small-scale farmers to participate in modern supply chains.

"We are now working with small-scale farmers in different chains. We buy most organic and pesticide-safe products from social enterprises (e.g. Royal Project) and cooperatives." (Mr. BC, [supermarkets' representative])

Similarly, Mr. TP (supermarkets representative) stated:

"Our company would rather buy agri-food products from farmers' institutions or farmers' groups than from individual farmers due to the efficiency of their supply chain management systems".

Similarly,

[Talking about product procurement] "I usually buy products from farmers using two main channels, through contract farming (directly buying from farmers) or from farmer associations or groups." (Mr. A, [broker])

In-depth interviews with Mr. TL, Mr. BC, Mrs. J, and Mr. GN regarding the possible channels of small-scale farmers' participation in modern supply chains indicated that there are five potential channels; selling through lead farmers (high potential farmers/agribusiness farmers), using wholesalers/traders, using brokers/suppliers, farmer associations/groups or social enterprises.

Mr. TP (buyer/trader) stated similarly:

[Talking about different channels of farmers' participation in modern trade chains]
“I believe that large-scale farmers who have a high potential can sell directly to modern trade markets. However, small-scale farmers have limitations. Limits on available quantity, delivery systems, and marketing management systems all hinder the small-scale farmer's ability to participate in modern trade chains. Thus, most small-scale farmers have to participate in other modern supply chains such as by selling their products through large-farmers, selling through wholesalers or traders, using brokers or suppliers (contract farming), or selling through farmer associations or social enterprises.” (Mr. TP, [buyer/trader])

Mr. A, Mrs. J and Mr. RP agreed stating that the most common channel that small-scale farmers utilize to participate in modern trade chains is selling through brokers or suppliers. Pesticide-safe products are most commonly supplied through the use of brokers/suppliers. Organic products supply chain, however, more commonly involves a social enterprise scheme.

“Even though there are many channels for small-scale farmers to use to participate in modern trade chains, I prefer to buy organic products from social enterprise schemes. Social enterprises have high production capabilities and quality control marketing skills. In addition, social enterprises help small-scale farmers in many ways such as by providing production and marketing support.” (Mrs.J, [buyer/trader])

[Talking about product procurement] “I usually buy pesticide-safe products through brokers or suppliers from farmers who operate under contract farming scheme I buy organic products from farmer's groups or social enterprise schemes.” (Mr. A, [broker])

When asked about the benefits or advantages of small-scale farmers' participation in a modern supply chain, most participants agreed that small-scale farmers who participate in a modern supply chain receive more benefits than non-participant farmers. Participant farmers, however, also have limitations due to their production and marketing systems.

“I think small-scale farmers participating in modern supply chains have more advantages than non-participants such as production and marketing support from modern trade chains. However, participant farmers may face some problems in modern trade chains such as having difficulty meeting quality and quantity standards or requirements.” (Mr. GN, [social enterprise representative])

Mr. RP, Mr. A, and Mr. TP stated that production and marketing characteristics of the small-scale farmer dictated which modern supply chain was used to gain participation. (See 6.2.3 and Table 6.7 below).

“Small-scale farmers in social enterprise schemes usually operate pursuant to a formal farming contract and they have a long-term planning system. Small-scale farmers who participate in modern trade chains through lead farmers, however, usually operate under an informal farming contract they have a short-term planning system. Consequently, small-scale farmers can participate in different modern supply chains depending on their principle characteristics.” (Mr. A, [broker])

Interesting issues were raised during the focus group discussions and in-depth interviews regarding the different channels and the principle characteristics of small-scale farmers’ participation in modern supply chains. The supply chain management systems of the five main channels are summarized below

6.2.2 Small-scale farmer participation in modern trade chains

This study found that there were five main channels of small-scale farmer participation in modern trade chains. These are reflected below in Figure 6.2.

Figure 6.2: The channels of small-scale producers’ participation in modern trade chains

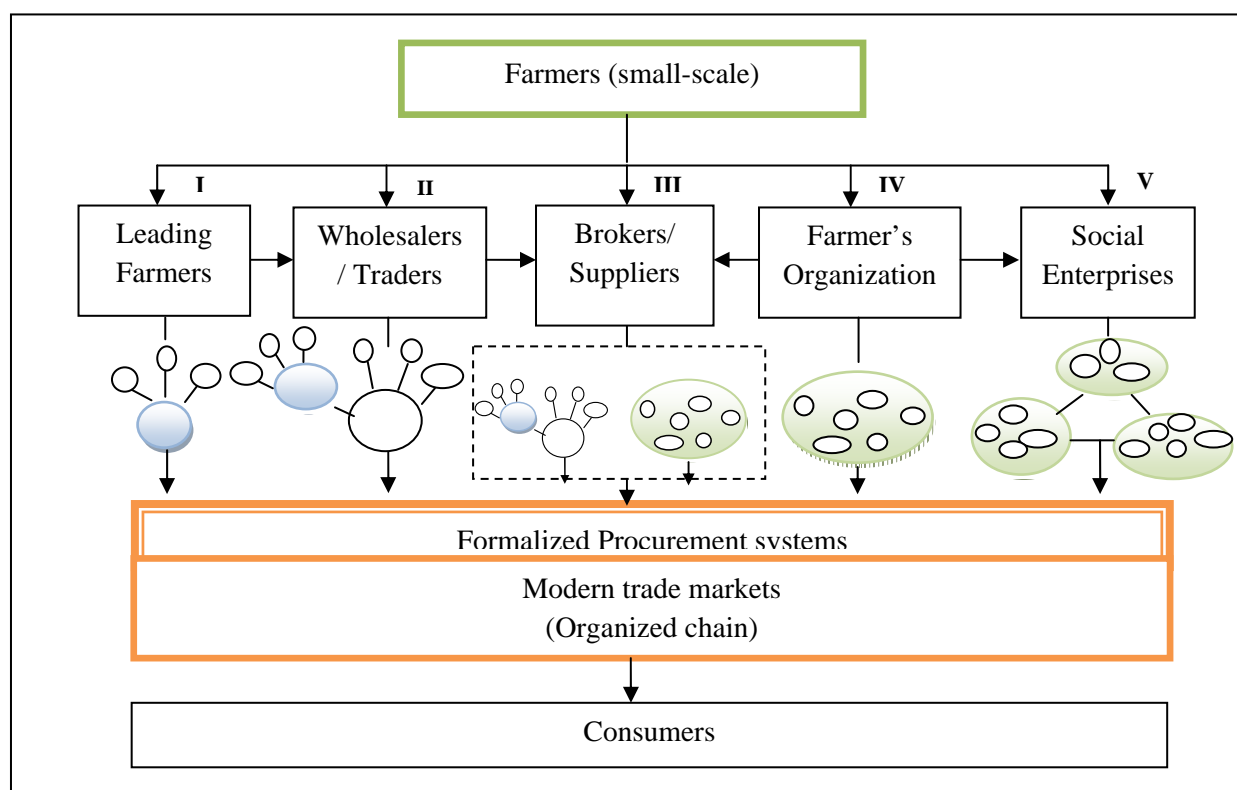


Figure 6.2 shows the different channels of small-scale farmer participation in modern trade chains. Each chain has different characteristics. Information from in-depth interviews, focus group discussions, researcher observations and literature review as detailed below all help explain the characteristics and potential of each channel.

Chain I. Farmer => Leading Farmer => Wholesaler/Trader and/or Modern Trade Store or DC

In this Chain, farmers are connected with leading (high potential and/or large-scale) farmers. These farmers participate in the modern trade as a “sub-contractor” of a leading farmer who participates directly in the modern trade chains and guarantees the quantity of produce. However, this study found that farmers who participate in this chain normally made production arrangements with the leading farmers under the share cropping system using an informal contract (handshake or verbal contract), and generally received credit and/or input from the leading farmers. Most farmers who participate in this chain usually have a short-run production plan and are not involved in community collective action. In addition, as a result of not having a formal contract, some farmers are free to sell their products in the traditional market.

Chain II. Farmer => Wholesaler/Trader => Broker/Supplier and/or Modern Trade Store or DC

In this Chain, farmers sell their products to wholesalers or traders who supply the modern trade chains. Farmers in this chain normally have a small-scale production with a short-run plan or lack key physical assets. These farmers are similar to those described in the previous chain. These farmers have production knowledge based on their experiences; however, they lack managerial skills. In this chain, the wholesaler/trader is a key player guiding and supporting farmers in the production process and advising the farmer as to market conditions and requirements such as quantity and quality standards, grading and delivery terms (e.g minimum volume and timing). Most farmers in this chain have an informal contract. This study found that wholesalers/traders needed alternative plans to comply with modern trade market demands when some of these farmers failed to participate. Some wholesalers/traders bought products from non- participating farmers or from traditional markets then made their own selection and did their own packing before delivering the product to the modern trade markets. In this case, the price and payment was determined on a day-by-day basis. The farmers’ price varied depending on the market price each day.

Chain III. Farmer => Broker/Supplier => Modern Trade Store or DC

This chain is similar to the Chain I and Chain II described above. Participation in this Chain, however, usually involves a formal contract, a long-run production plan and is characterized by better market conditions (e.g. a good and stable price and demand). These participant farmers generally have good production knowledge and managerial skills because of their experience and/or program training provided by the brokers/suppliers. In this Chain, the brokers/suppliers guide and support farmers in production and market conditions as well as provide technical assistance in meeting quality control standards, grading standards and delivery terms. This study found that most participant farmers in this chain had higher productivity and capability when compared to the farmers who participate in Chain I and Chain II. In recent years, this chain has become an important modern trade chain supplier and has developed a high market share in supplier markets. Brokers/suppliers also work with other participants in the other chains such as wholesalers/traders and farmer's organizations in order to meet the market demand.

Chain IV. Farmer => Farmer's Organization => Broker/Supplier and/or Modern Trade Store or DC

Some farmers sell their produce to a farmers' groups or farmers' associations (e.g cooperative). The farmers' organization then sells the produce to a broker/supplier and/or modern trade market. Most participant farmers in this chain have production capability but most of them have a small-scale farm and lack managerial skills. Therefore, they have serious constraints to entering the modern trade chains. The advantage of participation in this chain is that there is a higher volume to sell, creating more economies of scale and higher negotiation power when compared to selling as an individual. Farmers are members of a group who negotiate with the modern trade markets on their behalf. These farmers typically receive substantial support from government programs, non-profit organizations and social enterprises. This support can range from technical assistance to donations or subsidies for transportation costs or training or to acquire assets such as cold storage facilities, distribution centres or processing machines.. The farmers in this chain may also receive support from the modern trade markets under government projects. This study found that the farmers under these programs were concerned about the sustainability of participation and worried that the support project would end.

Furthermore, most farmer associations lack managerial and business skills. This negatively impacts farmers' overall participation and performance. It also causes problems in trade supply chain management systems and hinders sustainability of cooperation in modern supply chains. Some farmers' associations are also working with social enterprises as brokers/suppliers in order to achieve higher efficiency and sustainability of long-run participation.

Chain V. Farmer => Social Enterprise => Modern Trade Store or DC

In this Chain, farmers participate with a group or with a Chain IV organization to sell their produce to a social enterprise such as the Royal Project (pesticide-safe fruit and vegetables supplier) and Green Net (organic rice producer), who supply the modern trade markets. These farmers are similar to those who participate in Chain IV, however the farmer's association does not work individually or directly with the modern trade markets. In this case, due to the lack of managerial and business management skills of farmer's associations, the farmer's associations form a group as a social enterprise organization and consolidate their production, grading, packaging, and marketing.

This study found that social enterprises helped small-scale farmers to improve their profitability, stability and sustainability of participation (additional information about the role of social enterprise is discussed in Section 6.3). The collaboration between farmer's associations and social enterprises create more economies of scale and have greater negotiation power because of the professional business management skills of the social enterprise. In addition, most social enterprises work with international organizations (e.g. fair trade organization) in order to join international and global trade systems. This cooperation helps small-scale farmers get a better price and increase their market opportunities.

This study provides an analysis of the importance of these five Chains relative to each other (largest proportion of small-scale farmers), which are the most and which are the least important in the modern trade market and how their importance may be changing. .

In an organic and pesticide-safe products (with certification) market, the social enterprise chain (Chain V) is used by the largest percentage of small-scale farmers, followed by broker/supplier (Chain III), farmers' organizations (Chain IV), wholesalers/traders (Chain II), and leading farmers (Chain I), respectively. In their interviews, several participants such as Mr. TP and Mr. TL supported the conclusion that use of social enterprises is becoming increasingly important.

“Our company usually buys about 60% of our organic/pesticide-safe products from farmers under social enterprise schemes and about 40% from and brokers/suppliers.” (Mr. TP, [supermarkets' representative])

“We are increasing the percentage of organic and pesticide-safe products purchased from social enterprises. Though it is more than 50 percent of our total, brokers and suppliers remain important suppliers for us.” (Mr. TL, [supermarkets' representative])

In a conventional and pesticide-safe products (without certification) market, the broker/supplier chain (Chain III) is used by the largest percentage of small-scale farmers, followed by wholesalers/traders (Chain II), farmers' organizations (Chain IV), wholesalers/traders (Chain II), and leading farmers (Chain I), respectively. In their interviews, several participants such as Mr. BC and Mr. TL supported the conclusion that use of brokers/suppliers is the most important chain.

"I buy over 60 percent of conventional agri-food products from brokers/suppliers and about 20 percent from wholesalers/traders." (Mr. TL, [supermarkets' representative])

"Brokers/suppliers are important suppliers in my business. Over 70% of conventional agri-food products are purchased through the use of brokers or suppliers." (Mr. BC, [supermarkets' representative])

Information from interviews and group discussions with modern trade chains' representatives, confirms that the use of social enterprises has become more important. Social enterprises have increased their market share in organic or pesticide-safe product markets. As a result, social enterprises have developed good supply chain management systems which assure the quality of products throughout the supply chain until and including distribution to the markets and eventually to consumers. Another reason is the increasing market share of organic and pesticide-safe products in modern trade markets.

"We usually buy organic/pesticide-safe products from farmers under social enterprise schemes because social enterprises have good production and marketing management systems which assure that quality of products throughout the supply chain. This increase opportunity in new market for small-scale farmers." (Mr. TP, [supermarkets' representative])

However, the broker/supplier chain is still important for the conventional and pesticide-safe (without certification) products market. The farmers' organization (cooperative) chain and the leading farmer chains are becoming less important due to high business transaction costs (for example uncertainty (e.g. moral hazard), frequency as well as asset specificity (e.g. irrigation system)) in running a business with modern trade chains.

"I think brokers/suppliers are important suppliers for conventional products because they have less business transaction costs than other chains". (Mr. BC, [supermarkets' representative])

Table 6.5 discusses the comparison on advantages of the modern trade, which follows presents the advantages of the five modern supply chains [chain I – V] as perceived by modern trade markets in Thailand. This analysis of the advantages of modern trade chains was from the interview of participants involved in this research and adapted from Reardon *et al.*'s, (2009) conceptual framework of companies' decisions to modernize procurement to supply in modern trade channels, as discussed in Chapter 3 (sub-section 3.6.2). There are two sets of determinants for a company to consider when making a decision to modernize procurement to supply for modern trade channels. These two determinants are *incentives* and *capacities* (Reardon *et al.*, 2009:p. 1720). This study used production determinants as Capacities indicators. Further, *incentives* indicators are divided into two groups; operation management and business cooperation factors.

Table 6.5: The comparison on advantages of the modern trade [Chain I – V]

Characteristics of supply channel required by modern trade		Supply Channel				
		Chain I Through leading farmer	Chain II Through wholesaler/ trader	Chain III Through brokers/ suppliers	Chain IV Through farmer's organization	Chain V Through social enterprise
Capacities	Production					
	- Control of quality and quantity of produce	✓	✓	✓✓	✓	✓✓
	- Financial and farm managerial capacity	✓	●	✓✓	✓	✓✓
	- Control of farming contract violations	●	●	✓✓	✓	✓✓
Incentives	Operations Management					
	- Price plus transaction costs	✓	✓✓	✓	✓✓	✓✓
	- Delivery and logistics	✓	✓✓	✓✓	✓	✓✓
	- Reliable supply	●	✓✓	✓✓	✓	✓✓
	- Tractability	✓	●	✓	●	✓
	- Managerial cost	✓	✓	✓	✓	✓
	Business Cooperation					
	- Control of business agreements and conditions	✓	●	✓✓	✓	✓✓
	- Terms and conditions negotiation	✓	✓✓	✓✓	✓	✓
	- Control of farmer remuneration	●	●	●	✓✓	✓✓
	- Corporate social responsibility	●	●	●	✓✓	✓✓
	- Sustainable for long-run cooperation and supports	●	✓	✓✓	●	✓✓

Note: Degree ● means have some limitation
✓ means acceptable
✓✓ means good

Source: Diagrammatic representation of interviews

Capacities in Production Management

The study found that modern trade prefers the production capacities (quality control, quantity of produce, financial and farm managerial capacity, and control of farming contract violations) of small-scale farmers operating under social enterprise schemes. However, small-scale farmers using the brokers/suppliers chain also have high production capacities when compared with other chains. Small-scale farmers using leading farmers and wholesalers/traders seem to be low capacities channels from a modern trade perception. As a result, they have some limitations in quality control and control of farming contract violations.

Several participants, such as Mr.TP and Mr.BC, stated similarly that social enterprises and brokers/suppliers have higher production capacities than other chains.

“Social enterprises have more potential in production capacities and control. Their supply chain management systems can assure the quality of products throughout the supply chain”. (Mr. TP, [supermarkets’ representative])

“We always wasted our time and money selecting products from wholesalers. Some of them met our standards while many of them did not.” (Mr. BC, [supermarkets’ representative])

Mr. BC agreed with Mr.TP and pointed out that social enterprises have good production control systems which help farmers attain modern trade standards and requirements.

“It’s really delightful to know that Royal Project is able to force farmers in their project to manage their farm by following GAP standards even though many of them used to be traditional farmers.” (Mr. BC, [supermarkets’ representative])

Mr. TP agreed that social enterprise and broker/supplier chains have higher financial and farm managerial capacity than other chains. Similarly the capacity to control farming contract violations is higher:

“Since we have been buying organic products from the Royal Project, we have hardly ever suffered from an out-of-stock crisis. Because of their well-organized farming and marketing management systems, they never supply less than what we had contracted for.” (Mr. TP, [supermarkets’ representative])

In summary, capacities in production management can refer to small-scale farmers using the brokers/suppliers chain also have high production capacities when compared with other chains, whilst the small-scale farmers that uses leading farmers and wholesalers/traders had

low capacities channels from a modern trade perception. The following section discusses on incentives in operations management in supply chain.

Incentives in Operations Management

Each chain has different kinds and level of incentives. This study found that “price plus transaction cost” while using the social enterprises chain, the farmer’s organization chain and the wholesalers/traders chain have higher operation incentive than the other chains. Some of participants such as Mr. TP stressed that using social enterprises can result in a better price and can also reduce modern trade market transaction costs.

“Despite the fact that products from social enterprises are well known and well-positioned in the higher market, they somehow offered us a better price than other traders did.” (Mr. TP, [supermarkets’ representative])

Regarding operation incentives, the delivery and logistics incentive is an important incentive indicator. Social enterprises, brokers/suppliers and wholesalers/traders chains have high delivery and logistics incentives for modern trade markets because most suppliers can provide a very good delivery system to modern trade markets.

Mr. TP stated that social enterprises (e.g. Royal Project) can provide a very good delivery system to modern trade markets. This results in lower managerial cost when using the social enterprise channel.

“Products from Royal Project are always delivered properly. The delivery is always on time and there is no reduction in quality.” (Mr. TP, [supermarkets’ representative])

Some participants denied and explained the limitations of operation incentives in other chains.

“Even though the price from farmer organizations can satisfy us, their supplies are uncertain. We need to phone and confirm them often in order to lower the risk to our inventory.” (Mr. BC, [supermarkets’ representative])

The study also found that social enterprises and brokers/suppliers have high incentives of a reliable supply. For instance, the concept of traceability, traceability is the ability to track a product and its information back to its origin and its original producer. If there is a problem with any product, modern trade markets provide the means to locate the problem trace it to its source and correct it before the

product makes it into the store. Mr. TP and Mr. BC pointed out that use of the social enterprise channel has the highest incentive in traceability. They stated that most suppliers have some traceability limitations.

“When purchasing through a wholesaler or broker, it is very difficult to trace information back to the original produce. Unlike the Royal Project (social enterprise). With them, we can even check for the name of the fertilizer they use”.

(Mr. TP, [supermarkets’ representative])

In summary, this is concluded that social has high delivery and logistics incentives for modern trade markets because most suppliers provide substantive delivery system to modern trade markets. The following section discusses on incentives in business cooperation.

Incentives in Business Cooperation

Interesting issues were raised during the in-depth interviews about business cooperation incentives. All participants reported a good understanding of business cooperation incentives. There are many factors in business cooperation incentives such as, control of business agreements and conditions, negotiation of terms and conditions of contract farming, control of farmer remuneration, and sustainability for long-term cooperation and support.

The study found that the highest incentives in business cooperation are brokers/suppliers, farmer’s organization channels, leading farmers, and wholesalers/trader channels, respectively. Modern trade feels confident that those two chains can control their business agreements and conditions.

An incentive in terms and condition negotiation in the wholesalers/traders channel, however, is more attractive to modern trade markets than in the social enterprise or farmer’s organization channels.

Mr. BC pointed out that the brokers/suppliers channel has a high incentive in terms and condition control and negotiation.

“Since brokering is a profit oriented company, they always strictly follow the agreement, because they do really know the pain from penalty.” (Mr. BC, [supermarkets’ representative])

Mr. TP and Mr. TP agreed with each other and expressed that modern trade markets face a lot of problems in controlling agreements and conditions with wholesalers and leading farmers.

“Unlike the trader who’s much more familiar with those terms and conditions, it’s a little complicated when negotiating terms and conditions with contracted farmers.”

(Mr. TP, [supermarkets’ representative])

While talking about Corporate Social Responsibility (CSR) in the supply chain, it is an incentive for modern trade because it means that their businesses are growing without hurting society. The study found that social enterprise and farmers’ organization channels have higher incentives than the other channels. Mr. TP, Mr. TL and Mr. BC similarly stated that the social enterprise channel and farmer’s organizations such as cooperatives have more potential of promoting Corporate Social Responsibility.

“Social enterprises (such as Green Net and Royal Project) consolidated their products from members who are local farmers. So, I believe that when we buy more products from small-scale farmers in social enterprise schemes, it means that we distributed some money to the local farmers.” (Mr. TL, [supermarkets’ representative])

Mr. BC and Mr. TL both stated that modern traders were firmly confident that social enterprises and brokers have high incentive to sustained long-term cooperation and support. The other market channels, however, seem to have only short-term cooperation.

“The social enterprise channel (such as Royal Project) is one of our best business partners. I think the Royal Project has strong incentive in sustaining long-term cooperation. We are confident that Royal Project will never shut down and will always be our best organic/pesticide-safe products supplier. We are not sure how long the wholesalers and the farmer’s organization channels will be around.”

(Mr. BC, [supermarkets’ representative])

The social enterprise channel has the highest capacities and strongest incentives in supplying modern trade markets. The social enterprise channel offers distinct advantages in terms of its control of production and operation management as well as business cooperation within modern trade markets. It is followed in descending order of degree of capacities and incentives by the broker/supplier chain, farmer’s organizations, wholesalers/traders, and leading farmers, respectively.

6.2.3 Advantages and challenges associated with the modern trade chains

The development and expansion of modern trade emphasizes the advantages and challenges to small-scale farmers of getting involved in modern supply chains. (see Table 6.6). The summary was adapted from Reardon *et al.*, (2009) conceptual framework of farmers' decision to supply modern trade channels as discussed in Chapter 3 (sub-section 3.6.2). There are two sets of determinants for farmers to supply to modern trade channels. These two determinants are *incentives* and *capacities* (Reardon *et al.*, 2009:p. 1720). This study used producing and supporting determinants as *capacities* indicators. *Incentives* indicators were divided into two groups; marketing and pricing factors (see Table 6.6).

Table 6.6: Advantages and challenges of small-scale farmer participation in the modern trade chains

	Advantages		Challenges
Capacity	Production	<ul style="list-style-type: none"> • Allowance of better production and delivery planning (which meets the modern trade requirements) • Long-run and all year-round production • Input and/or credit as well as subsidies are provided (almost) 	<ul style="list-style-type: none"> • Need of extra investment (sometimes) • Need of good management skills • Ability to meet more exacting quality and safety standard requirements
	Supporting	<ul style="list-style-type: none"> • Information about demanded products • Learning curve • Improvement in technology and knowledge management skill (Training) • Payment mechanism that allows savings/better financial management 	<ul style="list-style-type: none"> • Payment mechanism, especially at the beginning of the relationship (lateness of payment or 15-30 days credit)
Incentives	Marketing	<ul style="list-style-type: none"> • Guaranteed market for contracted products • Continuous and stable demand 	<ul style="list-style-type: none"> • Grades and standards required (sometimes including high cosmetic standard) • Risks of product rejection • Frequency and times of deliveries • Risks of losing market share (total or partial) for lack of compliance
	Pricing	<ul style="list-style-type: none"> • Higher average prices (most products have to be graded and meet the standards) • Stable prices 	<ul style="list-style-type: none"> • Better prices at the traditional market (sometimes) • Decision making power of buyer

Source: Diagrammatic representation of interviews

Production

Most participant farmers in focus group discussions mentioned the advantages of participating in modern supply chains. When asked, several farmers such as, Mr. Somchai, Mr. Mana, Mrs. Sommai, Mrs. Phakuan, and Mr. Jai most commonly stated that better production and delivery systems and subsidies were important advantages.

“They provided us some needed production all year long. Sometimes, at no cost.”
(Farmer 01P, [participant farmer])

“We don’t have to worry about the delivery schedule anymore since they are the ones who provide the delivery schedule. We just stick to that schedule and everything will be fine.” (Farmer 04P, [participant farmer])

Mrs. Phakuan also mentioned that modern trade chains allows for better production and delivery planning which help to fulfill the modern trade requirements.

“I think modern trade chains helped me improve a lot of production and marketing activities, especially in long-term planning and achieving modern trade markets’ requirements.” (Farmer 05P, [participant farmer])

Several participant farmers, such as Farmer 02P, Farmer 03P, and Farmer 04P stated that small-scale farmers can face many challenges in producing for modern trade chains, especially small-scale farmers who lack key assets for production like irrigation systems, and management skills.

“Several small-scale farmers faced many problems in producing for modern trade chains. They continuously lack key assets, they lack good marketing and management skills, and they lack an ability to meet more exacting quality and safety standard requirements.” (Farmer 02P, [participant farmer])

The following farmers also referred to the challenges faced by small-scale farmers participating in the modern supply chains.

“We never thought we would need such management skill to run our work, but we realize that modern trade chains prefer to trade with farmers whose farm’s management is standardized.” (Farmer 04P, [participant farmer])

“You may think that if we just stick to their advice on production, the product we planted would have the quality they want. In fact we found it’s not enough. It’s still hard to get the exact standard they require”. (Farmer 05P, [participant farmer])

The challenges faced by farmer participants lead them to seek appropriate direction to solve the problem and the social enterprises step in as an intermediary or organisation to help them to be able to cross their trouble hedge successfully.

Supporting

Many farmer participants such as, Farmer 02P, Farmer 01P, Farmer 03P and Farmer 04P acknowledged the advantages of support from modern trade chains. Farmer 01P agreed with Farmer 03P and stated that modern trade chains provide support in the form of information about products, and technology and farm management skill training. This support helps small-scale farmers develop their production and marketing systems.

“Modern trade chains help me to enhance the planning of my production and marketing activities. For example, I can plan dates of planting, harvesting, delivering, and understand my expected cash flow.” (Farmer 01P, [participant farmer])

Many of the participant farmers commented that modern trade markets’ support helped them to improve their technology knowledge and management skill. It also enabled them to be better financial managers.

“In the past, operation of my farm was labor intensive because I lacked the knowledge to apply technology. But right now, I can use less number of workers because of the technology improvements provided by modern traders.” (Farmer 07P, [participant farmer])

“Since I’ve traded with them, I have followed their advice and I am doing my own basic accounting. I found it’s a lot better for my savings since my money flow is now visible.” (Farmer 09P, [participant farmer])

Participant farmers reported that payment mechanisms, especially at the beginning of a relationship were an important challenge to them. Several participant farmers stated that small-scale farmers who do not have much of a budget may be dissatisfied and motivated to “side-sell” products to obtain immediate cash. In modern trade chains, however, farmers normally receive their payment by check or money transfer in two to four weeks after delivering their products to the market. Some participants, such as Farmer 07P [participant farmer] and Farmer 09P [participant farmer] stated that this is a limitation, especially for small-scale farmers, who are in the modern trade chain because of their urgent need for operating capital.

“We were satisfied with the price we received from them, but they usually pay us between 10-15 days after the trade is done. Sometimes, this is a hardship.” (Farmer 07P, [participant farmer])

“I know that the modern trader would not cheat on me. But 15 days for payment is too long for small-scale farmers. I need that money to run my farm”. (Farmer 09P, [participant farmer])

Nevertheless, most participant farmers accept and understand the rules which, in the long run, help them to plan their budgets in advance for long-term production. Some participant farmers stated that this payment mechanism allows them to save money since they will receive money from several deliveries at once.

Marketing

The incentives of small-scale farmers participating in the modern trade chains can be divided into two categories: those related to marketing incentives, and those related to pricing incentives.

There were numerous participant farmers such as Farmer 06P [participant farmer] and Farmer 07P [participant farmer] who discussed the advantages of the marketing incentives enjoyed by participating in modern supply chains. Farmer 09P [participant farmer] stated that the goals of the modern trade markets are to have an order for a product all year-round, to guarantee a market for contracted products, to continually meet consumer demands, to allow farmers in modern trade chains to enjoy a relatively continuous and stable demand for their products throughout the year, and to allow them to permanently produce, instead of producing seasonally, as farmers in traditional markets do.

“I really enjoy a continuous and stable demand of my products throughout the year.” (Farmer 09P, [participant farmer])

The following participant farmers also spoke in support of marketing incentives and the results of a stable demand and a guaranteed market for their products.

“I don’t have to worry about where to sell my products anymore since the modern traders agree to take responsible for that.” (Farmer 07P, [participant farmer])

“We used to decide what to plant based on the price from the year before and take the risk of market demand. But now, we have less risk since we planted by following their research and guidelines.” (Farmer 06P, [participant farmer])

On the other hand, some participants such as Farmer 01P, [participant farmer], Farmer 02P, [participant farmer] and Farmer 04P, [participant farmer] commented on the risks, negative aspects and the challenges of small-scale farmers participating in the modern trade chains. Such risks included product rejection and the risk of losing market share for failing to comply.

“I usually have some difficulties in terms of quality. High cosmetic standards have resulted in the risk of my product being rejected. So, I am very worried about losing the contract.” (Farmer 01P, [participant farmer])

“Although we do everything they advise, our products still have a chance of getting rejected by the modern trader.” (Farmer 02P, [participant farmer])

“It’s good for us to just follow the delivery time on their schedule. But sometimes it’s too frequent and we cannot respond appropriately.” (Farmer 04P, [participant farmer])

In modern trade market chains, farmers get feedback about their products. They receive recommendations for production, post-harvest, grading and packaging. These recommendations help them to improve the quality of their product and/or reduce unitary costs. Several participant farmers, such as Farmer 02P [participant farmer], Farmer 03P [participant farmer] and Farmer 05P [participant farmer] agreed and stated that the percentage of products rejected by modern trade markets due to grade and quality standards is reduced throughout the years.

“In my experience, I found that the percentage of products rejected due to modern trade standards and requirements is usually reduced throughout the years.”
(Farmer 02P, [participant farmer])

In summary, information from focus group discussions indicates that the risk of product rejection in the modern supply chain is one of the main reasons that small-scale farmers are discouraged from entering and/or staying in this marketing system. Rejected products have to be channelled to alternative markets where the price is typically low.

In addition, some modern trade buyers recommend use of ‘Good Agricultural Practices (GAP)’. Use of GAP implies the use of input about and implementation of practices harmless to humans and the environment. On the other hand, in the traditional market, grades and standards are not important. All products can be sold without being graded. This encourages farmers, especially farmers lacking knowledge and the capacity to meet the requirements of the modern trade chains, to sell in the traditional market. The frequency of delivery and the collection of receivables required by modern trade markets are challenging to small-scale farmers. In traditional markets most middlemen collect the product. Most farmers selling to modern trade chains need to transport their products to the market or to the buying point themselves, without the help of a middleman.

The following participant farmer also referred to the challenges of participating in modern trade chains.

“Many participant farmers, especially farmers lacking the capacity to meet modern trade requirements, decide to resign from modern trade chains. They can then sell their products without quantity or quality control in the traditional market chains.”

(Farmer 05P, [participant farmer])

Pricing

With regard to incentive from pricing in modern trade chains, several participant farmers such as Farmer 01P [participant farmer], Farmer 07P [participant farmer], and Farmer 08P [participant farmer] stated that pricing in modern trade chains was presented as an important factor that encouraged small-scale farmers to participate in modern trade chains.

“From my point of views, I think there are many determinant factors of participating in the modern trade chain. However, I believed that pricing is one of the most important factors in encouraging farmers to participate in modern trade chains.”

(Farmer 08P, [participant farmer])

Farmer 02P [participant farmer] agreed with Farmer 04P [participant farmer]. They also pointed out that prices in modern trade chains are characterized as being more stable, thereby permitting farmers to forecast expected returns. This helps them to plan activities. Additionally, prices in modern trade chains are usually higher than average prices paid in the traditional markets (depending on grade and standards) which result in better profit margins for participating farmers.²² The participants commented about the benefit they received that:

“I think most participant farmers can get more benefit and a higher profit margin than non-participant farmers. Modern trade chains usually offer a higher and more stable price than the average prices paid in the traditional market chains.” (Farmer 02P, [participant farmer])

However, some participant farmers commented on the possibility that prices in a traditional market may be higher during a short season of a particular year. This would cause contracted farmers

²² This is based on interviews with farmers, and therefore no quantitative data is available for verification.

without a large budget to be motivated to ‘side-sell’ their products to traditional market to obtain immediate cash payment, instead of delivering to the modern trade chain as set in their contracts.

...(Talking about comparing prices in traditional markets) “Sometimes prices in traditional markets may be higher than modern trade market and this will cause ‘side-selling’ by participant farmers who do not have a large budget.” (Farmer 05P, [participant farmer])

Nevertheless, some participant farmers believe that farmers recognize that these short-term benefits of “side-selling” usually result in long-term losses if they lose, totally or partially, the guaranteed market in the modern trade chains as a sanction imposed by buyers. So, there is no point in stopping the supply to modern trade markets.

“Sometimes when I hear that other farmers are selling their products in traditional market and claim in a better price than mine, to best honest, I’m a little worried about this loss.” (Farmer 01P, [participant farmer])

Whilst, another participants explained similarly that

“Since I traded with the modern trade markets, I never suffered from an unstable price in the market. The price we contracted for enabled us to avoid a fluctuating price in the long-run.” (Farmer 03P, [participant farmer])

6.2.4 Principle characteristics of small-scale farmer’s participation in the differences market chains

Additionally, some interesting issues were also raised during the focus groups and in-depth interviews. These issues were related to the differences of principle characteristics of small-scale farmers’ participation in different market chains. These characteristics affected the level of farmers’ advantages in each of these chains. Table 6.7 summarizes these characteristics.

The summary of principal characteristics of small-scale farmers was produced based on the study’s conceptual framework for the farmer’s decision to supply to the modern trade channel. This conceptual framework was adapted from the conceptual framework developed by Reardon *et al.* (2009). The principle characteristics in this framework were divided into four main categories, namely producing, supporting, marketing and pricing characteristics. It must be noted that the information in Table 6.7 can provide very useful information that support the statements in sub-section 6.2 (Table 6.5 and Table 6.6).

The differences in principal characteristics of small-scale farmers found in the present study were compared to five modern trade chains (through leading farmers, wholesalers/trader, brokers/suppliers, farmer's organization (e.g. cooperative), social enterprises) and also traditional market chain. To do this comparison, the study explained the characteristics of small-scale farmers based on producing. Then, it discussed the characteristics of small-scale farmers based on supporting, and marketing issues. Finally, the study compared the different characteristics of small-scale farmers based on pricing system issue.

Production

This study divided the producing issue into five categories as contractual, farm size, inputs/capital, production knowledge, and production planning. Regarding the discussions in the focus groups, many farmers mentioned that all modern trade chains were using contractual farming system. Nevertheless, most of their contracts were informal contracts (e.g. handshake or verbal contracts).

Social enterprise was found to be the only channel that used 100 percent formal contractual system with small-scale farmers. Participants, such as Farmer 02P [participant farmer] and Mr.RP [social enterprise representative] talked about contract farming as follows.

“Every farmer has to sign an official contract farming with the Royal Project (social enterprise) every year.” (Farmer 02P, [participant farmer])

The farmer participant explained the relationship between farmers and the Royal Project that they have a close relationship as the contract has to be signed every year and by every farmer. Mr. RP, from the social enterprises, added that:

“The Royal project preferred to use official contract farming systems with participant farmers. This system is very convenience and useful in supporting or providing them subsidies.” (Mr.RP, [social enterprise representative])

Many small-scale farmers participated in wholesaler/trader and broker/supplier chains using informal contractual systems. This study found the farmers' negative attitudes towards their contractual systems as demonstrated in the following excerpts:

“We do not want to sign any contracts with buyer. We prefer a direct sale of our products in traditional market chains.” (Farmer 07NP, [non-participant farmer]). ...
“I do not have any formal contacts with brokers/suppliers, but I am satisfied with their informal contact system.” (Farmer 04P, [non-participant farmer])

The different farm size is one of the interesting principle characteristics of small-scale farmer's participation in difference market chains in this study. Several participants referred to their personal experience as they said:

"I think that farmers who have small farm size are more suitable in participating in the social enterprise schemes, and also in the farmer's organizations (e.g. cooperative). On the other hand, farmers who have a large farm sizes could be more suitable under the broker/supplier and wholesaler/trader chains." (Mr.J, [broker])

Another farmer participant explained similarly and supported to Mr. J as the broker to the organization that:

"Because my farm size is very small, I usually get a small amount of total products. So, I prefer to produce and sell in the traditional market chains. In traditional market chain, they do not control quantity as well as quality standards." (Farmer 02NP, [non-participant farmer])

Many participants were of a similar opinion. They agreed and supported that the characteristic of farm size could be one of the important factors which had a significant role in farmers' decision making in participating with modern trade chains. Some farmers in this study commented that they might face some problems with social enterprise schemes if they had a large farm size because social enterprise would control the producing and marketing systems (such as volume/ timing).

"It is not easy for me to participate in the social enterprise scheme under the official contract farming system due to the fact that my fame size is quite large. It is very difficult to follow their quality and quantity control systems." (Farmer 03NP, [non-participant farmer])

"Social enterprise will inform us what and how many they want to buy in this cropping season. Then, we just grow what they want." (Farmer 01P, [participant farmer])

Production planning was also found to be important to farmer's decision marking in participating in the modern trade chain in the present study. This point could be illustrated by the farmers' description of their production plans in different systems.

"I prefer to use a long-run production planning system under social enterprise scheme in order to reduce risks of unstable market demand." (Farmer 07P, [participant farmer])

“I think short-run production plan under traditional market chain is more suitable for me due to the fact that my product is not large amount. I can sell all of them in the traditional market chains.” (Farmer 04NP, [non-participant farmer])

While talking about production knowledge, some participants showed a good knowledge of farming and marketing systems about how all channels in modern supply chains operated. This knowledge is not required in the traditional market chain.

“Farmer’s participating in the traditional market chain can only use principle knowledge (based on experience) in farming and marketing systems which totally different from modern trade chains. Most modern trade farming systems are required to apply many activities in farm management.” (Farmer 10P, [participant farmer])

“I really appreciated that social enterprise provided many training programs in order to improve our knowledge in farming and marketing systems. These training programs help farmers in many ways, such as farm planning and marketing improvement...” (Farmer 05P, [participant farmer])

Supporting

The study found that all modern market chains provided inputs, capital credit to farmers. Nonetheless, farmers in leading farmer channel and wholesaler/trader channel only have a limited access to inputs and capital credits. On the other hand, traditional market chain does not provide any inputs or capital credits. Some participants expressed their concerns about the inputs and credits supporting, when asked what they were supporting from buyers:

“We can have an access to inputs, capital credits provided by traders, but it is limited.”
(Farmer 07P, [participant farmer])

“I decided to participate in the brokers/suppliers chain because of accessibility in inputs and capital credits they provided.” (Farmer 02P, [participant farmer])

Many participants in the modern trade chain acknowledged that supporting systems were quite similar in modern trade chains in relation to market information and managerial skills trainings. The farmers in brokers, wholesalers, and social enterprises channels received supports in forms of marketing

information and training programs. These supports helped them improve their farming system and marketing systems. Some traders stated about their supporting systems:

“Royal Project provides marketing information and training programs for all participant farmers in order to help them improve their farming and marketing systems.” (Mr.RP, social enterprise representative)

The following participant farmer also pointed to the concept of supporting in marketing information from wholesalers/trader chains:

“Well, I don’t know much about market information. I only know the current price of product that I would sell from both buyer and others seller.” (Farmer 02NP, [non-participant farmer])

Several participants mentioned that a supplement (e.g. supplements from Fair Trade system) was also an important factor that influenced small-scale farmer’s decision to participate in modern trade chain.

“We received appropriate supplements from Green Net (social enterprise) because we are a group of farmers who produce organic products in Fair Trade system”. (Farmer 05P, [participant farmer])

“Because I am a small-scale farmer who has less capacity in negotiation with buyers, I decided to participate in the social enterprise scheme to get a better price from Fair Trade system (supplementary).” (Farmer 09P, [participant farmer])

The findings indicate that participants in the modern trade chain received supporting systems similar in modern trade chains in relation to market information and managerial skills trainings. The farmers in brokers, wholesalers, and social enterprises channels received supports in forms of marketing information and training programs as discussed previously. The next section discussed on marketing in the small-scale farmers.

Marketing

The principle marketing characteristics of small-scale farmers participating in all modern trade chains are similar in terms of their application of quality standards and grading requirement. Participants, such as Farmers 05, 04 and 02, commented on these quality standards and grading requirements in their focus groups with them.

“They guaranteed to purchase our products as long as it can be met with the agreed standard.” (Farmer 05P, [participant farmer])

“I am willing to continue my contract farming with modern trade markets even though I sometimes faced some difficulties regarding quality standards and grading conditions. They guaranteed purchase.” (Farmer 04P, [participant farmer])

“We can never be sure whether our products could be sell at the modern trade market or not. The modern trade buyer always set their own quality standards.” (Farmer 02P, [participant farmer])

Moreover, several participants mentioned that delivery terms and demand condition were required in the participation in modern trade chain. They guaranteed purchase if the product reached modern trade standards.

“We never faced with a situation of demand fluctuation. They guaranteed us the quantity they wanted which a little high. But, since we never disappointed them, the demands they set for us are very stable.” (Farmer 05P, [participant farmer])

“I decided to trade with brokers instead of others chains, so I need to choose only broker who has a good managerial system who can help me to produce a high quality products.” (Farmer 04P, [participant farmer])

In summary, the findings indicate that delivery terms and demand condition were required in the participation in modern trade chain and have impacts on marketing in the small-scale farmers. The following section discussed on pricing in the small-scale farmers.

Pricing

The study also found that most modern trade chains offered a good price but it is unstable. Despite this, several participants expressed their willingness to sell their products in the markets.

“The price that brokers/suppliers offer us is a lot better than what we used to receive when trading in traditional markets. Anyway, their price is unstable.”
(Farmer 01P, [participant farmer])

“They guaranteed purchasing price as long as our products can meet with the standards they set for us.” (Farmer 02P, [participant farmer])

In contrast, farmers in wholesaler chain commented that guaranteed purchase and delivery terms of wholesaler were exactly the same with lead farmer, except that they got a price guarantee from the modern trader. The farmers also moaned about the very high demand conditions set by these traders.

“They guaranteed us the price within the range, but it’s doesn’t means we will always get a good price. Some was great but some also worse.” (Farmer 04NP, [non-participant farmer])

“Their demands on our products are averagely very high. Sometimes we even cannot response all orders on our hand. But also sometimes we need to find another market to sell in lower price because their demand is less than our expected.”
(Farmer 06NP, [non-participant farmer])

In summary, it was found from the analysis of the in-depth interviews and focus groups in this study that the modern trade chains (especially, social enterprise channel) provide more benefits for small-scale farmers when compared to traditional market chains. Nonetheless, small-scale farmers can not immediately change their market channel due to the limitations including their operation characteristics as well as market’s standards and requirements among each chain. For example, social enterprise channel seems to offer distinct advantages in terms of marketing and pricing supports, but it does not mean that this channel is suitable for every farmer (e.g. especially for large scale farmer).

The advantages of social enterprise scheme, the development and roles of social enterprises and small-scale farmers in Thailand are explained in the next section.

Table 6.7: The differences in principle characteristics of small-scale farmers' participation in the differences market chains in Thailand

Issue	Traditional market chain	Modern trade chains				
		Through leading farmers	Through wholesalers/ traders	Through brokers/ suppliers	Through farmer's organizations	Through social enterprise schemes
Production: - Contractual* - Farm size - Inputs, capital - Production knowledge - Production plan	- No - Small/large - Personal capital and informal lenders - Limited knowledge - Short-run	- Yes (informal contract) - Small (share cropping) - Personal capital - Good knowledge based on experience - Short-run	- Yes (informal contract) - Small/large - Personal / traders provide capital and/or input - Good knowledge based on experience - Short-run	- Yes (formal/informal contract) - Small/large - Company provide capital and/or input - Good knowledge based on experience and/or training - Long-run	- Yes (formal/informal contract) - Small - Organization provides capital and/or input - Good knowledge based on experience - Short /Long-run	- Yes (formal contract) - Small - Social enterprise provides capital and/or input - Good knowledge based on experience and/or training - Long-run
Support: - Input, capital credit - Managerial skills Training - Supplements ²³ - Market information	- No access - No - No - No access	- Access but limited - No - No - No access	- Access but limited - No - Low - No access	- Access - Yes - Low - Access but limited	- Access - Yes/No - Appropriate - Access but limited	- Access - Yes - Appropriate - Access

²³ For example supplements from Fair Trade system. Note: *Contract farming system in this study included both of formal and informal (i.e. handshake or verbal) contracts.

Table 6.7: The differences in principle characteristics of small-scale farmers participation in the differences market chains in Thailand (Cont')

Issue	Traditional market chain	Modern trade chains				
		Through leading farmers	Through wholesalers/ traders	Through brokers/ suppliers	Through farmer's organizations	Through social enterprise schemes
Marketing: - Use of quality standard - Grading - Delivery and logistics - Managerial skill - Demand conditions - Guaranteed purchase - Delivery terms (Volume/timing)	- No - Not required - Self delivery or by buyer - Lack - High but unstable - No - Not required	- Yes - Required - Self delivery or by lead farmer (from farm to lead farmer's house) - Lack - Low and unstable - Yes - Required	- Yes - Required - Self delivery or by buyer (from farm to markets) - Lack - High but unstable - Yes - Required	- Yes - Required - By buyer (from farm to buying points/distribution centre) - Good - High and stable - Yes - Required	- Yes - Required - Self delivery (from farm to buying points) - Lack - High but unstable - Yes/No - Required	- Yes - Required - Self delivery or by social enterprise (from farm to buying points) - Lack - High and stable - Yes - Required
Pricing: - Price conditions - Guaranteed price	- would be at minimum and unstable - No	- would be at/over average market price but unstable - No	- would be at/over average market price but unstable - Yes	- would be over the average market price and quite stable - Yes	- would be over the average market price but quite unstable - Yes/No	- would be over the average market price and quite stable - Yes

Source: Diagrammatic representation of interviews

6.3 Social Enterprises and Small-scale Farmers in Thailand

Social enterprises play an important role as an agri-food supplier in the modern supply chain, especially in the organic and pesticide-safe products market. In recent years, a number of social enterprises have worked in agri-business sectors, as shown in Table 6.8. This study found that there were three main forms of social enterprises working in agribusiness sectors in Thailand; cooperative companies (marketing cooperative), community enterprises (foundations and NGOs'), and community interest companies. Alter (2006) points out that social enterprise can be grouped into two main models; 'embedded social enterprise' and 'integrated social enterprise'. (Chapter 2, Section 2.4). The Green Net is an example of an embedded social enterprise in a cooperative company form. The Royal Project is an integrated social enterprise in a community enterprise form.

This study also found differences among operation models of agribusiness social enterprises in Thailand. Most agribusiness social enterprises have two different main operation models in linking small-scale farmers with modern trade chains: 'market intermediary model' and 'input/service subsidization model'. The social enterprise 'market intermediary model' usually acts as a marketing agency providing product development and market access assistance, and other services to small-scale farmers. The social enterprise 'input/service subsidization model' provides services for small-scale farmers, sells products to external markets, and uses the income it generates to fund its social programmes.

Though, there are not any official data on social enterprise issues or the role of social enterprises in Thailand, an analysis of the interviews and group discussions identified the main roles of social enterprises in linking small-scale farmers with modern supply chains. This study found that there are two main roles of social enterprise schemes in integrating small-scale farmers into modern supply chains. Fulfilling these roles is crucial for increasing profitability and stability of small-scale farming, thereby helping farmers have more sustainable production and long-term participation in the market.

First, a social enterprises increase the profitability of small-scale farmers. Social enterprises have lower transaction costs (guaranteed minimum price and market for the product), effective farming and marketing management systems, and better/fair price and financial support from supplements (e.g fair trade systems).all which benefit the small scale farmer.

Second, social enterprises provide inputs/credit, traning and managerial skills development support to help the small-scale farmers improve their participation, production and stability in modern trade chains A social enterprise scheme also increases the level of trust between farmers, organizations and the markets. These two roles of social enterprises will be further discussed in Chapters 7 and 8.

Table 6.8: Different forms of social enterprises in agricultural sectors in Thailand

Social enterprise form description	Social enterprise	Social enterprise business description	Source
<i>Cooperative Companies (Marketing Cooperatives)</i>	Green Net (GN)	Organic product producer and marketing agency for modern trade chains	www.greennet.or.th
	Thai Agri-business (TABCO)	Agricultural Marketing Cooperatives (AMC) business centre that supports cooperatives business operations such as providing farm inputs and services such as fertilizers, seeds, agricultural chemicals and farm machinery to AMC's members, gathering and selling agricultural produce domestically and overseas under the AMC brand	http://dbms.thailand.com
<i>Community Enterprises/ Foundations / NGOs</i>	Royal Project (RP)	Pesticide safe and organic fruit and vegetable producer and distributor	www.royalprojectthailand.com
	Doi Tung	Sustainable agriculture producer and distributor	www.doitung.org
	Phu Fah	Sustainable agriculture producer and distributor	www.phufa.org
	Grassroot Innovation Network (GIN)	Sustainable organic agriculture producer and distributor	www.gkpnet.org
	Institute for a Sustainable Agriculture Community: ISAC	Sustainable agriculture producer and distributor	www.isacnn.org
	Wangnamkheo Pesticide Safe Vegetable Grower Group	Pesticide safe vegetable producer and distributor	www.wangnamkheo.com
	Chaophaya Abhaibhubejhr Hospital	Health and beauty products and service distributor	www.elephanttrade.com
<i>Community Interest Companies</i>	Lemon Farm	Organic and pesticide safe agricultural product producer and distributor	www.lemonfarm.com
	Siam Green Farm	Hydroponic vegetable producer and distributor	www.siamgreenfarm.com
	Rural Capital Partners	Agricultural and food product vender and trader	-
	Udom Chai Farm	Free-range and organic egg farm	www.ploikai.com

Source: Author's compilation

In addition to increasing the profitability and stability of small-scale farmers, social enterprises help to establish sustainability of cooperation among small-scale farmers, social enterprise organizations and the business sectors in general. Social enterprises help to develop “national social product brands”, which are brands named after important national symbols (Farmer 07P, [participant farmer]), such as the Royal Project brand in Thailand that became well-known in domestic markets. The Royal Project brand attracts domestic consumers who tend to feel that buying the product means supporting the country’s economy and the beloved King of Thailand. In this case, social enterprises help to improve market reputation of the products as well. Furthermore, profitability and stability entail sustainability which in turn helps improve profitability and stability. It is a self-perpetuating system (see Table 6.5).

6.3.1 Agribusiness social enterprises in Thailand

This sub-section explains the agribusiness social enterprises used as case studies in this study.

6.3.1.1 Green Net

Green Net (GN) is a ‘cooperative company form’ social enterprise that has become one of the largest organic and fair trade wholesalers in Thailand. According to its official website (Green Net)²⁴, there are over 20 different product types (e.g. organic rice [majority product], vegetables, fruit, teas, honey, sesame seeds) sold through GN and distributed to approximately 40 retail outlets in Bangkok and surrounding countries. GN has also exported its services to help producers with market access overseas. The main export product is organic fair trade rice which is sent to European fair trade groups through the European Fair Trade Association (EFTA) (ibid.). The organic and fair-trade project is being certified for organic production by the IFOAM – accredited Organic Agriculture Certification Thailand (ACT). Over 300 tons of organic rice are annually exported to fair trade networks in Europe (e.g. Switzerland, Belgium, Germany, France, Italy, Austria, and Sweden) and Asian countries. (ibid.).

²⁴ Available at <http://www.greennet.or.th/e0000.htm> [Accessed January, 2010]

Green Net was established as a cooperative in 1993. Its goal is “To serve as marketing channel for small-scale organic farmers with fair trade principles in its marketing activities” (ibid.). Their objectives are:

1. to promote an organic way of life through marketing and producing high quality organic and natural products;
2. to conduct trade with fair prices for producers and buyers;
3. to develop a campaign for the environment and fair trade;
4. to be a model organization of “social enterprise” and to encourage other business bodies to be more concerned with consumer safety, environment conservation and social responsibility (for further information on Green Net, see www.greennet.or.th)

Green Net membership and supply chain management systems

Green Net members are small-scale organic farmers in farmer groups/organizations and consumers who are interested in organic products. Table 6.9 below summarizes GN’s organic producers. Most organic producers are farmer groups in the North-eastern, Northern and Central regions of Thailand. The majority of them are organic rice producers in Yasothon, a province located in North-eastern Thailand.

There are a number of membership requirements for GN participation. Farmers who want to be GN members have to be small-scale farmers and be willing to produce agricultural products using an organic farming system. All crops in their land must be produced using an organic system. In addition, they must attend an organic training programme organized by GN before they can become a GN member. Member farmers are stakeholders in both farmer groups/organizations and GN. However, farmers do not need to pay a membership fee for GN membership, only the GN stakeholder fund cost (share).

Farmer groups/organizations and GN work together in production, marketing and planning for the members before the growing season each year. The farmer groups/organizations provide production inputs and potential credit sources for the members. GN, on the other hand, provides technology for/and skills development. Before growing season, member farmers have to forecast and report to the farmer groups/organizations the amount of their expected production and total output. The farmer groups and GN will then make an agreement, or a contract. Each year, GN arranges a predetermined price for the crops, generally established during the negotiations of the farming contract and before farmers grow. The farmers receive more benefit from such a fair trade agreement which helps them to get a fair and better price. It usually takes farmers 1 to 3 years as members in an organic farming system before they become fully organic producers. Member farmers have to follow the organic

production system and maintain farming records which are normally checked by the GN's staff every month.

Furthermore, even though chemical pesticides and fertilizers are not allowed to be used in organic farming, farmers are allowed to use organic pesticides and manure. The organic standards and certification are approved by Organic Agriculture Certification (ATC) accredited by IFOAM.²⁵

Table 6.9: Green Net's producers

Province	Organization/ Group of farmers	Product	Organic standard	Farmer (Household)	Cultivated area (Rai)
1.Yasothon	Nature Conservation Club	Organic rice	Yes	225	6,457.75
	Bak Rua Famers Group	Organic rice	Yes	212	5,393.05
	Ruang Nok Ta Agricultural Cooperative	Organic rice	Yes	77	2,127.03
2.Khon Kean	Mulberry Organic Agriculture Development Group	Mulberry, silk	Yes	13	46.53
3.Chiang Mai	Pattana Agricultural Cooperative	Soybean	Yes	11	85.13
	Mae Tha Sustainable Agricultural Cooperative	Baby corn, Longan	Yes	107	617.48
	Sustainable Agriculture Network	Rice, soybean	(in process)	11	63
4.Chachoengsao	Sanarmchaiyakate Organic Farming Group	Organic rice	Yes	40	566.25
	East's Forest Network	Fruits and vegetables	No	n/a	n/a
5.Prachin Buri	Ban Dong Bank Herbal Group (joined with Abhaibhubath Hospital Foundation)	Herbs	Yes	13	235.25
6.Prachuapkhiri khan	Bangsaphan District Organic Farming Development Group	Coconut	Yes	25	718.84
7.Loei	Organic Cotton Producer Group	Cotton	No	n/a	n/a
Total				734	16,310.31

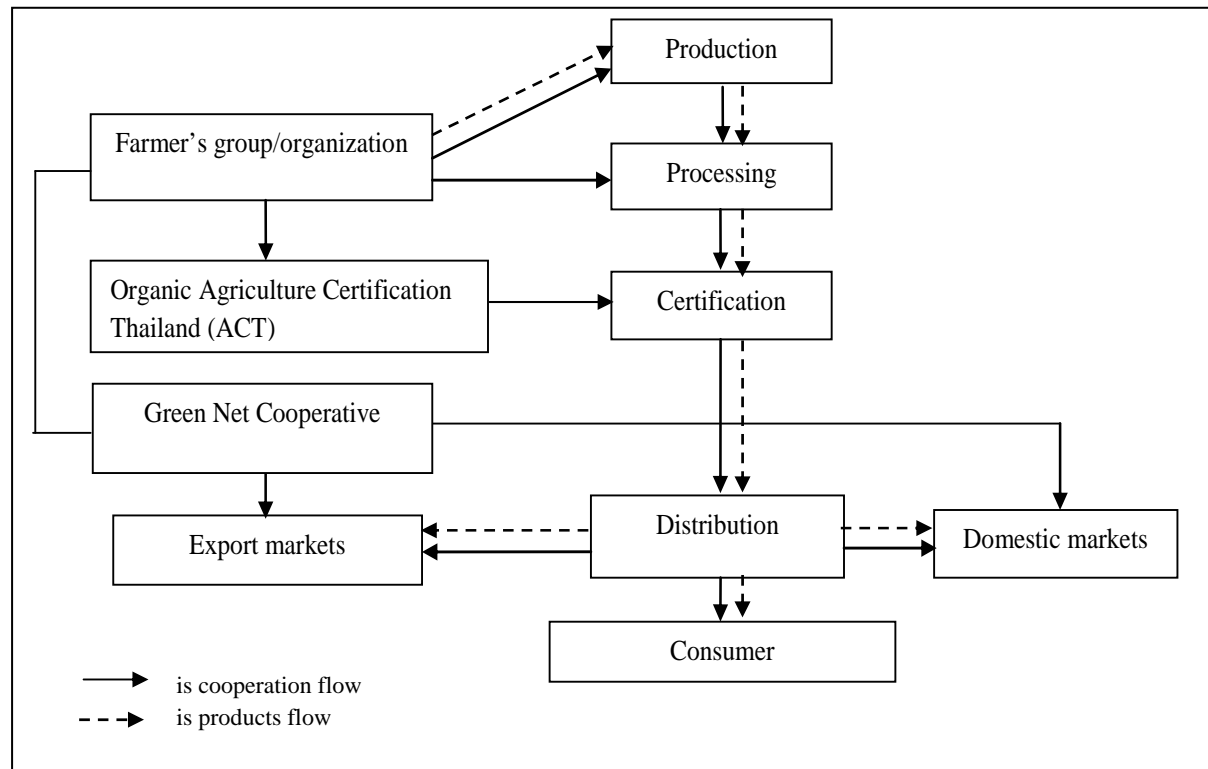
Source: Green Net (2009)

GN's supply chain and management systems are summarized in Figure 6.3. Figure 6.3 shows the linkages and interactions between GN and member farmers as well as other organizations in the chain. This study found that most organic rice farmer organizations had their own rice mills. Thus, rice processing went through cooperative/farmer organizations. It is noted that farmers are expected to sell 100 percent of their total output to GN. However, they are allowed to keep some rice for their own consumption and for seeding. Then, the cooperative/farmer organizations sell their produce to GN.

²⁵ Available at www.greenet.or.th [accessed January, 2010]

GN acts as a marketing agent for farmers pursuant to a fair trade system. Member farmers usually receive a higher price (about ten percent higher) than non-member farmers. Moreover, at the end of the year, the member farmers received additional money from GN according to fair trade system.

Figure 6.3: Green Net supply chain management systems



Sources: Author, based on interviews and Green Net reports

Benefits/Support from Green Net

The information from interviews and surveys show that GN provides many resources to support member farmers to help them develop their farming and marketing systems. The benefits and support are summarized in Table 6.10 below.

Table 6.10: Benefits/support from Green Net

	Parameter	Potential Benefits/Support from Green Net
Production	Access to technology and skill development	GN arrangements often facilitate the introduction of new production and farm management techniques, especially organic production and farm management systems. GN also provides further measures that are served to upgrade agricultural commodities which include training and assistance in crop production, soil and water management, farm recording system, and farm management to support the organic certification. Apart from straightforward technology and skills development, the farmers can become astute in learning how organic markets work, how to manage farm account, and run their organic farm as business.
	Reduced production risk	GN arranges contract farming which facilitates risk sharing from production failures due to uncontrollable circumstances including disease or poor weather. Subsidies (for example inputs and cash subsidies) may also be provided to diminish risk during the start-up period.
Marketing	Reduced price risk	GN arranges a predetermined price for the crops, which is generally established during the negotiations of the farming contract and before farmers grow each year. This protects member farmers from incurring losses in sales due to price fluctuations. Moreover, member farmers can obtain benefits to reduce price risk through fair trade agreements which help member farmers to gain a fair and better price.
	Access to market	GN arrangements help link small-scale farmers to modern trade markets including international markets where the demand and price of crops are more favourable. In addition, GN arrangements serve to link member farmers to Fair Trade and International Institutions which help small-scale farmers to obtain better trading conditions and benefits.

6.3.1.2 Royal Project (RP)

The Royal Project (RP) was initiated by His Majesty King Bhumibol and was established in 1969 in the North of Thailand, (Please see more detail from the Royal Project official website).²⁶ The RP, a ‘community enterprise’ social enterprise model, has played an important role in developing and promoting quality of life for the highland farmers (Isvilanonda *et al.*, 2008). The development derived from the RP has turned household and community subsistence farming into commercial-based production. Currently, the RP is one of the most important suppliers to modern trade markets, especially for pesticide-safe and organic products in Thailand. The RP has developed small-scale farming using Good Agricultural Practice (GAP) while emphasizing quality and safety standards throughout the supply chain (*ibid.*). Production monitoring, grading and packaging and delivery and logistics systems all instil consumer’s confidence in RP’s products (Royal Project, 2010). This makes RP’s products different from other existing products in the market. RP has become one of the most important suppliers for both domestic and international markets.

The RP works in collaboration with many other organizations such as the Royal Thai government, universities, government offices, state owned enterprises, non-profit organizations, and public and private agencies including international organizations and foreign governments. The RP has five major objectives:

1. Offer a helping hand to all humankind
2. Ensure natural resources to conserve a sustainable future
3. Eradicate opium poppy cultivation and opium derived addiction problems
4. Encourage a wise and proper balance in utilising and conserving land and forest resources
5. Produce useful commercial crops (Royal Project, 2010)

In order to achieve these goals, the RP divides the structure and function of the project into four main divisions; Research, Development, Marketing, and Financial and Accounting. There are 4 research centres and 37 Agricultural Development Centres in five provinces in the North of Thailand (Chiang Mai, Chiang Rai, Lamphun, Phayao and Mae Hong Son Provinces). The Agricultural Development Centre is a main collaboration centre between farmers and the RP to support the RP’s production and marketing plans. There are 27 Agricultural Development Centres in Chiang Mai (72.79 percent), 6 centres in Chiang Rai (16.22 percent), 2 Mae Hong Son (5.1 percent), 1 centre in Phayao (2.70 percent) and 1 centre in Lamphun (2.70) (see Table 6.11).

²⁶ The Royal Project’s official website <http://www.royalprojectthailand.com/general/english/index.html>

The RP has 2,023.02 square kilometres of operation area, most of which is in Chiang Mai Province (78.83 percent). There are 26,174 household members in 257 villages in 5 provinces which are under 37 RP's development centres. Most farmers are in Chiang Mai (69.25 percent), Chiang Rai (16.27 percent), Lamphun (7.38 percent), Mea Hong Sorn (4.90 percent), and Phayao (1.51 percent) respectively (see also Table 6.11).

Table 6.11: Summary of the agricultural development centre, area, household and farmers under the royal project

Province	Development Centre (DC)	DC (%)	Area		%	Farmer	%	Household
			Square Kilometre	Rai				
Chiang Mai	27	72.97	2,023.02	1,257,015	78.83	88,652	69.25	18,203
Chiang Rai	6	16.22	319.71	199,856	12.53	20,833	16.27	4,184
Mae Hong Son	2	5.41	135.65	78,537	4.93	6,276	4.90	1,103
Phayao	1	2.70	56.04	35,026	2.20	2,812	2.20	388
Lamphun	1	2.70	38.54	24,088	1.51	9,449	7.38	2,269
Total	37	100	2,572.96	1,594,522	100	128,022	100	26,147

Source: Adapted from the Royal Project annual reports (unofficial report)

Royal Project membership and supply chain management systems

There are a number of membership requirements for farmers who want to become Royal Project (RP) members. The member farmers have to live in the RP project areas (most projects are based in the upland areas). Most farmers in the RP have their own land with special land rights called 'Sor Por Kor'. Under this land right control, farmers are only allowed to use their land for agricultural activities; they cannot sell or transfer the land to others. Farmers can apply for a membership and re-apply at any time without paying an application fee. They are not required to use all of their land to produce for the RP, however, this study found that most member farmers did use most of their land to produce for the RP. Member farmers are usually required to attend a training programme on good agricultural practice farming systems which is organized by the RP. In addition member farmers are required to follow the plot restrictions or production quotas provided by the RP. The RP's marketing and production divisions plan for who has to produce/harvest and when they have to harvest. . The RP provides seeds and some production inputs (according to quota) for member farmers. RP's quota depends on a farmer's class/grade which is determined by the RP based on criteria such as the farmer's experience, location, availability of land and water, quality of product, and logistics or

delivery management systems. Furthermore, the member farmers have to follow Good Agricultural Practice (GAP) and/or pesticide-safe production systems and are required to keep farming records. These records are checked by the RP's staff every month. Chemicals and pesticides used are also checked and reported by the RP's staff during the production period. Chemical and pesticide residual standards are checked by the RP's staff before farmers' harvest. Member farmers have to send sample products for chemical and pesticide testing. Sometimes RP's staff will visit and collect the sample... Harvesting is done after the sample product is certified by the RP. A harvesting permit is given by the RP two or three days before farmers harvest.

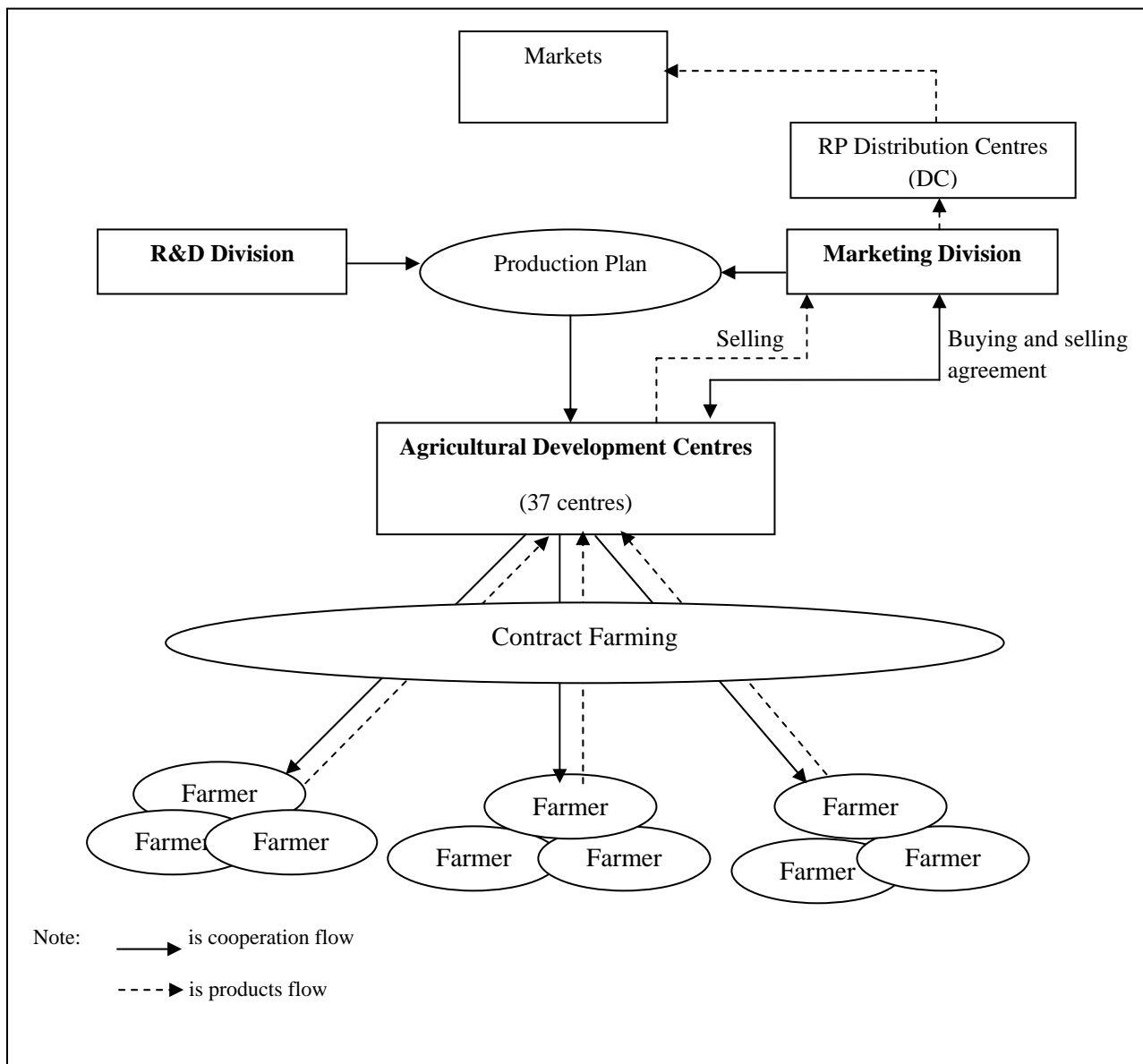
The RP's Agricultural Development Centre (ADC) plays as an important role in linking small-scale farmers to the RP's supply chain management system. The interaction between farmers and ADC in the production, collection, grading and packaging processes as well as delivery to the RP distribution centre is shown in Figure 6.4. The RP's ADC and Marketing Divisions work together on farmer production planning according to market demands. Then, the Marketing Division sets up the target amount of product and reports to the Agricultural Development Centres for future production supply. Member farmers receive their production quota from the ADC based on the farmers' performances in the previous year. They could receive some input/credit from the ADC as well as potential financial credit sources from the RP and RP's partners (e.g. Agricultural and Cooperative Bank).

The Marketing Division informs the ADC of the purchase price. Then ADC purchases the product from participant farmers based on the quota they received from the Marketing Division. ADC grades and packs the product after receiving it from the farmers. Then, ADC delivers the products to the Packing Centre in Chiang Mai.²⁷ The Packing Centre collects and checks the quantity and quality and reports to the Marketing Division. Then, the Marketing Division informs the Financial Division to pay money to ADCs in 3 to 15 working days.

The RP products are marketed under the brand name, "Doi Kham". They include fruit and vegetables which are listed as pesticide-safe products as a result of their production under the GAP and/or pesticide-safe systems. In addition, the RP's grading, storage, and delivery systems are under GMP, HACCP and CODEX standards to assure that the products are safe throughout the supply chain before distributing to markets.

²⁷ ADC delivery system, ADC normally uses their own transports such as trucks, pickup trucks and cool container trucks depending on distance, quantity and kind of product.

Figure 6.4: The Royal Project supply chain management



Sources: Author, based on interviews and the Royal Project reports

Benefits and support from the Royal Project

The Royal Project provides several kinds of support for member farmers to help them to develop farming and marketing management skills. The benefits and support are summarized in Table 6.12

Table 6.12 Benefits/Support from the Royal Project

	Parameter	Potential benefits/ Support from Royal Project
<i>Production</i>	Access to credit	The RP provides credit either in cash or in kind, that is, by providing inputs such as seeds and fertilizers for member farmers. In addition, the RP credit cost is lower than other sources (for example the RP interest rate is about 30 percent lower than that of the market interest rate).
	Access to technology and skills development	The RP's arrangements often facilitate the introduction of new production and farm management techniques (pesticide-safe production) and provide further measures which are served to upgrade agricultural commodities.
	Reduced production risk	The RP arranges contract farming to facilitate risk sharing from production failures due to uncontrollable circumstances including disease or poor weather. Subsidies (for example inputs and cash subsidies) may also be provided to diminish risk during the contract farming period.
<i>Marketing</i>	Access to market	The RP's arrangements serve to link small-scale farmers to modern trade markets including international markets. In addition, Royal Project arranges to link participant farmers to new agri-food market segments by growing useful crops which enable them to have a better price and expanding the market opportunity.
	Reduced price risk	Although the RP usually does not arrange a predetermined price for the crops during contract farming, the RP guarantees member farmers that they can get a higher price than traditional markets price. This protects member farmers from incurring losses in sales due to price fluctuations. The average RP price was about 10 percent higher than traditional market price.

6.4 Conclusions

This chapter presents a general overview of the retail food sector's transformation and the challenges faced by small-scale farmers in Thailand. In addition, social enterprises and their important roles in integrating small-scale farmers into modern trade chains in Thailand are also explored. It can be concluded that though the majority of agri-food is channelled through traditional markets, modern trade chains are expected to replace them and will continue growing because of the influence exerted by the local and international retail chains in the region. As a result of changes in the agri-food system, modern retail businesses have accelerated their expansion scheme to open more branches and new (mini) formats to try to gain a larger market shares. Modern trade chains are offering new market opportunities to farmers. At the same time, however, modern trade chains pose challenges to small-scale farmers because of the need for increased coordination and higher standards required by modern supply chain management systems.

Moreover, there are six main channels for small-scale farmers to use to gain participation in modern trade chains in Thailand; directly sell to markets, selling through lead farmers, wholesalers/traders, brokers/suppliers, farmers associations and through social enterprises. Currently, the social enterprise chain has increased its market share and is important in the organic and pesticide-safe product market. Furthermore, more small-scale farmers participate in the modern trade through participation with social enterprises than with any other modern trade chain. This study also found that social enterprise schemes have several significant roles in increasing the profitability, the stability and the sustainability of small-scale farmers' production and participation in the modern supply chains.

In the next chapter, the findings regarding the motivations and challenges as well as the impacts of social enterprise schemes in producing for modern trade chains, including participant and non-participant farmers, are presented and discussed.

GREEN NET CASE STUDY

EFFECTS OF PARTICIPATION IN SOCIAL ENTERPRISE SCHEMES ON SMALL-SCALE FARMERS

7.0 Introduction

Chapter 6 examined current issues in changing value chain and transformation in agri-food industry in Thailand. It argued that the development of global value chain and food retail transformation have created potential opportunities for small-scale farmers. However, there is concern that these farmers could be marginalised as value chain becomes increasingly complex and concentrated.

The previous chapter also hypothesized that the social enterprise helps small-scale farmers link with modern trade markets. Market linkages between small-scale farmers and modern trade through contract farming (both formal and informal contract systems) helps rectify market imperfections and coordination failures between producers and modern trade along the supply chains, enabling resource poor farmers to access markets, adopt better technology and upgrade farming and other skills with lower risks.

This chapter now analyses the impact on small-scale farmers of participating in social enterprise schemes including the motivations and challenges. This is based on two case studies, as noted previously. Within this context, the chapter addresses four research questions (RQ7, RQ8, RQ9 and RQ10) generated in Chapter 4.

The study has two case studies, *viz.* Green Net and Royal Project. This chapter is devoted for Green Net (GN) case study and consists of five sections. Section 7.1 explores the characteristics of farmers and level of participation in the GN scheme. Section 7.2 discusses the impacts on small-scale farmers of participating in the GN scheme in producing for modern trade markets. This section applies the framework developed in Chapter 5 to assess the benefits to farmers.

7.1 Characteristics of Farmers Participating in Green Net Scheme

In this section, the characteristics of the studied farmers according to their participation in Green Net in producing for modern trade chains are presented and discussed. Farmers are sub-divided into two groups; one is organic rice producers who have Green Net (social enterprise) membership in producing for modern trade chains. The other is conventional rice producers who do not have Green Net membership and selling to the traditional markets. This section and the next one are based on the survey of farmers from Yasothorn Province, who are small-scale farmers (see Chapter 5 for details on survey methods).

7.1.1 Socio-economic characteristics of respondents

This case study is made up of 50 percent of the entire sample, comprising sixty (50 percent) each of participant farmers who grow organic rice for Green Net and non-participant farmers who grow conventional rice for traditional markets. They were drawn from two districts; Naso and Bak Ruea Districts, Yasothorn Province, as shown in the Table 7.1.

In the case of gender, males account for a higher proportion (78.03%) of the total sample size with female constituting 21.30% (Table 7.1). However, while the proportion of female participating in the modern channel is higher (in excess of 3 percent) than those selling to traditional markets, fewer male producers (up to 3.30 percent less) sell to the modern channel than those selling to the traditional channel.

Table 7.1: Distribution of respondents by district and gender

Market Channel	District		Total
	Naso	Bak Ruea	
Traditional	30 (25.00%)	30 (25.00%)	60 (50.00%)
Green Net	30 (25.00%)	30 (25.00%)	60 (50.00%)
Total	60 (50.00%)	60 (50.00%)	120 (100.00%)
Market Channel	Gender		Total
	Male	Female	
Traditional	49 (40.80%)	11 (9.20%)	60 (50.00%)
Green Net	45 (37.50%)	15 (12.50%)	60 (50.00%)
Total	95 (78.30%)	26 (21.70%)	120 (100.00%)

Table 7.2 shows that GN participant farmers are older than non-participant farmers. In the case of household size, participant farmers have higher number of dependents than non-participants with a mean family size of 4.70 and 4.45. This is higher than the average from the 2008 census of 3.79 persons per family for Yasothorn province (National Statistical Office of Thailand: NSO report, 2008). However, the average household size from the NSO report did not separate the details for agricultural sector which is normally higher. In addition, the survey also included family members who live away from the family. However, mean differences between participant and non-participant farmers on basis of age and household size are not statistically different. In the case of education, GN participants had a higher average of years of schooling than non-participants. The average yearly household income of farmers selling to Green Net is higher compared to farmers selling to traditional markets. Average yearly household income of farmers selling to Green Net was about 138,976 Baht²⁸, which is not quite different from the National Statistical Office of Thailand report in 2008²⁹.

Table 7.2: Age, education, household size and income of respondents

Variable	Market Channel	N	Mean	Mean Difference ^a	Std. Dev.
Age	Traditional	60	46.55	-1.60	10.65
	Green Net	60	48.15		10.14
Education (years of schooling)	Traditional	60	3.38	-0.77 *	2.73
	Green Net	60	4.15		3.54
Household size	Traditional	60	4.45	-0.25	1.29
	Green Net	60	4.70		1.41
Number of persons of working age	Traditional	60	3.17	-0.03	1.24
	Green Net	60	3.20		1.07
Yearly household income	Traditional	60	118,787.77	-20,197.50 *	59,952.78
	Green Net	60	138,976.30		84,813.26

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means; ^a is a traditional minus Green Net.

²⁸ 1 pound = 50 Baht (average exchange rate in 2009)

²⁹ The average annual household income in Yasothorn Province was reported to be about 27,199 Baht per person, bringing the average annual household income to about 127,835 Baht.

7.1.2 Farm and household characteristics of respondent farmers

Table 7.3 shows that the mean differences between farmers selling to Green Net and farmers selling to the traditional markets are statistically significant in terms of distance from farm to Green Net, area of rice, soil quality, proportion of income from rice farm, proportion of income from non-farm and proportion of family labour used on farm. Green Net participant farmers are situated farther away from the main road than their non-participant counterparts.

However, Green Net participant farms are closer to the cooperative (Green Net) than non-participant farms. Even though farmers selling to Green Net cooperative compared to farmers selling to traditional markets have more total farm area and higher soil quality, the average area of rice production is quite low as shown in Table 7.3. However, the mean differences in distance from farm to main road and total farm area are not statistically significant (Table 7.3).

Farmers selling to Green Net make a higher proportion of income from the rice farm but lower proportion of income from non-farm compared to non-participant farmers. Farmers selling to the traditional market compared to farmers selling to Green Net allotted larger areas to rice production but had a lower proportion of income from rice farm. At the same time, farmers selling to traditional market had higher proportion of non-farm income. As suggested by these results, farmers selling to the Green Net gained more benefits from rice farm but had less non-farm income as a result of spending more days on-farm relative to farmers selling to traditional markets (Tables 7.3 and 7.8).

Moreover, according to interviews and focus group discussions, farmers selling to Green Net depend more on organic farming and produce all products in organic systems, thereby, dedicating less time to generating non-farm income or selling their own labour compared to farmers selling to traditional markets. Most farmers selling to Green Net have better managerial and technical skills as evidenced by the keeping of written records and having access to technical and skill training assistance from Green Net and its affiliate organizations. They also consider as advantage their ability improve their livelihood and being self-sufficient without the need of selling their labour or going out of the farm to look for extra income.

Table 7.3: Farm and household characteristics of respondent farmers

Variable	Market Channel	N	Mean	Mean Difference ^a	Std. Dev.
Distance from farm to main road (km.)	Traditional	60	1.47	-1.8	0.85
	Green Net	60	1.65		1.16
Distance from farm to Green Net /market	Traditional	60	5.73	1.75***	2.30
	Green Net	60	3.99		1.73
Total farm area (rai)	Traditional	60	20.87	-1.3	11.16
	Green Net	60	22.17		12.38
Area of rice (rai)	Traditional	60	19.47	1.39*	10.64
	Green Net	60	18.08		9.30
Soil quality (Likert scale, 1-5)	Traditional	60	2.55	-0.88***	0.29
	Green Net	60	3.43		0.67
Proportion of income from rice farm	Traditional	60	58.42	-6.08**	11.30
	Green Net	60	64.50		8.76
Proportion of income from non- farm	Traditional	60	41.62	5.12**	10.46
	Green Net	60	36.50		5.91
Proportion of family labour	Traditional	60	34.32	-7.83***	5.15
	Green Net	60	42.15		6.67

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means ; ^a is a traditional minus Green Net.

7.1.3 Marketing characteristics

From the survey results, participant farmers in the survey are mainly selling to Green Net (GN) with about 88.5 percent, on average, of total output going to GN (Table 7.4). This is a key requirement in the contractual arrangements for participation in the Green Net scheme. Farmers selling to Green Net normally have formal contracts, and are benefit from technical and skill training assistance including Fair Trade supplement. They also are cooperative members where they pay membership dues and have shares in Green Net as explained in Chapter 6 (Section 6.3.1.1). Under the terms of the contract, participant farmers have to sell about 90.0 percent of their output, on average, to GN while keeping about 10.0 percent for other purposes such as own consumption and seeding.

The proportion of non-participant farmers in the survey sold of their total output to middlemen is 45.5 percent, with 32.5 and 12.0 selling respectively to rice-mill/wholesaler and cooperative while 10.2 percent is kept for their own consumption.

Table 7.4: Main market channel of rice farmers, 2009

Average proportion of rice sold to each market	Non-participant farmers	Participant farmers
Middlemen	45.30%	0.00%
Cooperative ³⁰	12.00%	88.50%
Rice-mill/Wholesalers	32.50%	0.00%
Own consumption	10.20%	11.50%
Total	100.00%	100.00%

Table 7.5 shows differences in marketing characteristics and perspectives. Farmers selling to Green Net have higher score of transportation problems with a possible reason for this result being that these farmers have to transport the produce by themselves to the collection or distribution centres while majority of the non-participant farmers, especially those selling to middlemen, have less transportation problem since the buyer in this case provides the transportation. Farmers selling to Green Net compared to farmers selling to traditional market sell less frequently and have lower problems of grading. These results suggest that farmers selling to Green Net are more organized, can access market information and assistance through Green Net management system. They have been able to establish coordinated relationship with Green Net and are able to deal with problems associated with frequency and grading. Therefore, farmers participating in the Green Net scheme have higher satisfaction with the buyer.

The variables on market characteristics (in Table 7.5) can be taken as proxies to transactions costs. In that regard, participation in the Green Net scheme will generally lead to reduced transactions costs as the participants are better off in all fronts than their non-participants counterparts, except in the case of transportation problems.

³⁰ Cooperative, for participant farmers, means Cooperative under the contract with Green Net scheme. In the other hand, cooperative for non-participant farmers mean agricultural cooperative which is not a Green Net memberships

Table 7.5: Farmer characteristics associated with main market channel

Variable	Market channel	N	Mean	Mean Difference ^a	Std. Dev.
Frequency of selling (per season)	Traditional	60	1.35	0.13*	0.41
	Green Net	60	1.22		0.48
Transportation problems (Likert scale, 1-5) ^a	Traditional	60	3.05	-0.45**	1.11
	Green Net	60	3.50		1.12
Problems of grading (Likert scale, 1-5) ^a	Traditional	60	1.83	0.55***	0.74
	Green Net	60	1.28		0.52
Satisfaction with buyer (Likert scale, 1-5) ^b	Traditional	60	3.30	-1.30***	0.46
	Green Net	60	4.60		0.58

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means ; ^a is a traditional minus Green Net.

^a 1 = Not a problem, 2 = Minor problem, 3 = Moderate problem, 4 = Major problem, 5 = Very major problem

^b 1 = Much worse, 2 = A bit worse, 3 = About the same, 4 = A bit better, 5 = Much better

A descriptive comparison of participant and non-participant farmers in Green Net in producing for modern trade chains in terms of socio-economic, farm and household and marketing characteristics suggest that farmers from both groups are quite similar. However, from interviews, participant farmers are more organized and have been able to adjust key farming and marketing activities to support the social enterprise to get assistance and benefits from the market opportunity offered by the social enterprise and collaborating associations.

These results have several implications consistent with the analytical framework of this research. The characteristics of farmers and marketing characteristics help to identify some key success factors and constraints associated with participating in the Green Net scheme by small-scale farmers. To elaborate the findings here, further analyses are presented and discussed in the next section.

7.2 The Impacts on Small-scale Producers of Participating in the Green Net Scheme

This section analyses the impact on small-scale producers of participating in the Green Net scheme in producing for modern trade chains. Within this context, this section addresses three research questions (RQ7, RQ9 and RQ10).

7.2.1 Determinants of participation

Regarding research question 7 (RQ7), the determinants of small-scale farmers participating in the social enterprise schemes. For this purpose, a probit regression model to assess the effects several factors associated with socio-economic variables such as income, experience in farming, farm size, etc. and demographic information such as age, family size, and education of household head exert on participation in Green Net scheme.

The determinants and impacts associated with small-scale farmers participating in the Green Net scheme are presented and discussed in Appendix A.

7.2.2 Relative profitability of Green Net participant farmers

In this section, it is hypothesised that “participant farmers in the Green Net scheme are more profitable than non-participant farmers for comparable scales of operation”.

For those farmers willing to participate in the Green Net scheme in producing for modern trade chains, the average profitability is an important factor. In this study, gross margins are used as measures of profitability. The gross margins calculated are based on the survey data. Gross margins are the value of output minus the direct costs. It is noted that land rent is included in hiring cost and interest or credit cost is included in other costs section. To compare the competitiveness of participant and non-participant farmers, gross margins are expressed per unit of land and per family-labour day.

Table 7.6: Cost of rice production and gross margins for participant and non-participant, 2008/2009

Items	Non-member Farms	Social Enterprise Member Farms		Mean Difference ^a
	Conventional rice	Organic rice		
(Baht/rai ³¹ , mean values of sample)				
Seeds	297.45	295.40		2.05
Fertilizer ³²	392.35	301.17		91.18 [*]
(chemical fertilizer/ green manure)				
Pesticide ³³	327.60	229.57		98.03 [*]
(chemical/ biological pest control)				
Energy	177.35	187.64		-10.29
Cost irrigation	170.07	158.87		11.20
Hiring	368.58	398.54		-29.96 ^{**}
Other costs	187.67	216.63	Fair Trade	-28.96 [*]
Total inputs	1,921.07	1,787.81	Supplement	133.26
Wages paid	660.33	613.73	(+1B/kg)	46.60 [*]
Value of output	3,823.94	3,999.17	4,346.85	-175.23 [*]
Gross margin per rai	889.71	1,146.79	1,493.99	-257.08 [*]
Gross margin per kg	2.12	2.87	3.69	-0.75 [*]
(days/rai, mean value of sample)				
Days of family labour per rai ³⁴	2.35	3.01		-0.66 [*]
Days of total labour per rai	6.75	7.10		-0.35 ^{**}
(Baht/day, mean values of sample)				
Gross margin per day of family labour	401.42	381.60	514.60	19.82 [*]

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means; ^a is a non-member minus social enterprise member farmers.

Table 7.6 provides a gross margin analysis for two types of farmers (Green Net member farmers and non-member farmers) which indicates that there are substantial differences between the two groups of farmers. It also shows that participant farmers made a significantly higher profit over total costs. This result is consistent with previous research comparing organic and conventional rice production in Thailand (for example Van Dooren 2005; Hutunuwat, 2005; Setboonsarng, 2006). However, according to the survey, it is important to note that the most organic farmers in this study are full organic producers. There are only a few organic farmers in the initial and transitory stages. However, from the in-depth interview and survey, the study found that farmers in the initial and transitory stages also made a higher profit than non-participant farmers but had lower profitability than full organic farmers.

³¹ 1 Hectare = 6.25 rai

³² Participant farmers who growing under organic production system used organic fertilizer such as green manure etc.

³³ Participant farmers used biological pest control such as neem extracts.

³⁴ Calculated from average family labour paid divide by 150Baht/day (minimum/average wage per day)

First, non-participant farmers of Green Net scheme use on average about 6.93 percent of total inputs expenditure per rai higher than Green Net participant farmers calculated based on variable production costs including the cost of seeds, fertilizer, pesticide, energy, cost irrigation, labour and other costs. Non-participant farmers have on average 29.92 percent of pesticide and 23.23 percent of fertilizer expenditure higher than Green Net participant farmers. However, there are different kinds of pesticides and fertilizers used by the two groups. Non-participant farmers used chemical and inorganic fertilizers and Green Net participant farmers used biological pest control and green manure. Participant farmers are not allowed to use chemical pesticide and inorganic fertilizer, therefore, they use local green manure and biological pest control which they can produce by themselves or can buy from the cooperative/Green Net at a lower cost than chemical and inorganic fertilizer. In spite of input differences, however, yields per rai are not much different between these two farmer groups.

Second, Green Net member farmers use more days of family labour and total labour per rai, mostly because member farmers have to spend more time on farm to achieve the production and standard requirements. Third, output price of non-member farmers who produce conventional rice is lower than member farmers who produce organic rice by about 6.67 percent (average conventional rice price is 9.375 Baht/kg and organic rice price, before fair trade supplement, is 10 Baht/kg). Therefore, different kind of products and production systems lead to essential differences in profitability between the two farmer types. The value of output of member farmers is higher than non-member farmers by about 4.58 percent. But, member farmers also get some supplements from fair trade policy which adds 1 Baht/kg to the price – that is, the value of output of member famers is higher than non-member farmers by about 13.67 percent. As a result, member farmers get a gross margin per rai by about 28.89 percent higher than non-member farmers and about 67.91 percent higher including the supplement from fair trade, resulting in a gross margin per kg of about 35.37 percent higher than non-member farmers and 74.05 percent higher with supplement from fair trade.

However, non-member farmers have a higher gross margin per day of family labour of about 4.93 percent than member farmers without fair trade supplement for them as a result of member farmers using family labour more intensively than non-member farmers. When member farmers get the supplement from fair trade, they get a gross margin per day of family labour of about 28.08 percent higher than non-member farmers. Therefore, fair-trade supplement is a key factor boosting gross margins of member farmers.

Table 7.7: Profitability by farm size (rai)

Land category	All farms	Participant farmers	Non-participant farmers	Mean difference	p-value [*]
0-5 rai	1,447	1,631	885	746	0.0000
6-10 rai	1,145	1,442	743	699	0.0000
11-20 rai	1,109	1,413	760	653	0.0000
>20 rai	1,303	1,656	1,077	579	0.0059
Total	1,191	1,493	889	604	0.0000

^{*} *p-values are for the respective tests of mean difference between participant and non-participant farmers.*

In addition, profitability of farmers is different by farm sizes as seen in Table 7.7. Participant and non-participant farmers who have large farm size (>20 rai) get higher profitability than other farm sizes. These results suggest that farmers who have large farm size (>20 rai) seem to be entrepreneurial and have high capacity to develop and investment in farm. On the other hand, participant farmers who have very small farm size (0-5 rai) do not seem to be biased against in terms of profitability as generally conceived. It is important to note that, from the survey, there are not many farmers who have a very small farm size (0-5 rai); only 3 participant farmers and 1 non-participant farmer fall in this category. Furthermore, profits are significantly higher for participant farmers for all farm sizes when compared with non-participant farmers. However, it is important to note that there is no profitability is not clearly related to farm size since profit per rai first drops and then increases as farm size increases.

7.2.3 Determinants of farm economic outcomes (profits per rai)

A regression model was employed to explore the determinants of profit outcomes. This helped determine the effect of participation on key farm outcomes, while controlling for other variables that may affect outcomes. Selectivity/endogeneity issues are addressed during estimation also shown in the Appendix B.

It is hypothesized that the profits per rai is determined by the farm variables, socio-economic, farmer variables, and participating in the Green Net scheme in producing for modern trade chains.

Based on the hypothesis, the profits per rai regression model is specified as follow:

$$\text{Profits per rai} = f(\text{farm variables, socio-economic and farmer variables, and participation})$$

The regression models of determinants of farm economic outcomes as profit per Rai is presented and discussed in Appendix B.

7.2.4 Broader benefits from participating in Green Net scheme

The above results show that participating farmers obtained benefits from participating in the Green Net scheme in term of financial benefit. However, from the interviews and survey, the study found that participant farmers also had non-financial benefits from participating in the Green Net scheme. It is important to note that some of these broader benefits are also reflected in participant farmer gross margins. Table 7.8 shows the summary of broader benefits (non-financial) of participating in the Green Net scheme (which is based on interviews and survey).

Table 7.8: Summary of broader benefits from Green Net scheme participation

Parameter	Potential benefits	Indicator
Access to market	Green Net arrangements serve to link small-scale farmers to modern trade markets including international markets where the demand and price of crops are more favourable. In addition, Green Net arrangements serve to link participant farmers to Fair Trade and International Institutions which help small-scale obtain better trading conditions and benefits.	- Better price (more market opportunity) - Low transaction costs
Access to technology and skills development	Green Net arrangements often facilitate the introduction of new production and farm management techniques, especially organic production and farm management systems, and further measures that serve to upgrade agricultural commodities. These include training and assistance in crop production, soil and water management, farm recording system, and farm management to support the organic certification. Aside from straightforward technology and skills development, farmers can become astute in learning how organic markets work, how to manage farm account, and run their organic farm as business.	- Better yield (both quality and quantity standards)
Reduced price risk	Green Net arrangements include a predetermined price for the crops, which is generally established during the negotiations of farming contract and before farmers growing product on a year by year basis. This protects participant farmers from incurring losses in sales due to price fluctuations. Moreover, participant farmers can obtain benefits to reduce price risk by fair trade agreement which helps participant farmers get a better and fair price.	- Low transaction costs - Higher gross margins
Reduced production risk	Green Net arranges contract farming which facilitate risk sharing from production failures due to uncontrollable circumstances including disease or poor weather. Subsidies (for example inputs and cash subsidies) may also be provided to diminish risk during the start-up period.	- Higher gross margins

7.3 Motivations and Challenges of Participant Farmers in the Green Net Scheme

Previous sections have described the impacts and profitability of small-scale farmers participating in the Green Net scheme in producing for modern trade chains.

This section now analyses the motivations and challenges of facing participant small-scale farmers. First, the section discusses the reasons why farmers decide to participate in Green Net scheme in producing for modern trade chains. Then, the main problems faced by these small-scale farmers will be explored.

7.3.1 Motivation of farmer's decision to participate in the Green Net scheme

Survey respondents were presented with a list of factors that were identified from previous studies (for example Masakure, 2005; Blandon, 2006; Grosh, 1994; Little and Watts, 1994) and from focus group discussions as reasons for participating in the Green Net scheme. The respondents were then asked to indicate how important each of these factors had been in their own decision to participate in the Green Net scheme in producing for modern trade chains using a 3-point Likert scale ranging from 1 “Unimportant” to 3 “Important”. Table 7.9 shows the ordered mean scores for motivation and potential benefits of farmer growing for Green Net in producing for modern trade chains.

Table 7.9: Mean importance score (in descending order) for motivation and potential benefits of farmer growing for Green Net scheme

<i>Factor</i>	<i>Mean score</i>
Guaranteed purchase	2.9 ^a
Guaranteed minimum price	2.9 ^a
Extra income	2.3
Acquiring new knowledge	2.2
Credit provided by cooperative/Green Net	1.7
Group relationship with other farmers	1.6
No need to transport crop to market	1.2

Note: Mean score indicated with the same letter are not significantly different from each other at the 0.05% level based on Wilcoxon Sign-rank test.

Table 7.9 shows that the factor respondents considered most important reason in participating and selling to modern trade chains via Green Net were ‘Guaranteed purchase’ and ‘Guaranteed minimum prices’. The other factors are ‘Extra income’ and ‘Acquiring new Knowledge’. These results suggest that participant farmers are motivated by incentives that reduce market uncertainty and price risks. A possible reason for these results is that, from interviews and survey, although potentially good prices

can be obtained for organic rice, a problem is that the market is quite thin, with few buyers. There are about 15 rice mills in Northeast of which only 4 rice mills in Yasothorn province buy organic rice. The study also found that most rice mills do not pay premium price for organic – they usually pay same as conventional rice - if farmers are not members. Therefore, the key success motivation factors of growing for Green Net were guaranteed purchase and minimum price.

7.3.2 Main problems faced by small-scale farmers

This section compares the main problems faced by small-scale farmers selling to Green Net and traditional markets. The respondents were presented with a list of factors identify from the literature, focus group and interviews suggesting potential problems faced by small-scale farmers. They were asked to indicate the importance of each issue on a 3-point Likert scale ranging from 1 “Unimportant” to 3 “Important”. Table 7.10 indicates the ordered mean important scores.

The table suggests that the main problem factor that participant farmers in the Green Net scheme in producing for modern trade chains faced was ‘Not able to spend time on other crops and activities’. Other factors were ‘lack of credit’, ‘lack of inputs’, ‘poor soil’ and ‘delay in payment’, suggesting that production problem is main problem faced by participant farmers in terms of labour used, input used and land quality.

The problem of not able to spend time on other activities also was reflected in cost of production analysis in sub-section 7.2.2 (see Table 7.6) which showed that participant farmers used higher days of family labour per rai including days of total labour per rai. In addition, the issue of delayed payment is one of the main problems for participant farmers as a result of Green Net normally paying 7-15 days after famers deliver the output to the market. This result suggests that participants prefer to get paid as sooner like selling in the traditional market, from survey and focus group, because most farmers have to pay back credit or interest.

Table 7.10: Mean importance score (in descending order) for main problems faced by small-scale farmers

Modern trade market (via Green Net)		Traditional market	
<i>Factor</i>	Mean score	<i>Factor</i>	Mean score
Not able to spend time on other crops and activities	1.8	Low price	2.8
Lack of credit	1.7	Lack of inputs	2.6
Lack of inputs	1.6 ^a	Unstable income	2.5 ^A
Poor soil	1.6 ^a	Lack of credit	2.5 ^A
Delay in payment	1.6 ^a	Heavy investment at start	2.3
Risk of crop failure	1.5 ^b	Poor soil	2.1
Low price	1.5 ^b	Lack of advice	1.4
Heavy labour required	1.4 ^c	Technological requirements make production very costly	1.3
Very high quality standard	1.4 ^c	Risk of crop failure	1.2 ^B
Unstable income	1.3	Heavy labour required	1.2 ^B
Lack of advice from cooperative	1.2	Not able to spend time on other crops and activities	1.2 ^B
Heavy investment at start	1.1 ^d	Delay in payment	1.1
Technological requirements difficult to follow	1.1 ^d	Technological requirements difficult to follow	1.0 ^g
Technological requirements make production very costly	1.1 ^d	Very high quality standard	1.0 ^g

Note: Mean score indicated with the same letter are not significantly different from each other at the 0.05% level based on Wilcoxon Sign-rank test.

Non-participant farmers considered main problem faced in selling to traditional market as “low price”. Other factors were ‘lack of inputs’, ‘unstable income’, ‘lack of credit’ and ‘heavy investment at start’, suggesting that non-participant farmers are faced with price and capital investment problems. These problems were reflected in the cost of production and gross margin analysis in sub-section 7.2.2 (see Table 7.6) which showed that non-participant had higher production costs and received lower prices and profits than participant farmers. In addition, it is important to note that the largest mean score for problems faced in Green Net scheme by participant farmers is 1.8, while that for non-participant farmers producing for traditional market is 2.8. This suggests that Green Net farmers perceive their problems to be less severe than their non-participant counterparts.

7.3.3 Factor Analysis of the potential benefits, reasons for contracting and main problems faced by participant farmers

The above analysis suggests that participant farmers may respond to market failures by joining Green Net in producing for modern trade chains. However, because market failure has differential effects on households, it is expected that the response to participation should vary depending on particular household characteristics and circumstances (see Masakure, 2005, Holloway *et al.*, 2002 and Delgado, 1999). To enable the reason for participating in the Green Net scheme to be better understood and classified into subsets, the importance scores in the previous sub-section (7.2.2) were subjected to Factor Analysis.

Factor analysis is a multivariate method of exploring the structure of data with the object of data reduction and interpretation, particularly in marketing research which may have a number of variables that must be reduced to a manageable level. Therefore, factor analysis allows us to look at a group of variables that tend to be correlated to each other and allows us to identify underlying dimensions that explain these correlations (see Sharma, 1996 and Malhotra, 2007).

In terms of the results, the variables included in this analysis were categorised into groups of variables. The next step is testing the appropriateness of the factor model. Useful statistics are the Kaiser-Meyer-Olkin (KMO) and Bartlett's test (a test to see if dependent variables are correlated and data is multivariate normal). To see if data is appropriate for Factor Analysis, a KMO value of greater than 0.5 is required.

Once the factor analysis is confirmed to be a proper technique for analysing the data, Principal Component Analysis (PCA), which is one of the basic approaches of factor analysis, is implemented.

There are several procedures for determining the number of factors (or so-called, principal components). The common approaches are based on Eigenvalue, scree plot (a plot of the Eigenvalue against the number of factors) and the percentage of variance, etc. The first determination is done by only using factors with an Eigenvalue equal to 1 or greater in the analysis.

Finally, the factors can be interpreted by identifying the variables that have a large loading on the same factor. In addition, the factor rotation following the "Varimax" method by means of orthogonalization of the factor can help the interpretation to become simpler and more accurate (Sharma, 1996; Hair *et al.*, 1998 and Malhotra, 2007).

In terms of the results, the loadings represent the correlation between the new variables, component One, and component Two and so on, meaning that they are not correlated. The simple correlations between the original variables are important in forming the new variables. The higher the loading, the more important is the variable in forming the principal component score and vice versa.

Consequently, the first component contributes the major share and the last contributes the least. The strategy is to derive fewer components, to achieve data reduction for preserving as much variance information as possible. Greater correlation amongst the variables results in greater data reduction and vice versa (Sharma, 1996). These loadings are then used to interpret the principal components. The interpretation is achieved by deriving a collective name for those variables most strongly related with the principal component.

The first group of variables subjected to factor analysis is the set of reasons why farmers participate in the Green Net scheme in producing for modern trade chains. Table 7.11 indicates that three components can be extracted and are collectively accounted for 66.55 percent of overall variance (KMO 0.634). Based on PCA, the reason why farmers participate in the Green Net scheme consists of 3 factors with 7 measured items with the overall coefficient alpha of 0.74.

Table 7.11: Varimax-rotated principal components factor matrix for motivation and potential benefits of farmer growing for Green Net scheme

	Component		
	1	2	3
Guaranteed purchase	.884		
Guaranteed minimum price	.777		
Extra income	.767		
Group relationship with other farmers		.758	
Acquiring new knowledge		.697	
Credit provided by cooperative/Green Net			.760
No need to transport crop to market			.723
<i>Reliability (Cronbach's Alpha)</i>	<i>0.86</i>	<i>0.77</i>	<i>0.78</i>
<i>% Variation</i>	<i>30.19%</i>	<i>18.52%</i>	<i>17.83%</i>

Note: Sums of Cumulative 66.55%

Based on the factor loadings, the three components can be interpreted as follows:

Component 1: This component accounts for 30.19 percent of the variance and variables that loaded most heavily in this component were ‘Guaranteed purchase’, ‘Guaranteed minimum price’, and ‘Extra income’. These suggest that this component is associated with *market uncertainty* due to imperfect information and output markets.

Component 2: The variables that loaded highly on this factor, accounting for 18.52 percent of the variance, were ‘Group of relationship with other farmers’ and ‘Acquiring new knowledge’. This suggests the factor is associated with *indirect benefit (farming development)* as organic farming system as a motive to participate in Geer Net scheme.

Component 3: This component accounts for 17.83 percent of the total variance. The main correlation is with no need to transport to the market; however it shows negative correlation with the credit provided by cooperative. This suggests the factor is associated with *transaction costs*.

This analysis shows that the decision of participating in the Green Net scheme in producing for modern trade chains was based on a number of distinct incentives. First, farmers were attracted by the need to mitigate the effects of market uncertainty. The guaranteed purchase and guaranteed minimum price were clearly the most important incentives (Component 1). Second, indirect benefits in the form of knowledge and relationship were important (Component 2). This highlights that participant farmers interested in farming development to upgrade farm join the group and acquire new knowledge. Third, transactions problem were significant (Component 3).

The second group of variables for factor analysis are the main factors leading farmers to decide to have contractual agreement with Green Net. Table 7.12 indicates the loadings on five components collectively account for 61.51 percent of overall variance (KMO 0.556). In addition, PCA extracted 5 components with the overall coefficient alpha of 0.84.

Table 7.12: Varimax-rotated principal components factor matrix for reasons why farmers decide to sell to Green Net

Reason for contracting	Component				
	1	2	3	4	5
Level of market demand	.846				
Variability of market demand	.843				
Variability of market price	.676				
Grading requirements	.606				
Specific product demand	.522				
Ease of transportation		.814			
Payment mechanism		.675			
Cost of transportation		.666			
Frequency of selling			.827		
Access to information			.766		
Need for producer to be organized				-.823	
Place of selling				.802	
Cost of market entry					.720
Level of market price					.628
<i>Reliability (Cronbach's Alpha)</i>	<i>0.88</i>	<i>0.86</i>	<i>0.70</i>	<i>0.75</i>	<i>0.77</i>
<i>% Variation</i>	<i>15.68%</i>	<i>14.33%</i>	<i>10.85%</i>	<i>10.39%</i>	<i>10.24%</i>

Note: Sums of Cumulative 61.51%

Based on the factor loadings, the five components can be interpreted as follows:

Component 1: This component accounts for 15.68 percent of the variance and variables that loaded most heavily in this component were ‘Level of market demand’, ‘Variability of market demand’, ‘Variability of market price’, ‘Grading requirements’ and ‘Specific product demand’. This suggests that this factor was associated with the *market demand* in organic rice.

Component 2: The variables that loaded highly on this component, which accounts for 14.33 percent of the variance, were ‘Ease of transportation’, ‘Payment mechanism’, and ‘Cost of transportation’. This suggests that this component is associated with *logistics and purchasing systems*, as well as payment mechanism.

Component 3: The variables that loaded most heavily, which accounts for 10.85 percent of the variance, on this component were ‘Frequency of selling’ and ‘Access to information’. This suggests that this was associated with transactions costs.

Component 4: The variables ‘Need for producer to be organized’ and ‘Place of selling’ loaded most heavily on this component, which accounts for 10.39 percent of the variance. However it shows negative correlation with the need for producer to be organized. This suggests that this was associated with *market requirements*.

Component 5: The component account for 10.24 percent of the variance with the factors loading most heavily in this component being ‘Cost of market entry’ and ‘Level of market price’. This suggests that this was associated with market competition.

The third group of variables refers to the main problems faced by participant farmers. Table 7.13 indicates the loadings for main problems faced by participant farmers in five components collectively accounted for 65.52 percent of overall variance (KMO 0.548) in importance score across the issues presented in Table 7.15. In addition, PCA scale consists of 13 items with the overall coefficient alpha of 0.74.

Table 7.13: Varimax-rotated principal components factor matrix for problems faced by participant farmers

	Component				
	1	2	3	4	5
Not able to spend time on other crops and activities	.795				
Heavy labour requirement	.714				
Lack of inputs	.625				
Very high quality standard		.796			
Lack of credit		-.630			
Risks of crop failure		.618			
Heavy initial investment			.813		
Technological requirements stringent			.762		
Technological requirements very costly			.552		
Delay in payment				.860	
Low price				.669	
Poor soil					.828
Unstable income					.575
<i>Reliability (Cronbach's Alpha)</i>	<i>0.76</i>	<i>0.79</i>	<i>0.78</i>	<i>0.72</i>	<i>0.84</i>
<i>% Variation</i>	<i>15.2%</i>	<i>13.98%</i>	<i>12.90%</i>	<i>12.26%</i>	<i>11.10%</i>

Note: Sums of Cumulative 65.52%

According to the factor loadings, the five components can be interpreted as follows:

Component 1: This component accounts for 15.27 percent of the variance and factors that loaded most heavily in this component were 'Not able to spend time on other crops and activities', 'Heavy labour requirement' and 'Lack of inputs'. This suggests that this principal component was associated with *labour and input supply*.

Component 2: The variables that loaded highly on this component, which accounts for 13.98 percent, were 'Very high quality standard', 'Risk of crop failure' and 'Lack of credit'. However it shows negative correlation with the lack of credit. This suggests that this component was associated with *production system*. Organic farming system requires some production system standards, for example land preparation, fertilizer and chemical use and farm recording, etc.

Component 3: This component accounts for 12.90 percent of the variance and factors that loaded most heavily in this component were 'Heavy initial investment', 'Technological requirements stringent' and 'Technological requirements very costly'. This suggests that this component is associated with *technological investment*.

Component 4: The variable that loaded most heavily on this component, which accounts for 12.26 percent of the variance, were ‘Delay in payment’ and ‘Low price’. This suggests that the component was associated with *financial aspects*.

Component 5: The variables that loaded high on this component, which accounts for 11.10 percent of the variance, were ‘Poor soil’ and ‘Unstable income’. This suggests that this component is associated with *profitability*.

The analysis suggests that possibility for producing organic rice for modern trade by small-scale farmers faced a number of farm-level constraints which can be classified into five groups. First, participant farmers faced many problems associated with labour and input supply (Component 1) especially in the initial and transition organic farming stages. This suggests that participant farmers have to get some assistance in terms of technological and skills development to solve these problems in the transitional stage which are related to production problems such as crop failure and high quality standards leading to rejection by buyer (Component 2). The technological requirements raise the cost of production (Component 3). This confirms the finding in sub-section 7.2.2 (Table 7.9). The financial aspects (Component 4) were significant and profitability in organic farming was also important (Component 5).

7.4 Conclusions

The chapter has explored the impact and motivation factors of small-scale farmers participating in the Green Net scheme in producing for modern trade chains. It addressed 4 research questions (RQ7, 8, 9, and 10 contained in Chapter 4).

Sections 7.2 (see Appendix A), the estimation from probit model results, suggest that the decision of household to participate in Green Net scheme in producing for modern trade chains is not independent of household and farm characteristics. The household characteristics such as number of persons of working age, household income, number of female in family, head of household sex, age and experience were significant determinants of participation decision. In addition, farm and market characteristics such as quality of soil, farm size, distance from farm to market/cooperative, and non-farm income were also significant.

Gross margin results in section 7.2.2 show that participant farmers have more profitability than non-participant farmers. Moreover, participant farmers also have some non-financial benefits such as access to market, technical and skills development. In addition, the regression model and selectivity analysis also show that participating in the Green Net scheme is significant in increasing the profit per rai (see Appendix B).

Section 7.3, evidently show the motivations and challenges of participant farmers. The reasons for farmers' decision to participate in Green Net scheme in producing for modern trade are associated with market uncertainty such as guaranteed purchase and minimum price, farming development (indirect benefit) and transactions costs issues. On the other hand, the problems faced by participant farmers were associated with labour and input supply, production system, technological investment, financial aspects and profitability issues.

The results above amply demonstrate that an important role of social enterprise is reducing transactions costs (for example market uncertainty) for participant farmers. It is also shown that participant farmers can earn more profit from participating in the social enterprise scheme. Further, although non-participant farmers do not benefit from reduced transactions costs associated with participation, they can earn more financial benefit from non-farm income.

THE ROYAL PROJECT CASE STUDY

EFFECTS OF PARTICIPATION IN SOCIAL ENTERPRISE SCHEMES ON SMALL-SCALE FARMERS

8.0 Introduction

Chapter 7 analysed the impacts on small-scale producers of participating in the first social enterprise case study; Green Net scheme, in producing for modern trade chains.

This chapter analyses the second social enterprise case study; the Royal Project (RP). It examines the impact on small-scale producers of participating in the Royal Project scheme as well as their motivations and challenges.

Within this context, the chapter, like chapter 7, addresses four main research questions (RQ7, RQ8, RQ9 and RQ10) emanating from Chapter 4.

This chapter consists of four sections. Section 8.1 explores the characteristics of farmers and level of participation in the Royal Project scheme. Section 8.2 discusses the impacts on small-scale farmers of participating in the Royal Project scheme in producing for modern trade chains. This section also applies the framework developed in Chapter 5 to assess the benefits to farmers. Finally, section 8.3 describes the motivations and challenges of small-scale farmer participating in the scheme.

8.1 Characteristics of Farmers Participating in the Royal Project Scheme

In this section, the characteristics of the studied farmers according to their participation in the Royal Project scheme in producing for modern trade chains are presented and discussed. Farmers are subdivided into two groups; one is pesticide free vegetable (Chinese cabbage) producers who are Royal Project (social enterprise) members. The other is conventional vegetable (Chinese cabbage) producers who are not Royal Project members and selling to the traditional markets. This section and the next are based on the survey of farmers from Chiang Mai Province who are small-scale producers (see Chapter 5 for details about Royal Project survey methods).

8.1.1 Socio-economic characteristics of respondents

The sample included 60 participant farmers who grow pesticide-safe vegetables for Royal Project and 60 non-participant farmers who grow conventional vegetable for traditional markets from three main vegetable producing regions in Chiang Mai; Mae Hyia, Nong Hoy and Huy Luk Districts, as seen in

Table 8.1. It is also important to note that Chiang Mai province is one of the largest vegetable producing regions in Thailand, especially for cold weather vegetables such as Chinese cabbage, cabbage and lettuce.

On gender basis, male household-heads account for a higher proportion (80.83 percent) of the total sample while 19.17 percent is female (Table 8.1). In addition, female participation proportionally is not much different in the Royal Project scheme compared to their proportional participation in traditional market channels.

Table 8.1: Distribution of respondents by district and gender

Market	District			Total
Channel	Mae Hyia	Nong Hoi	Huy Luk	
Traditional	20 (33.33%)	20 (33.33%)	20 (33.33%)	60 (50.00%)
Royal Project	20 (33.33%)	20 (33.33%)	20 (33.33%)	60 (50.00%)
Total	40 (33.33%)	40 (33.33%)	40 (33.33%)	120 (100.00%)
Market	Gender (in total sample)			Total
Channel	Male		Female	
Traditional	50 (41.67%)		10 (8.33%)	60 (50.00%)
Royal Project	47 (39.17%)		13 (10.83%)	60 (50.00%)
Total	97 (80.83%)		23 (19.17%)	120 (100.00%)

Table 8.2 shows that Royal Project participant farmers are on average older than non-participant farmers. In addition, Royal Project participants had a marginally lower average of years of schooling than non-participant farmers.

In the case of household size, non-participant farmers have lower number of dependents than participant farmers with a mean family size of 4.77 versus 5.32 persons giving a mean difference of - 0.55. The participant family is significantly higher than the average from the 2008 census of 3.32 persons per family for Chiang Mai province (National Statistical Office of Thailand: NSO report, 2008). However, the average household size from the NSO report did not separate the details for the agricultural sector where normally the average household size is higher. In addition, this survey also counted family members who lived away from family.

The average yearly household incomes of farmers selling to Royal Project compared to farmers selling to traditional markets is lower. Average yearly household income of farmers selling to Royal Project was about 282,248 Baht, which is significantly different from the National Statistical Office of Thailand report in 2008 that the average yearly household income in Chiang Mai Province was about

76,388 Baht per person which means the average yearly household is about 406,384.20 Baht³⁵. Note, however, that household income is difficult to measure in surveys and there may be substantial measurement involved. However, the numbers of person of working age of these two groups are not statistically different.

Table 8.2: Age, education, household size and income

Variable	Market Channel	N	Mean	Mean Difference ^a	Std. Dev.
Age	Traditional	60	41.88	-6.62***	10.10
	Royal Project	60	48.50		10.17
Education (years of school)	Traditional	60	5.30	0.52**	2.91
	Royal Project	60	4.78		3.05
Household size	Traditional	60	4.77	-0.55*	1.43
	Royal Project	60	5.32		1.65
Number of persons of working age	Traditional	60	3.35	0.17	1.09
	Royal Project	60	3.18		1.24
Yearly household income	Traditional	60	343,000.00	60,751.43***	102,209.49
	Royal Project	60	282,248.57		136,432.72

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means; ^a is a traditional minus Royal Project.

8.1.2 Farm and household characteristics of respondent farmers

Table 8.3 shows that farmers selling to Royal Project compared to farmers selling to the traditional markets are statistically different in terms of total farm area, average size of Chinese cabbage farm, average crop production, average number of Chinese cabbage cycle per year, soil quality, proportion of income from farm, proportion of income from non-farm and proportion of family labour.

Farmers selling to Royal Project compared to farmers selling to traditional markets have smaller farm size. The participant farmer farm size is about 10.80 rai while non-participant farmer farm size is about 19.61 rai. The average area of Chinese cabbage production of participant farmers is significantly lower than non-participant farmers. However, the Royal Project participant farmers have more cycles of production per year than non-participant farmers perhaps due to their higher level of soil quality. The average cycle of Chinese cabbage production per year of participant farmers is about 3.35 cycles per year and non-participant farmers is about 2.53 cycles per year.

³⁵ Source: Calculated by using average household size multiply the average yearly income per person (5.32x76,388= 406,384)

Farmers selling to Royal Project (RP) have a higher proportion of income from farm per rai but lower proportion of non-farm income. Given their larger number of cycles, RP farmers used more days of family labour and sold less of their own labour, as shown in Tables 8.3 and 8.8.

Moreover, given the production approach of Royal Project, and from interviews and focus group discussions, farmers selling to Royal Project depend more on pesticide-safe farming system which is time-intensive and allows less time to generating non-farm income or selling own labour compared to farmers selling to traditional markets. Most farmers selling to Royal Project have better managerial and technical skill as suggested by the data on keeping written records and having access to technical and skill training assistance from Royal Project. They also consider as an advantage their ability to engage in pesticide-safe production farming system and self-sufficient living ways³⁶ without the need to sell their labour or go out of the farm to look for extra income.

Royal Project participant farmers have a marginally higher distance from farm to the main road but are slightly closer to the Royal Project than non-participant farms. However, these distances are not statistically different.

Table 8.3: Farm and household characteristics of respondent farmers

Variable	Market Channel	N	Mean	Mean Difference ^a	Std. Dev.
Distance from farm to main road (km.)	Traditional	60	1.68	-0.29	1.07
	Royal Project	60	1.97		0.95
Distance from farm to Royal Project	Traditional	60	4.52	0.34	1.82
	Royal Project	60	4.18		1.78
Total farm area (rai)	Traditional	60	19.61	8.81***	10.45
	Royal Project	60	10.80		6.30
Average Chinese cabbage farm size (rai)	Traditional	60	6.88	4.01***	2.97
	Royal Project	60	2.87		0.99
Average crops production per year	Traditional	60	2.53	-0.82***	0.77
	Royal Project	60	3.35		1.12
Average Chinese cabbage cycles per year	Traditional	60	2.33	-0.42***	0.48
	Royal Project	60	2.75		0.44
Soil quality (Likert scale, 1-5)	Traditional	60	2.77	-0.70***	0.59
	Royal Project	60	3.47		0.61
Proportion of income from farm	Traditional	60	78.67	-6.25***	9.11
	Royal Project	60	84.92		11.14
Proportion of income from non-farm	Traditional	60	21.33	6.25***	9.11
	Royal Project	60	15.08		11.14
Proportion of family labour	Traditional	60	49.58	-5.29***	10.10
	Royal Project	60	54.87		10.49

³⁶ Self-sufficient living way was promoted under the “Sufficiency Economy and New Theory of Farming” pattern which is special farming patterns for small-scale farmers in Thailand. It was initiated by His Majesty the King of Thailand (see Jitsanguan, 2001; UNDP, 2007; Kantabutra, 2008)

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means; ^a is a traditional minus Royal Project.

8.1.3 Marketing characteristics

The survey indicates participant farmers sell 72.42 percent of Chinese cabbage production to the RP (Table 8.4). This is based on participation in production and harvesting quota, collective action and contractual arrangements.

Farmers selling to Royal Project normally have formal contracts, and benefit from technical and skill training assistance, as well as credit provided by RP. Therefore, participant farmers usually have to sell the majority of total output (the estimation of expected amount will be communicated to Royal Project before growing and harvesting) to Royal Project under contract farming. However, they also can keep some production for their own consumption an average of 1.13 percent (Table 8.4).

It is important to note that, from survey and interview results, some participant farmers also sold vegetables into the traditional markets (considered a moral hazard issue because they are expected to sell 100 percent to RP) as a result of level of market competition and the quotas established by Royal Project (details discussed in sub-section 6.3.1.2).

Non-participant farmers in the survey sold 45.72 percent and 39.16 percent of their total output to middlemen and local spot market respectively. They also sold 10.09 percent to wholesalers, 4.21 percent to brokers and 0.82 percent for their own consumption.

Table 8.4: Main market channel of Chinese cabbage producers, 2008/09

Average proportion of Chinese cabbage sold to each market	Non-participant farmers	Participant farmers
Royal Project	0.00%	72.42%
Middlemen	45.72%	14.23%
Local spot market	39.16%	10.10%
Wholesalers	10.09%	2.12%
Broker	4.21%	0.00%
Exporter	0.00%	0.00%
Own consumption	0.82%	1.13%
Total	100.00%	100.00%

Table 8.5 shows differences in marketing characteristics and perspectives. Farmers selling to Royal Project have higher transportation problems and a possible reason for this result is that they have higher distance from farm to main road as seen in Table 8.3. Farmers selling to Royal Project compared to farmers selling to traditional markets have less problems relating to grading and sell slightly less frequently than non-participant farmers. In addition, farmers participating in Royal Project scheme have much higher satisfaction with buyer.

The variables on market characteristics (in Table 8.5) can be taken as proxies for transactions costs. In that regard, participation in the Royal Project scheme will generally lead to reduced transactions costs as the participants are better off in all fronts than their non-participants counterparts, except in the case of transportation problems.

Table 8.5: Farmer characteristics associated with main market channel

Variable	Market channel	N	Mean	Mean Difference ^a	Std. Dev.
Frequency of selling (per season)	Traditional	60	4.32	0.34**	3.84
	Royal Project	60	3.98		0.81
Transportation problems (Likert scale, 1-5) ^a	Traditional	60	2.13	-0.47***	1.03
	Royal Project	60	2.60		1.44
Problems of grading (Likert scale, 1-5) ^a	Traditional	60	2.38	0.68***	1.04
	Royal Project	60	1.70		0.79
Satisfaction with buyer (Likert scale, 1-5) ^b	Traditional	60	2.92	-1.68***	1.03
	Royal Project	60	4.60		0.49

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means; ^a is traditional minus Royal Project.

^a 1 = Not a problem, 2 = Minor problem, 3 = Moderate problem, 4 = Major problem, 5 = Very major problem

^b 1 = Much worse, 2 = A bit worse, 3 = About the same, 4 = A bit better, 5 = Much better

To summarise, a descriptive comparison of participant and non-participant farmers in the Royal Project scheme in producing for modern trade chains in term of socio-economic, farm and household and marketing characteristics suggests that farmers from both groups are quite different. Results from interviews show participant farmers are more organized and have been able to adjust key farming and marketing activities to support the Royal Project to get assistance and benefits from the market opportunity offered by the Royal Project and its associates.

These results have several implications consistent with the analytical framework of this research. The characteristics of farmers and marketing characteristics help to identify some key success factors and constraints associated with participation in the Royal Project scheme. However, the previous analyses are descriptive and not explanatory. For this reason, further analyses are presented and discussed in the next section.

8.2 The Impacts on Small-scale Producers of Participating in the Royal Project Scheme

This section analyses the impact on small-scale producers of participating in the Royal Project scheme in producing for modern trade chains. Within this context, the section addresses four research questions (RQ7, RQ9 and RQ10).

In this section the determinant factors and impacts associated with small-scale farmers participating in the Royal Project scheme in producing for modern trade chains are presented and discussed. For this purpose a probit model to assess the effect of socio-economic variables and demographic information on participation is used.

Regression models of the determinants of farm economic outcomes (profits per rai) is employed to help determine the effect of participating in the Royal Project scheme, while controlling for other variables that may affect outcomes. A selectivity/endogeneity problem is recognized in the estimation equations and ways to overcome such problems also explored during analysis stage.

8.2.1 Determinants of participation

Regarding research question 7 (RQ7), the determinants of small-scale farmers participating in the social enterprise schemes. A probit model was employed to explore the producer's demographics, farm characteristics and income that had an impact on the probability of participating in the Royal Project scheme in producing for modern trade chains.

The determinants and impacts associated with small-scale farmers participating in the Royal Project scheme are presented and discussed in Appendix C.

8.2.2 Relative profitability of Royal Project participant farmers

In this section, it is hypothesised that “participant farmers in the Royal Project scheme are more profitable than non-participant farmers for comparable scales of operation”. For those farmers willing to participate in the Royal Project scheme in producing for modern trade chains, the average profitability is an important factor. In this study, gross margins are used as measures of profitability. The gross margins calculated are based on the survey data. It is noted that land rent is included in hiring cost and interest or credits cost is included in other costs section. To compare the competitiveness of participant and non-participant farmers, gross margins are expressed per unit of land and per family-labour day.

Table 8.6: Cost of Chinese cabbage production and gross margins for participant and non-participant, 2008/2009

non-participant, 2008/2009			
Items	Non-member Farms	Social Enterprise Member Farms	Mean Difference ^a
	Conventional Chinese cabbage	Pesticide safe Chinese cabbage	
(Baht/rai, mean values of sample)			
Seeds	173.73	202.23	-28.50 [*]
Fertilizer ³⁷ (chemical fertilizer/ green manure)	1,830.98	1,809.14	21.84
Pesticide ³⁸ (chemical/ biological pest control)	587.68	436.57	151.11 ^{***}
Energy	1,242.10	1,143.40	98.70
Hiring	699.32	685.89	13.43
Other costs	133.25	126.58	6.67 ^{***}
Total inputs	4,667.07	4,403.81	263.26 [*]
Wages paid	1,437.00	1,694.50	-257.50 [*]
Value of output	15,302.92	18,644.13	-3,341.21 ^{**}
Gross margin per rai	7,665.52	10,479.82	-2,814.30 ^{**}
Gross margin per kg	2.01	2.27	-0.26 [*]
(days/rai, mean value of sample)			
Days of family labour per rai ³⁹	10.22	13.77	-3.55 [*]
Days of total labour per rai	19.80	25.07	-5.27 ^{**}
(Baht/day, mean values of sample)			
Gross margin per day of family labour	794.64	806.15	-11.51 ^{**}
<i>Note:</i>			
Average cycle per year	2.33	2.75	-0.42 ^{***}

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively of paired t-tests of differences of means; ^a is traditional minus Royal Project.

Table 8.6 provides a gross margin analysis for two types of farmers (RP member farmers and non-member farmers) which indicates that there are substantial differences between the two groups of farmers. It also shows that participant farmers made a significantly higher profit over total costs. Participant farmers gross margins per rai is about 10,479.82 Baht while non-participant farmers gross margins per rai is about 7,665.52 Baht.

This result is consistent with previous research analyzing costs and benefits of vegetable (Chinese cabbage) production in Thailand, including in the Royal Project (see for example Isvilanonda *et al.*, 2008).

³⁷ Participant farmers who are growing under pesticide-safe production system are allowed to use both chemical and organic fertilizer under RP conditions. However, participant farmers tend to use more organic fertilizer than chemical fertilizer.

³⁸ Participant farmers are allowed to use both biological and chemical pest control under RP conditions.

³⁹ Calculated from average family labour paid divide by 150Baht/day (minimum/average wage per day)

First, non-member RP farmers use on average about 6 percent of total inputs expenditure per rai higher than RP member farmers calculated based on variable production costs including the cost of seeds, fertilizer, pesticide, energy, irrigation cost, labour and other costs. Non-member farmers have on average 25.71 percent of pesticide and 1.2 percent of fertilizer expenditure higher than RP member farmers. This may be a result of the Royal Project conditions with controlled production, pre-harvest treatments and chemical residual systems. Consequently, there are considerable differences in pesticide use but slightly different in fertilizers used by the two groups. However, it is important to note that participant farmers who are growing under pesticide-safe farming system are allowed to use both chemical and organic pesticide and fertilizer under RP conditions. Results from the survey and interviews indicate participant farmers tend to use more organic pesticide and fertilizer than chemical. In spite of the input differences yields per rai are not much different between these two farmer groups.

Second, RP member farmers use more days of family labour and total labour per rai, mostly because member farmers have to spend more time on farm to achieve the production and standard requirements. Participant farmers used more days of family labour and more days of total labour per rai than non-participant farmers by 34.74 percent and 26.62 percent respectively. Third, output price of non-member farmers who produce conventional vegetable is lower than member farmers who produce pesticide-safe vegetable by about 11 percent (average conventional Chinese cabbage price is 4.7 Baht per kilogram and pesticide safe Chinese cabbage price is 5.2 Baht per kilogram). Therefore, different kind of products and production systems lead to essential differences in profitability between the two farmer types. The value of output of member farmers is higher than non-member farmers by about 21.83 percent. Member farmers get a gross margin per rai on average of 36.71 percent higher than non-member farmers, resulting in a gross margin per kg of about 13 percent higher than non-member farmers.

However, member farmers have a slightly higher gross margin per day of family labour of about 1.45 percent than non-member farmers as a result of member farmers using family labour more intensively than non-member farmers.

It is important to note that RP participant farmers have higher average number of Chinese cabbage production cycles per year than non-participant farmers. While participant farmers have on average 2.75 cycles per year their non-participant counterparts have 2.33 cycles.

8.2.3 Determinants of farm economic outcomes (profits per rai)

A regression model was employed to explore the determinants of profit outcomes. This helps determine the effect of participation on key farm outcomes, while controlling for other variables that may affect outcomes.

The result of regression models of determinants of farm economic outcomes as profit per Rai is presented and discussed in Appendix D. In addition, selectivity/endogeneity issues are also addressed during estimation also shown in the Appendix D.

8.2.4 Broader benefits from participating in Royal Project scheme

The above results show that participating farmers obtained benefits from participating in the Royal Project scheme in terms of financial benefit. However, from the interviews and survey, the study found that participant farmers also had broader benefits from participating in the Royal Project scheme. It is important to note that some of these broader benefits are also reflected in participant farmer gross margins. Table 8.7 shows the summary of potential benefits (broader benefits) of participating in the Royal Project scheme.

Table 8.7: Summary of broader benefits from Royal Project scheme participation

Parameter	Potential benefits	Indicator
Access to market	Royal Project arrangements serve to link small-scale farmers to modern trade markets including international markets where the demand and price of crops are more favourable. In addition, Royal Project arranges to link participant farmers to new agri-food market segments by growing useful crops which enable them to have a better price and expanding the market opportunity.	- Better price (More market opportunity) - Low transaction costs
Access to credit	Royal Project arranges to provide credit either in cash or in kind by providing inputs such as seeds and fertilizers for participant farmer. In addition, the Royal Project credit cost is lower than other sources (for example Royal Project interest rate is about 30 percent lower than the market interest rate)	- Lower production costs which is reflected in profits
Reduced production risk	Royal Project arranges contract farming to facilitate risk sharing from production failures due to uncontrollable circumstances including disease or poor weather. Subsidies (e.g. inputs and cash subsidies) may also be provided to diminish risk during the contract farming period.	- Higher gross margins
Access to technology and skills development	Royal Project arrangements often facilitate the introduction of new production and farm management techniques (pesticide-safe production) and further measures that serve to upgrade agricultural commodities. These include training and assistance in crop production, soil and water management, farm recording system, and farm management to support pesticide-safe certification. Aside from straightforward technology and skills development, farmers can become astute in learning how pesticide-safe product markets work, how to manage farm accounts, and run their pesticide-safe farm as business.	- Better yield (both quality and quantity standards)
Reduced price risk	Although Royal Project usually does not arrange a predetermined price for the crops during contract farming, RP guarantees participant farmers that they can get a higher price than traditional markets price. This protects participant farmers from incurring losses in sales due to price fluctuations. From the interviews and survey responses, the study found that the average RP price is about 11 percent higher than traditional market price.	- Low transaction costs - Higher gross margins

Source: Interviews and survey

8.3 Motivations and Challenges of Participant Farmers in the Royal Project Scheme

Previous sections have described the impacts and profitability of small-scale farmers participating in the Royal Project scheme in producing for modern trade chains. This section analyses the motivations and challenges facing participant small-scale farmers. First, the section discusses the reasons why farmers decide to participate in Royal Project scheme. Then, the main problems faced by these small-scale farmers are explored.

8.3.1 Motivations of farmer's decision to participate in the Royal Project scheme

Survey respondents were presented with a list of factors that were identified from previous studies (for example Blandon, 2006; Masakure, 2005; Grosh, 1994; Little and Watts, 1994) and from focus group discussions as reasons for participating in the Royal Project scheme. The respondents were then asked to indicate how important each of these factors had been in their own decision to participate in the Royal Project scheme in producing for modern trade chains using a 5-point Likert scale ranging from 1 “Very Unimportant” to 5 “Very Important”. Table 8.8 shows the ordered mean scores for motivations and potential benefits of farmers growing for the Royal Project.

Table 8.8: Mean importance score for motivations and potential benefits for growing for Royal Project scheme

<i>Factor</i>	<i>Mean score</i>
Guaranteed purchase	4.3
Credit provided by Royal Project	4.2
Extra income	3.8
Guaranteed minimum price	3.4
Acquiring new knowledge	3.1 ^a
No need to transport crop to market	3.1 ^a
Group relationship with other farmers	2.9

Note: Mean score indicated with the same letter are not significantly different from each other at the 0.05% level based on Wilcoxon Sign-rank test.

Table 8.8 shows that the factor respondents considered most important reason in participating and selling to modern trade markets via Royal Project was ‘Guaranteed purchase’. Other factors were ‘Credit provided by Royal Project’, ‘Extra income’ and ‘Guaranteed minimum price’. The results suggest that participant farmers are motivated by incentives that reduce market uncertainty and price risk. This result is consistent with previous research analyzing production and marketing of pesticide-

safe and organic vegetable in Thailand (for example Rattanasuteerakul and Thapa, 2010⁴⁰; Kitboon, 2009⁴¹). A possible reason for this result is that, from the interviews and survey, although potentially good prices can be obtained for pesticide-safe vegetables, a problem is that the market is quite thin, with few buyers. This is one of major problems faced by pesticide-safe vegetable producers in Thailand, especially in the upland area (Chiang Mai province), because output is vulnerable to damage by pests and insects if not sold on time. In addition, most buyers usually do not pay premiums for pesticide-safe produces if farmers are not members. The results also suggest that farmers are motivated by credit provided by RP. Besides, most farmers require credits and market interest rates are high. Consequently, farmers benefit from credit provided by RP with lower interest rate and may also get subsidies to diminish risks.

Therefore, the key success motivation factors of growing for Royal Project are guaranteed purchase and minimum price, including credit provided by Royal Project.

8.3.2 Main problems faced by small-scale farmers

This section compares the main problems faced by small-scale farmers selling to Royal Project and traditional markets. The respondents were presented with a list of factors identified from the literature, focus group and interviews suggesting potential problems faced by small-scale farmers. They were asked to indicate the importance of each issue on a 3-point Likert scale ranging from 1 “Unimportant” to 3 “Important”. Table 8.9 indicates the ordered mean scores.

From Table 8.13 the main problem factor that participant farmers in the RP scheme in producing for modern trade chains faced was ‘Unstable income’. Other factors were ‘Heavy labour required’, ‘Low price’, ‘Lack of credit’, ‘Not able to spend time on other crops and activities’ and ‘Very high quality standard’, suggesting that financial aspects and capital investment are main problems faced by participant farmers in terms of market prices, quality standards, labour and credit supply.

A possible reason for unstable income and low price problems is that participant farmers can only sell produce to the extent of quota they have got from RP which varies from time to time. Besides, non-participant farmers can promptly sell in the traditional markets. Moreover, RP prices are not much different from traditional market prices. The survey results show the average RP price is 11 percent higher than traditional market price.

⁴⁰ Towards organic vegetable farming in Mahasarakham Province in Thailand, *Journal of Sustainable Agriculture*, Volume 34, Issue 1 January 2010 , pages 57 - 79

⁴¹ Production and marketing of organic vegetable in Thailand, Master Thesis, Mahidol University, Thailand.

The problem of not able to spend time on other crops and activities was also reflected in cost of production analysis in section 8.3.2 (see Table 7.9) which showed that participant farmers used higher days of family labour per rai including days of total labour.

Table 8.9: Mean importance score (in descending order) for main problems faced by small-scale farmers

Modern trade market (via Royal Project)		Traditional market	
<i>Factor</i>	<i>Mean score</i>	<i>Factor</i>	<i>Mean score</i>
Unstable income	2.0	Low price	2.8
Heavy labour required	1.9	Unstable income	2.7
Low price	1.8 ^a	Lack of credit	2.6
Lack of credit	1.8 ^a	Lack of inputs	2.4
Not able to spend time on other crops and activities	1.7 ^b	Heavy investment at start	2.3
Very high quality standard	1.7 ^b	Lack of advice	2.1 ^A
Lack of inputs	1.6	Poor soil	2.1 ^A
Risk of crop failure	1.4 ^c	Technological requirements make production very costly	2.0
Delay in payment	1.4 ^c	Heavy labour required	1.5
Heavy investment at start	1.3	Risk of crop failure	1.4
Lack of advice from Royal Project/SE	1.2 ^d	Technological requirements difficult to follow	1.2 ^B
Poor soil	1.2 ^d	Delay in payment	1.2 ^B
Technological requirements difficult to follow	1.1 ^e	Very high quality standard	1.0 ^D
Technological requirements make production very costly	1.1 ^e	Not able to spend time on other crops and activities	1.0 ^D

Note: Mean score indicated with the same letter are not significantly different from each other at the 0.05% level based on Wilcoxon Sign-rank test.

Non-participant farmers considered “low price” as the main problem faced in selling to traditional market. Other factors were ‘unstable income’, ‘lack of credit’, ‘lack of inputs and ‘heavy investment at start’, suggesting that non-participant farmers are faced by price and capital investment problems. These problems were also reflected in the cost of production and gross margin analysis in sub-section 8.2.2 (see Table 8.6) which showed that non-participants had higher production costs and received lower prices and profits than participant farmers.

However, it is important to note that the largest mean score for problems faced by Royal Project farmers is 2.0 while that for traditional market producers is 2.8. This suggests that Royal Project farmers perceive their problems to be less severe than traditional farmers perceive theirs.

8.3.3 Factor Analysis of the potential benefits, reason for contracting and main problems faced by participant farmers

The above analysis suggests that participant farmers may respond to market failures by joining Royal Project in producing for modern trade chains. However, because market failure has differential effects on household, it is expected that the response to participation should vary depending on particular household characteristics and circumstances. To summarize the key reasons for participating in the Royal Project scheme, the importance scores in previous sub-section (8.3.2) were classified into sub-groups using Factor Analysis.

The first, group of variables subjected to factor analysis is the set of reasons why farmers participate in the Royal Project scheme in producing for modern trade chains. Table 8.10 indicates for two components extracted that collectively accounted for 58.10 percent of overall variance (KMO 0.599). Based on PCA, the final motivation and potential benefit factor scale consists of 7 items with the overall coefficient alpha of 0.74.

Table 8.10: Varimax-rotated principal components factor matrix for motivation and potential benefits of farmer growing for Royal Project scheme

	Component	
	1	2
Acquiring new knowledge	.767	
No need to transport crop to market	-.725	
Credit provided by Royal Project/SE	.707	
Group relationship with other farmers	.628	
Guaranteed minimum price		.823
Guaranteed purchase		.765
Extra income		.722
<i>Reliability (Cronbach's Alpha)</i>	<i>0.75</i>	<i>0.67</i>
<i>% Variation</i>	<i>31.60%</i>	<i>26.50%</i>

Note: Sums of Cumulative 58.109%

From the factor loadings, the two components can be interpreted as follows:

Component 1: This component accounts for 31.60 percent of the variance and variables that loaded most heavily in this component were 'Acquiring new knowledge', 'No need to transport crop to market', 'Credit provided by Royal Project' and 'Group relationship with other farmers'. This suggests that this component is associated with *indirect benefits* as a motive to participate in the Royal Project scheme.

Component 2: The variables that loaded highly, accounting for 26.50 percent of the variance, on this component were ‘Guaranteed minimum price’, ‘Guaranteed purchase’ and ‘Extra income’, suggesting this component is associated with *market and income uncertainty* due to imperfect information and output markets.

This analysis shows that the decision of participating in the Royal Project scheme was based on two main distinct incentives. First, farmers were attracted by indirect benefits. Acquiring new knowledge was clearly the most important incentive (Component 1). A possible reason for this result is that transformation of food markets, especially modern trade chains, has the effect of changing the marketing systems due to which indirect benefits are significantly important for small-scale farmers.

The second group of variables for factor analysis are related to the main factors leading farmers to decide to sell to Royal Project. Table 8.11 indicates the loadings on five components collectively accounting for 72.98 percent of overall variance (KMO 0.516). In the addition, PCA extracted 5 components with the overall coefficient alpha of 0.79.

Table 8.11: Varimax-rotated principal components factor matrix for reasons why farmers decided to sell to Royal Project

Reason for contracting	Component				
	1	2	3	4	5
Specific product demand	.782				
Variability of market demand	.755				
Variability of market price	.723				
Level of market demand	.685				
Access to information		.834			
Frequency of selling		.804			
Payment mechanism		.530			
Cost of market entry			.760		
Cost of transportation			.748		
Ease of transportation			.507		
Grading requirements				.776	
Need for producer to be organized				.721	
Place of selling					.832
Level of market price					.651
<i>Reliability (Cronbach's Alpha)</i>	<i>0.75</i>	<i>0.70</i>	<i>0.78</i>	<i>0.67</i>	<i>0.76</i>
<i>% Variation</i>	<i>23.06%</i>	<i>15.94%</i>	<i>12.90%</i>	<i>10.84%</i>	<i>10.24%</i>

Note: Sums of Cumulative 72.98%

Based on the factor loadings, the five components can be interpreted as follows:

Component 1: This component accounts for 23.06 percent of the variance and variables that loaded most heavily in this component were ‘Specific product demand’, ‘Variability of market demand’, ‘Variability of market price’ and ‘Level of market demand’. This suggests that this factor is associated with the *market demand* in pesticide-free vegetables.

Component 2: The variables that loaded highly on this component, which accounts for 15.94 percent of the variance were ‘Access to information’, ‘Frequency of selling’ and ‘Payment mechanism’. This suggests that this component is associated with *transaction costs*.

Component 3: The variables that loaded most heavily, which accounts for 12.90 percent of the variance, on this component were ‘Cost of enter market’, ‘Cost of transportation’ and ‘Ease of transportation’. This suggests that this was associated with *logistics and transportation costs*.

Component 4: The variables ‘Grading requirement’ and ‘Need for producer to be organized’ loaded most heavily on this component, which accounts for 10.84 percent of the variance. This suggests that this is associated with *market requirement*.

Component 5: The component accounts for 10.24 percent of the variance, and showing that the factors that loaded most heavily in this component were ‘Place of selling’ and ‘Level of market price’. This suggests that this is associated with *market competition*.

This analysis indicates that the reasons to decide to sell to Royal Project are many and varied. First, market demand such as level and variability of market demand (component 1) has been important benefit for participating farmers, enabling them to increase productivity and selling above that of non-participant farmers. Second, transaction cost such as access to information and frequency of selling have been important (component 2). Participation in the RP scheme helps to reduce the transaction costs and also increase the ability to plan and allocate resources efficiently. Logistics and transportation costs were significant (component 3). Participation in the Royal Project scheme also helps to reduce logistics and transportation costs faced by small-scale farmers. Market requirement (component 4) has been a significant factor. Lastly, market competition such as level of market price and place of selling has been important reasons for participating in the RP scheme.

The third group of variables refers to the main problems faced by participant farmers. Table 8.12 indicates the loadings on five components collectively accounting for 71.60 percent of overall variance (KMO 0.528). In addition, PCA scale consists of 14 items with the overall coefficient alpha of 0.72.

Table 8.12: Varimax-rotated principal components factor matrix for problems faced by participant farmers

	Component				
	1	2	3	4	5
Not able to spend time on other crops and activities	.749				
Delay in payment	.706				
Lack of credit	.655				
Heavy labour requirement	.607				
Risk of crop failure		.793			
Lack of inputs		.772			
Lack of advice from Royal Project		.593			
Heavy initial investment			.839		
Unstable income			.835		
Technological requirements very costly			.525		
Low price				.791	
Very high quality standard				.785	
Technological requirements stringent					.738
Poor soil					.715
<i>Reliability (Cronbach's Alpha)</i>	0.75	0.73	0.72	0.65	0.66
<i>% Variation</i>	18.73%	15.60%	14.14%	11.68%	11.45%

Note: Sums of Cumulative 71.60%

Based on the factor loadings, the five components can be interpreted as follows:

Component 1: This component accounts for 18.73 percent of the variance and shows factors that loaded most heavily in this component were ‘Not able to spend time on other crops and activities’, ‘Delay in payment’, ‘Lack of credit’, and ‘Heavy labour requirement’. This suggests that this principal component is associated with *labour and credit supply*.

Component 2: The variables that loaded highly on this component, which accounts for 15.60 percent, were ‘Risk of crop failure’, ‘Lack of inputs’ and ‘Lack of advice from RP’. This suggests that this component is associated with *crop failure*. Pesticide-safe farming systems require some production standards, e.g. in land preparation, fertilizer and chemical use and farm recording, etc.

Component 3: This component accounts for 14.14 percent of the variance and factors that loaded most heavily in this component were ‘Heavy investment at start’, ‘Unstable income’ and ‘Technological requirements very costly’. This suggests that this component is associated with *technological investment*.

Component 4: The variables that loaded highly on this component, which accounts for 11.68 percent of the variance, were ‘Low price’ and ‘Very high quality standard’. This suggests that the component is associated with *market requirement*.

Component 5: The variables that loaded high on this component, which accounts for 11.45 percent of the variance, were ‘Technological requirements stringent’ and ‘Poor soil’. This suggests that this component is associated with *production management*.

The analysis suggests that possibility for producing pesticide-safe vegetables for modern trade chains by small-scale farmers faced a number of farm-level constraints which can be broken down into five groups. First, participant farmers faced many problems associated with labour and credit supply (Component 1) especially in the initial pesticide-safe farming stage. This also suggests that participant farmers have to get some assistance in terms of credit and inputs provided including farm management skills training to solve these problems which are related to the production problems such as crop failure (Component 2). In addition, the technological requirements raise the cost of production (Component 3), confirming the findings in sub-section 8.3.2 (Table 8.9). Market requirement (Component 4) and production management (Component 5) were also the critical problems faced by small-scale farmers.

8.4 Conclusions

The chapter has explored the impact and motivation factors for small-scale farmers to participate in the Royal Project scheme in producing for modern trade chains. It addresses four research questions (RQ7, RQ8, RQ9 and RQ10).

Results of the first statistical analysis in section 8.2 shows socio-economic, farm and marketing characteristics are significantly different between participant and non-participant farmers.

In section 8.3 (please see Appendix III), the probit model results suggest that the decision of household to participate in the Royal Project scheme is not independent of household and farm characteristics. The household characteristics such as labour available in the household and head of household’s education were significant. In addition, farm and market characteristics such as quality of soil, farm size, yearly household and non-farm income were also significant.

Gross margin analysis in sub-section 8.3.2 shows that participant farmers have higher profits than non-participant farmers. Moreover, regression models and selectivity analysis also show that participating in the Royal Project scheme significantly increases profitability per rai.

Section 8.4 shows the motivations and challenges of farmers participating in the Royal Project scheme. These are associated with two main factors; indirect benefit such as acquiring new knowledge and credit provided by RP, and reduced market uncertainty such as guaranteed minimum price and purchase. The problem factors faced by participant farmers are associated with labour and credit supply, crop failure, technological investment, market requirement and production management issues.

Regarding the empirical results from chapters 7 and 8, the analysis show that participating in the social enterprise schemes has positive and significant effects on economic outcomes (profits). Participant farmers also have broader benefits from participating in social enterprise schemes ultimately resulting in higher gross margins.

CONCLUSIONS

9.0 Introduction

This study has analysed the role of social enterprise in enabling small-scale farmers to produce for, and participate in modern trade chains. It aimed to identify the motivations of farmers participating in social enterprise schemes and the economic impacts of participation. The study started with four specific objectives. The assessment of these objectives are presented and discussed in this chapter. The main contributions of the research its limitations and recommendation for future research are presented.

9.1 Assessment of Objectives

The following sections present a summary of research results and discussion on the main findings of this research on those specific objectives.

1. Factors driving transformation of agri-food markets in Thailand, emergence of modern trade chains and implications for small-scale producer (Objective No. 1)

This study provided an overview of the transformation of the agri-food supply chain in Thailand over the last two decades. This transformation has involved the rapid rise of modern trade chains driven by changes in consumer preferences, increasing awareness of food safety and environment issues and government policies encouraging foreign direct investment in food retailing. It was estimated that following rapid growth supermarket chains now accounts for over 50 percent of food market in Thailand (Figure 2.3).

It is expected that the market share of modern trade will continue to grow in the next few years. The increasing share of modern trade, especially of supermarkets, represents new marketing opportunities as well as challenges for small-scale producers. The rise of modern trade chains, especially supermarkets, offers new marketing mechanisms, coordination between producers and buyers is a key element in supply chain. The main challenge for small-scale farmers is how to produce commodities that meet requirements imposed by the modern trade in terms of quantity, quality, variety, frequency of supply as well as adherence to logistics of supply chain management. The results suggest that small-scale farmers' experiences of participation in modern supply chains in Thailand are similar to those of small farmers in some other countries (for example Blandon, 2006).

This study found that it was almost practically impossible for small-scale farmers to establish a direct marketing relationship with a modern chain by themselves. Just a small minority of farmers, who are exceptionally able, are able to sell their products directly to modern trade chains. The majority of small-scale farmers sell their products in the modern trade chains through different coordination mechanisms. This research has found small-scale farmers use different mechanisms to participate in modern trade chains depending on their situation and preferences. A brief summary of these mechanisms is as follows: 1) through leading (large) farmers who have a relationship with the modern trade chains, establish a relationship with a pool of smaller farmers in order to guarantee the quantity, variety and frequency of supply of their products; 2) One of the most common ways of participating in the modern trade chains was through wholesalers/traders who bought produce from small-scale farms where most farmers were in contact farming arrangements; 3) Another common participation channel in the modern trade chains (especially for supermarket chains) was through brokers/suppliers who bought produce from small-scale farmers in a contact farming scheme. In this case, brokers/suppliers usually provide inputs/credits for small-scale farmers to produce for them; 4) Small-scale farmers also had an alternative way of participating in the modern trade chains, which was through cooperatives which are generally found in fruit supply chains. This was promoted by government policies from time-to-time in order to reduce the excess supply of produce in the market; and 5) Farmers' participation in the modern trade chains through social enterprise schemes was found to be currently popular because it offered farmers with a number of opportunities and advantages, especially for the supply of organic/pesticide-safe products (Table 6.7). However, this method of participation requires a high level of coordination between stakeholders.

2. Term under which small-scale producers interact with social enterprises in producing for modern trade chains (Objective No. 2)

The literature suggests that the nature and performance of contracts reflects the governance structures of specific modern supply chains. Buyer-driven agri-food produce supply chains reflect the increasing role of modern trade chains in setting standards, priorities and parameters (Reardon et al., 2003). Several studies have analysed such structural changes (for example Dolan and Humphrey, 2000; Reardon and Barrett, 2000). However, none has provided detailed discussion about the farm-level impacts, especially how contracts are managed, and what upgrading possibilities for small-scale farmers. This study shows how these forces are reflected at the farm-level, by focusing on the analysis of the contract between farmers and social enterprises in producing for modern trade chains. The findings reveal that most contacts are formal and renegotiated from time to time, with strict oversight and enforcement by buyers. The study's results explain how farmers operate under standardised product specification, modes of production, certification and other intense pressures from buyers.

The social enterprise contractual scheme was found to be one of the key factors for success for farmers' participation in the modern trade chains. However, the results of this research showed that services in marketing, collection and distribution were particularly important for participation in modern supply chains in the context of Thailand. Marketing services were mainly associated with negotiation with buyers. Small-scale farmers did not negotiate directly with buyers, such as modern trade chains, due to two main reasons. First, individual small-scale farmers did not have enough scale (large scale) to negotiate as it was too costly for them. Second, there would be too high transaction costs for supermarket chains to negotiate with a large number of individual small-scale farmers. Therefore, social enterprise helped small-scale farmers to negotiate with the supermarkets. The importance of social enterprise scheme was confirmed from the research results; most supermarkets had highly positive attitudes and preferences to deal with social enterprises, partly because the supermarket received several advantages from social enterprise channel than through other channels (Table 6.5 and 6.6).

The advantages are separated into two main categories, which are capacities and advantages (Key and Runsten, 1999; Keneth et. al., 2000; Reardon *et al.*, 2003; and Swinnen, 2007). Advantages in capacities can also be divided into production advantages and supporting advantages. To be more précised, production has two main advantages, which are 1) to allow better production planning and 2) to be able to produce products in a long run efficiently. In supporting advantages, there are four main advanges, which are 1) understand information about demand of products 2) acknowledge the learning curve 3) improve the technology and knowledge management skills and 4) improve payment mechanism and management (Reardon, 2009).

The incentives advantages of small scale farmers have two main areas, which are marketing and pricing. Firstly, the marketing has two main advantages, which are 1) a guaranteed market for contracted products and 2) a continuous and stable demand. Secondly, pricing comprises with two main advantages, which are 1) higher average price ans 2) stable price (Reardon, 2009).

In summary, this conclusion could be made that the social enterprise contractual scheme was the key and crucial factor in the modern trade chains (Alter, 2006). The following section answer on the next objectives which is on the impacts, motivations and challenges in small-scale farmers' participation in social enterprise schemes producing for modern trade chains.

3. Impacts, motivations and challenges in small-scale farmers' participation in social enterprise schemes producing for modern trade chains (Objective 3 and 4)

Farmers included in the survey sample were characterized in terms of socio-economic, farm, household and marketing characteristics. This characterization showed that participant and non-participant farmers were quite similar. Furthermore, the research found that the results from both case studies (Green Net and Royal Project) are somewhat similar.

The research results based on gross margin analyses clearly illustrated the direct and indirect benefits accruing to participant farmers in the social enterprise schemes. Participant farmers from both case studies had higher profits than non-participant farmers. The results also showed that an important role of social enterprise was helping to reduce transaction costs (e.g. market uncertainty) for participant farmers. Although non-participant farmers do not benefit from reduced transaction costs associated with participation, they generally have higher non-farm incomes.

The study results, based on probit model analyses, also indicated that the decision of households to participate in the social enterprise schemes in producing for modern trade chains was not independent of household and farm characteristics. The household characteristics such as labour availability in the household and head of household's education and experience were found to be significant in influencing participation. Farm characteristics such as quality of soil, farm size were also significantly important.

In addition, the research results, based on factor analyses, showed the motivations and challenges of participant farmers associated with market uncertainty such as guaranteed purchase and minimum price. The farmers faced some problems associated with labour and input/credit supply as well as market requirements. Although previous research has acknowledged some of these effects (for example Masakure, 2005), this study's results add empirical support in the Thai context.

Result found that not everyone can be member of social enterprises because the participant farmers have to follow rules and regulations of the Royal Projects and the Green Net. The major obstacles are 1) rules and regulations of being members in social enterprise 2) model and farm management itself 3) logistics systems that allow them to participate in social enterprises and 4) financial systems of being members in a social enterprise (Alter, 2006; Peattie and Morley, 2008). The social enterprise sets rules and regulations to obstructs those who does not intend to follow. This aims to help the small scale farmers to be able to increase their ability to do farming based on the environmental friendliness approach. In this case, the quality of farming products can be expected and they can also be sold in the modern supply chain or modern trade, thus have better opportunity for their farming products.

In conclusion, the research findings can be summarised and demonstrated in the Table 9.1.

Table 9.1: Summary and demonstrate of qualitative and quantitative research findings regarding benefit of participation

Benefit Issues	Literature	Quantitative Finding	Qualitative Finding	Level Similarity
- Level of Uncertainty	Decrease level of uncertainty (for example Reardon <i>et al.</i> , 2002, 2003, 2004 and 2007; Singh, 2002; Bandon, 2006)	Decrease level of uncertainty	Decrease level of uncertainty (e.g. guaranteed price and purchase)	Similar
- Level of Knowledge	Increase level of knowledge and learning curve (Williamson, 2000; North 1995; Masakure, 2005)	Increase level of relationship and knowledge	Increase level of knowledge/ marketing guideline (e.g. training programs provided by modern traders)	Similar
- Transaction cost	Minimize transaction costs (for example Bandon, 2006; Masakure, 2005; Reardon <i>et al.</i> , 2004)	Minimize transaction cost	Minimize transaction costs (e.g. long-run planning, improving technology, continuous and stable demand)	Similar

According to the benefit issues found from research findings (Table 9.1), they could be categorised into three groups, which are level of uncertainty, level of knowledge, and the transaction cost. Firstly, the level of uncertainty, the result from qualitative approach explained that the level of uncertainty was decreased as demonstrated in Table 7.15 and Table 8.14, whilst the result in qualitative approach explained that level of uncertainty was also decreased; Reardon *et al.* (2006). Secondly, the results found that the level of knowledge increased similarly, which confirmed by Williamson, (2000), North (1995), and Masakure, (2005). Lastly, the transaction cost was minimised similarly in both qualitative and quantitative approaches and confirmed in Bandon (2006), Masakure (2005), and Reardon *et al.* (2004).

Table 9.2: Summary and demonstrate of qualitative and quantitative research findings regarding motivation factors of participation

Determinant factors of participation Issues	Literature	Quantitative Finding	Qualitative Finding	Level Similarity
-Market conditions	Managing risks (Delforge, 2007; Reardon <i>et al.</i> , 2003)	Decrease risks of market conditions	Decrease risks/uncertainty of market conditions	Similar
-Logistics and purchasing systems	Logistics and delivery support/ reduce transportation cost (s Minten <i>et al.</i> , 2005; Blandon, 2006)	Decrease transportation costs (Table 7.5 and Table 8.5)	Increase accessibility of supporting eg. Transportation/delivery	Similar
-Transaction costs	Reducing transaction costs (Reardon <i>et al.</i> , 2003, 2004; Ramaswami <i>et al.</i> , 2005)	Decrease transaction costs (e.g. access to information)	Decrease transaction costs/ Increase production capacity (e.g. supporting information and training programs)	Similar
-Market requirements	Increase opportunity in new markets (Minten <i>et al.</i> , 2005; Masakure, 2005, Blandon, 2006)	Increase opportunity of selling markets/decrease risks of lose market	Increase opportunity of selling markets / increase marketing intensives (e.g. guaranteed market and purchase)	Similar
-Market demand	Earning income/reducing marketing costs (see Boselie <i>et al.</i> , 2003, Reardon <i>et al.</i> , 2003; Masakure, 2005)	Decrease risks of market demand (e.g. low level of market price)	Decrease ricks/ maximise benefit from market demand (e.g. guaranteed price (stable price) and sometimes price is higher than average market price)	Similar

According to the benefit issues found from this research findings (Table 9.2), determinant factors of participation issues were market conditions, logistics and purchasing systems, transaction costs, market requirements, and market demand. Firstly, the market condition, the findings demonstrated a decrease in risks of market condition. Secondly, the results found that costs of logistics and transportation decreased similarly in both qualitative and qualitative methods as also confirmed by Minten *et al.*, (2005) and Blandon (2006). Thirdly, the findings demonstrated similarly that transaction costs was reduced as also stated in Reardon *et al.* (2003 and 2004) and Ramaswami *et al.* (2005). Forthly, market requirements reported an increase in opportunity in selling products at new markets and similar result was also found in Minten *et al.* (2005); Masakure (2005), and Blandon (2006). Lastly, findings reported an earning income, a reduction in marketing costs, and a decrease in risk of market demand and similar results were founded in Boselie *et al.* (2003), Reardon *et al.* (2003) and Masakure (2005).

In addition, according to the problems faced in participation issues found from this research finding (Table 9.3), the challenges were labour and input supply, production systems, technology investment, production capacity, and financial aspects. Firstly, the labour and input supply was heavily required (Table 7.8 and 8.8) as they were demonstrated similarly result in both quantitative and qualitative approaches and similar results were found in Boselie *et al.* (2003) and Neven *et al.* (2006). Secondly, there was a serious problem in production systems of which a lack of management skill and crop failure were found. Shepherd (2005) and Boselie *et al.* (2006) were proof similarly. Thirdly, technology investment, a lacking of infrastructure and technology were found as the cost of technology to be utilised were high. A review of literature was confirmed similarly such as in Neven *et al.* (2006), Buurma and Saranark (2006), and, Blandon (2006). Fourthly, the production capacity, lack of credit and high transaction costs were found in this research both in qualitative and quantitative approaches and the literature was also reviewed in similar results. Lastly, financial aspect, a delay in payment was seen as one major aspect (Masakure, 2005; Buurma and Saranark, 2006). All these problems were addressed for future concerns.

Table 9.3: Summary of findings from both qualitative and quantitative approaches regarding problems faced in participation

Problems faced in participation Issues	Literature	Quantitative Finding	Qualitative Finding	Level Similarity
<i>-Labour and input supply</i>	Heavily labour required (Boselie <i>et al.</i> , 2003; Neven <i>et al.</i> , 2006)	Heavily labour required (see Table 7.8 and Table 8.8)	Lack of family labours/ heavily labour required/labour costs is high	Similar
<i>-Production system</i>	Lack of management skills and risk of crop failure (Shepherd, 2005; Boselie <i>et al.</i> , 2006)	Risk of crop failure	Lack of management skills and risk of crop failure	Similar
<i>-Technology investment</i>	Lack of infrastructures and technology development (Neven <i>et al.</i> , 2006; Buurma and Saranark, 2006; Blandon, 2006)	Technological requirements very costly	Technological requirements very costly	Similar
<i>-Production capacity</i>	Lack of credits/inputs and high transaction costs (Neven <i>et al.</i> , 2006; Blandon, 2006; Masakure, 2005; Boselie <i>et al.</i> , 2003)	Lack of credits and high transaction costs	Lack of credits and high transaction costs	Similar
<i>-Financial aspect</i>	Payment mechanism and delay payment (Masakure, 2005; Buurma and Saranark, 2006)	Delay payment	Delay payment	Similar

9.2 Policy Implications

The results of this study suggest a need for policies that facilitate the integration of small-scale farmers in the new agri-food systems emerging in Thailand. It is expected that the changes in agri-food systems will become more pronounced in the future. For instance, the entrance in the region of modern trade chains such as large retailers (for example Tesco, Carrefour etc.), fast food chains, and processors which bring new procurement systems, will change traditional supply chains. As these companies are regularly multinationals, they may offer local, regional and even international market opportunities. The challenge, however, is to comply with the grades, standards, delivery and logistics systems requirements associated with their procurement systems. The identification and assessment of motivations and constraints associated with the participation of small-scale farmers in social enterprise schemes can provide useful inputs for policy makers interested in promoting small-scale farmers' participation in modern supply chains.

Future evolution of small scale sector coping with food sector transformation will have to examine their own selection whether they are appropriate in social enterprise or traditional system. As they cannot avoid the social enterprise form, they will have to adjust themselves so that they can survive in the industry. In a long run, there are various factors that the small scale farmers have to consider for a readiness in adjusting themselves in the modern supply chain in the future operations.

Policies associated with farmers: Policies should be aimed at tackling marketing barriers associated with particular characteristics of procurement systems used in the modern supply chains such as grading, selling place and payment systems. Policies oriented to overcome technological barriers are also important – these include policies which affect small-scale farmers' access to inputs and credit and services which affect their ability to comply with the requirement of modern trade chains.

Policies associated with social enterprise: As small-scale farmers face the risks of being excluded from modern supply chain systems due to the volumes and frequency of supply required, social enterprises could be promoted in integrating small-scale farmers in the modern trade chains. Collective and marketing social enterprises allow small-scale farmers to pool produce in order to guarantee frequency and variety as well as standards (under social enterprise scheme contracts). Likewise, collection, manufacture, transportation, and distribution costs can be lowered. However, promotion of social enterprise must carefully identify and focus on the main constraints. Policies should not promote such organization just for social reasons, but instead should consider the service that social enterprises are uniquely capable of providing.

An additional concern, on the other hands is the changes in agri-food systems which can bring serious problems to farmers who are excluded from new market opportunities. It is expected that traditional market also needs to adapt and change their practices in response to the pressure from the development of the new supply chains and this adjustment, in turn, is likely to put further challenges to small farmers. As the Thai rural population have very few alternatives other than the agriculture sector, farmers would become locked into their old activities even if the sector has become more uncertain and unprofitable. This could finally result in an increase in poverty and inequality. The government should highly concern type or concept of the social enterprise whether they are effective in Thailand, especially social enterprise in the agricultural products. This is because Thailand has no realistic and model of rules and picture of social enterprise. They only assume themselves as if they are social enterprise but there is none that is effective at present. The model of social enterprise should be developed and supported by the government sector to ensure that they are effective and can be operated in Thailand.

Thus, policies are needed not only to facilitate farmers participation in new supply chains, but also to provide alternatives to those farmers that face the entry barriers. In this sense, alternative markets and/or even new economic activities should be explored.

9.3 Contributions of the Research

The main contribution of this research is that it provides an empirical illustration of the role and potential of social enterprises (producer organization): establishing vertically-coordinated relationships between agribusiness firms and small-scale farmers, in which both parties benefit. With buyers getting reliable suppliers of produce and farmers getting a secure market. In the same way, these results provide important implications (sources of knowledge) that can be used for making policies aimed at enhancing the small-scale farmer's capacity to participate in modern supply chains.

In addition, in this research, the application of the value chain framework has been very useful to explain the economic behaviour of small-scale farmers in developing countries it responses to changes in their traditional agri-food systems. The role of contractual transaction costs for determining small-scale farmers' participation in the modern supply chains has been assessed in this research, and its results generally support value chain analysis concept.

9.4 Limitations of the Research

The following limitations of this study are noted. There is a lack of clarity surrounding the interpretation of the dummy variable, representing participation, used in the analysis due to confounding effects. This due to the sampling problem in the main body of this study due to lack of reconcile actual data collection from key actors in agri-food supply chain which would involved sampling from all five modern trade channels as demonstrated in Figure 6.1.

Moreover, although the results of this research have shown that participant farmers in the social enterprise schemes had higher profits than non-participant farmers, some of the differences in profitability may arise due to differences in the type of products produced by the two groups – of organic/pesticide-safe versus conventional product. In addition, the positive impact on profitability of participant farmers depends on the type of interaction by the social enterprises – which is quite different from the two case studies in this research.

Owing the time and budget constraints, this research could cover only two case studies (Green Net and Royal Project) and had a relatively small sample size. The research was able to compare the profitability of participant and non-participant farmers only for a limited range of crops.

Finally, regarding research information, most of the information used for describing the supply chain for agri-food products in Thailand is qualitative. Buyers in the modern trade chains such as supermarket chains did not provide quantitative information such as past, current and projection of future sales in order to accurately estimate changes over time, and make projection about future market opportunities. Furthermore, there is no reliable source of public statistics in government offices. Also, empirical studies measuring impacts of farmer participation in the modern trade chains are not available. In addition, there is no quantitative information and reliable source of social enterprise schemes in Thailand especially in agricultural sector.

9.5 Recommendations for further research

Considering the limitations of this research, it is recommended to conduct a survey in other social enterprise schemes of importance, and compare it with the current results. Similarly, it is recommended to do research on multiple crops production to be able to assess total farm level at profit ability. Participant and non-participant farmers in comparison across identical product categories (e.g. organic or pesticide safe products) would also be useful for cost-benefit analysis. This is to help farmers to make final decision whether they should cooperate with the social enterprises.

Future research should focus on other chains such as a study of advantages and challenge in retail stores of the modern trade chains. The chains include through leading farmers, through wholesalers r traders, through brokers and suppliers, and through farmers' organisation. This enables the stakeholders involved along the supply chains to understand in details of modern trade procurement and purchasing systems in the future.

REFERENCES

- Aaker, D. A., Kumer, V., & Day, G.S. (1998). *Marketing Research* (6th Ed). John Wiley and Sons, Inc. New York and Toronto.
- Abbot, P., Boehlje, M., & Doering, O. (2002). Coming to Grips with Globalization. *Choices*. Winter, p. 43-46.
- ADB Annual reports. (2005). Asian Development Bank's Annual Report 2005. [online] Available at: <<http://www.adb.org/documents/adb-annual-report-2005>> [Accessed 8 December 2009]
- Ali, A. & Abdulai, A. (2010), The Adoption of Genetically Modified Cotton and Poverty Reduction in Pakistan. *Journal of Agricultural Economics*, 61, 175–192.
- Alter, S. K. (2006). Social Enterprise Models and Their Mission and Money Relationships. *Social Entrepreneurship* (1st Ed). Oxford University Press.
- Altieri, M. (2002). Non-Certified Organic Agricultural in Developing Countries. In N. Scialabba & C. Hattam (Eds.), *Organic Agriculture, Environment and Food Security* (Environment and Natural Resources Series No.4). Rome: Food and Agriculture Organisation of the United Nations.
- Allen, D. & Lueck, D. (2005). *Handbook of New Institutional Economics 2005*, Section V, 465-490
- Alvarado, I., & Charmel, K. (2002), The Rapid Rise of Supermarkets in Costa Rica: Impact on Horticultural Markets. *Development Policy Review*, 20, 473–485.
- Arce, A., & Marsden, T. (1993). The Social Construction of International Food: A New Research Agenda. *Economics Geography*, 69, 293-312.
- Arndt, C. Cornier, K. & Ryzanow, E. (2005). *Helvetas: Value Chain Management and Poverty Alleviation in Rural Reseach*.
- Baourakis, G. (2004). *Marketing Trends for Organic Food in the 21st Century*. Series on Computers and Operation Research. Vol. 3. World Scientific Publishing. Denver, MA.
- Bauman, P. (2000), “*Equity and Efficiency in Contract Farming Schemes: The Experience of Agricultural tree Crops*”, Overseas Development Institute: London.
- Bangkokbiznews(2010).[online] Available at:<<http://www.bangkokbiznews.com/home/news/business/center-business/news-list-1.php>> [Accessed 8 September 2009]
- Beban, A. (2008). *Organic Agriculture: An Empowering Development Strategy for Small-Scale Farmers: A Cambodian Case Study*. MPhil. Thesis, Massey University.

- Berdegue, J. A. (2001). *Cooperating to compete. Associative Peasant Business Firms in Chile*. Ph.D. Thesis, Wageningen University and Research Centre, Department of Social Science, Communication and Innovation Studies Group, Wageningen, The Netherlands.
- Berdegue, J.A., Balsevich, L. Flores, & Reardon, T. (2005). Central American Supermarkets' Private Standards of Quality and Safety in Procurement of Fresh Fruits and Vegetables. *Food Policy*, 30(3).
- Berdegue, J.A., Balsevich, L. Flores, & Reardon, T. (2003). *The Rise of Supermarkets in Central America: Implications for Private Standards for Quality and Safety of Fresh Fruits and Vegetables*. Retrieved March 17, 2004. [online] Available at: <<http://www.rimisp.org/getdoc.php?docid=898>> [Accessed 8 December 2009]
- Blandon, J. (2006). *Supermarket Supply Chain for Fresh Fruits and Vegetables: Opportunities and Challenges for Small Farmers*. PhD. thesis, University of Guelph, Canada.
- Blandon, J., Henson, S. & Islam, T. (2009), Marketing preferences of small-scale farmers in the context of new agri-food systems: a stated choice model. *Agribusiness*, 25, 251–267.
- Blundell R, and Costa Dias M. (2008) *Alternative Approaches to Evaluation in Empirical Microeconomics*. [online] Available at: <http://www.ucl.ac.uk/~uctp39a/Blundell-CostaDias-27-09-2008.pdf> [Accessed March 2009]
- Boehlje, M. (1996). Industrialization of Agriculture: What are the Implications? *Choices, First Quarter*, p.30-33
- Boselie, D., Spencer, H., & Weatherspoon, D. (2003). Supermarket Procurement Practices in Developing Countries: Redefining the Roles of the Public and Private Sectors. *American Journal of Agricultural Economics*, 5, 1155-1161.
- Brester, W. W., & Penn, J. B. (1999). *Strategic business management principles for the agricultural production sector in a changing global food system* (Policy Issue Paper No. 11). Bozeman, MT: Montana State University, Trade Research Center.
- Brown, O. (2005). Supermarket Buying Power, Global Commodity Chain and Smallholder Farmers in the Developing World. *Human Development Report*. Human Development Report Office.
- Bryman, A. (2008). *Social Research Methods*. Oxford: Oxford University Press.
- Buurma, J., & Saranark, J. (2006). Supply-Chain Development for Fresh Fruits and Vegetables in Thailand. *Agro-food Chains and Network for Development: Springer*, Netherlands, 119–127.
- Cacho, J. (2003). The Supermarkets “Market” Phenomenon in Developing Countries: Implications for Smallholder Farmers and Investment, *American Journal of Agricultural Economics*, 85(5), 1162-1163.
- Carson, D., & Coviello, N.(1996). Qualitative Research Issues at the Marketing/ Entrepreneurship Interface, *Marketing Intelligence & Planning*, 14 (6), 51-58.

- Chambers, W., & King, R. P. (2002). Changing agricultural markets: Industrialization and vertical coordination in the dry edible bean industry. *Review of Agricultural Economics*, 24(2), 495-511.
- Change Fusion (2010). Thai Prime Minister Setup Social Enterprise Committee to Foster the New Sector. [online] Available at <<http://www.changefusion.org/node/378>> [Accessed 10 August 2010]
- Chaddad, F., & Rodriguez-Alcala, M. E. (2010). Inter-organization Relationships in Agri-food System: A Transaction Cost Economics Approach. *Agri-food Chain Relationships*. CABI, UK.
- Chen, K., Shepherd, A. W., & Silva, C. (2005), *Changes in Food Retailing in Asia: Implications of Supermarket Procurement Practices for Farmers and Traditional Marketing Systems*. Food and Agriculture Organisation of the United Nations, Rome.
- Chaivimol, S. (2003). *Marketing Green and Organic Agricultural Produce in Thailand*. Paper Presented at the Expert Group Meeting “Marketing Green and Organic Agricultural Produces as a Tool for Poverty Alleviation”, 27-31 October 2003, Changyuan Country, China.
- Clay, J. (2005). *Exploring the Links Between wealth Creation and Poverty Reduction: A Case Study of Unilever in Indonesia*.
- Coase, R.H. (1937). The nature of the firm. *Economica*, Volume 4, page 386-405.
- Coase, R. H. (2000). *The new institutional economics*. In C. Ménard (Ed.), *Institutions, contracts, and organizations: Perspectives from new institutional economics* (p.3-6). Northampton, MA: Edward Elgar Publishing, Inc.
- Cook, M.L., & Chaddad, F.R.(2000). Agroindustrialization of the Global Agrifood Economy: Bridging Development Economics and Agribusiness Research. *Agricultural Economics*, 23, 207-218.
- Cook, M.L., Reardon, T., Barrett C., & Cacho, J. (2001). Agroindustrialization in Emerging Markets: Overview And Strategic Context. *International Food and Agribusiness Management Review*, 2(3/4), 277-288.
- Cook, M. L., & Iliopoulos, C. (2000). Ill-defined property rights in collective action: The case of US agricultural cooperatives. In C. Ménard (Ed.), *Institutions, contracts, and organizations: Perspectives from new institutional economics* (p.335-348). Northampton, MA: Edward Elgar Publishing, Inc.
- Cooper, D. R., & Emory. (1995). *Business research methods* (5th ed.). Chicago, IL:Richard D. Irwin, Inc.

- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. Thousand Oaks: Sage.
- Creswell, J. W., & Clark, V. L. P. (2007). *Designing and Conducting Mixed Methods Research*. Thousand Oaks: Sage.
- Dao, C. (2004). Country Case Study on Environmental Requirements, Market Access/Entry and Export Competitiveness for Horticultural Products from Cambodia, *Sub-Regional Workshop on Environmental Requirements, Market Access/Entry and Export Competitiveness in the Horticultural Sector*. Bangkok: ITD.
- David, R. J., & Han, S. K. (2004). A Systematic Assessment of Empirical Support for Transaction Cost Economics. *Strategic Management Journal*, 25, 39-58.
- Daniel, J.N., & Dudhade P.A. (2007). *Analysis of Economic Characteristics of Value Chains of Three Underutilised Fruits of India*. Study commissioned by The International Centre for Underutilised Crops (ICUC), Colombo, Sri Lanka, and BAIF Development Research Foundation, Pune, India. [Online]Available online at: <www.icuciwmi.org/files/Publications/ICUCRR%20Issue%203_Final.pdf> [Accessed May, 2010].
- Dehejia, R. H., & Wahba, S. (2002). Propensity Score-Matching Methods for Nonexperimental Causal Studies. *The Review of Economics and Statistics*, 84 (1), 151-161
- Dekker, H. C. (2003). *Value chain analysis in interfirm relationships: a field study*. Amsterdam Research Center in Accounting (ARCA), Vrije Universiteit Amsterdam. The Netherlands.
- Delforge, I. (2007), *Occasional Papers2; Contract Farming in Thailand: A View from the Farm*, A report for Focus on the Global South.
- Delgado, C. L. (1999). *Sources of Growth in Smallholder Agriculture in Sub-Saharan Africa: The Role of Vertical Integration of Smallholder Farmers with Processors and Marketers of High-value added Items*. Agekon, 38 (Special issue), 165-189.
- Denzin, N. K., & Lincoln, Y. S. (2000). Introduction: The discipline and practice of qualitative research. In N. K.
- Denzin, T. & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (2nd ed.) (pp. 1-28). Thousand Oaks, CA: Sage Publications,
- Inc.Dolan, C., & Humphrey, J. (2000). Governance and trade in fresh vegetables: The Impact of UK Supermarkets on the African Horticulture Industry. *Journal of Development Studies*, 37(2), 147-176.
- Dolan, C., & Humphrey, J. (2000). Governance and Trade in Fresh Vegetables: The Impact of UK Supermarkets on the African Horticulture Industry. *The Journal of Development Studies*, 37(3), 39-70.
- Dorward, A., J. Kydd., & C. Poulton. (1998). *Smallholder Cash Crop Production under Market Liberalisation: A New Institutional Economics Perspective*, Cabi International.

- Dorward, A. & KYDD, J. (2002). *Locked in and Locked out: Smallholder Farmers and the New Economy in Low Income Countries*. Paper presented at the 13th International Farm Management Congress, National Sports and Conference Centre Papendal near Wageningen and Arnhem, July 7 – July 12. [Online] Available at <www.imperial.ac.uk/AgEcon/ADU/research/interests/globark/ifmaglob.pdf> [Accessed June 2010].
- Dorward, A. (2001). The Effects of Transaction Cost, Power and Risk on Contractual Arrangements: A Conceptual Framework for Quantitative Analysis. *Journal of Agricultural Economics*, 52 (2), 59-73.
- Dorward, A., Kydd, J., Morrison, J., & Poulton, C. (2005). Institutions, markets and economic coordination: Linking development policy to theory and praxis. *Development and Change*, 36(1), 1-25.
- Dries, L., Reardon, T., & Swinnen J. (2004). The Rapid Rise of Supermarkets in Central and Eastern Europe: Implications for the Agrifood Sector and Rural Development, *Development Policy Review*, 22(5), 525-556.
- Ellis, W., Panyakul, V., Vildozo, D., & Kasterine, A. (2006). *Strengthening the Export Capacity of Thailand's Organic Agriculture*. [online] Available at: http://www.intracen.org/organics/documents/Strengthening_the_Export_Capacity_of_Thailands_Organic_Agriculture.pdf [Accessed September 2010]
- Elsevier Food International (2008). *Thailand After the Coup: Struggle Between Modern and Traditional*, 23 February.
- FAO. (2002). *Organic Agriculture and Food Security*. Rome: FAO.
- FAO. (2008). *FAOSTAT*. Retrieved January 2009.
- FAO. (2010). [Online] Available at <<http://www.fao.org/economic/est/agricultural-market-analysis/value-chain-analysis/en/>> [accessed December, 2009].
- Fearne, A., Soosay, C., Stringer, R., & Umberge, W. (2009). *Sustainable value chain analysis: a case study of South Australian wine*. Available at: (http://www.fcrn.org.uk/sites/default/files/Sustainable_value_chain_analysis_-_Case_Study.pdf). Fine, B. and Leopold, E. (1994). *The World of Consumption*, London: Routledge.
- Furubotn, E.G., & Richter, R. (1997). *Institutions and economics theory: The contribution of the new institutional economics*. Ann Arbor, MI: The University of Michigan Press.
- Gaiha R. and Thapa, G. (2007). *Super markets, small holders and livelihoods prospects in selected Asian countries*. International Fund for Agricultural Development, ASARC Working Papers, Research-Work in Progress. 2007/12.

- Gereffi, G. (1994). The Organization of Buyer-Driven Global Commodity Chains: How US Retailers Shape Overseas Production Networks. In G. Gereffi & M. Korzeniewicz (Eds.), *Commodity Chains and Global Capitalism*. Westport, CT: Prager.
- Global Commerce Initiative (GCI) Report. (2006), *2016 The Future Value Chain*. Capgemini, Intl. [online] Available at: <http://www.at.capgemini.com/m/at/tl/2016_The_Future_Value_Chain.pdf> [Accessed 10 May 2008].
- Green Net (2010). [online] Available at: <<http://greennet.or.th/en>> [Accessed 10 May 2008].
- Green, W. H. (2000). *Econometric analysis* (4th ed.). Upper Saddle River, NJ: Prentice-Hall, Inc.
- Grosh, B. (1994). Contract Farming in Africa: An Application of New Institutional Economics. *Journal of African Economies*, Vol. 3(2): p. 231-265.
- Hair, J.F.J., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis: Global Perspective* (7th Ed.) Upper Saddle River, NJ: Pearson.
- Hair, J. F., R.E. Anderson, R. Tatham., & W.C. Black. (1998). *Multivariate Data Analysis*. 5th Ed. Prentice Hall, Upper Saddle River, New Jersey.
- Harris, J., Hunter, J., & Lewis, C. M. (Eds.). (1995). *The new institutional economics and third world development*. New York: Routledge.
- Harris, A., Fulton, M., Stefanson, B. & Lysyshyn, D. (1998). *Working together: The role of external agents in the development of agriculture-based industries*. Saskatoon, SK: University of Saskatchewan, Centre for the Study of Cooperatives.
- Halberg, N. Alroe, H. F., Knudsen, M. T., & Kristensen, E. S. (2006a). *Global Development of Organic Agriculture: Challenges and Prospects 1st Ed*. CAB International Publishing. Washington, DC.
- Halberg, N., Sulser, T. B., Høgh-Jensen, H., Rosegrant, M. W., & Knudsen, M. T. (2006b). The Impact of Organic Farming on Food Security in Regional and Global Perspective. *Global Development of Organic Agriculture: Challenges and Prospects 1st Ed*. CAB International Publishing. Washington, DC.
- Hellin, J., Griffith, A., & Albu, M. (2005). *Mapping the Market: Market Literacy for Agricultural Research and Policy to Tackle Rural Poverty in Africa*. Paper Presented at the Beyond Agriculture: Making Markets Work for the Poor, February 28th – March 1st, 2005.
- Hellin, J., & Hignman, S. (2003). *Feeding the market: South American farmers, trade and globalization*. Bloomfield, CT: Kumarian Press, Inc.
- Hobbs, J. E. (1996). A transaction cost approach to supply chain management. *Supply Chain Management*, 1(2), 2-15.
- Hobbs, J. E., Cooney, A. and Murray, E. (2000). *Value Chain in the Agri-Food Sector: What Are They? How Do They Work? Are They for Me?*, Department of Agricultural Economics, University of Saskatchewan.

- Hobbs, J. E. (2004). Markets in metamorphosis: The rise and fall of policy institutions. In G. Van Huylenbroeck, W. Verbeke & L. Lauwers (Eds.), *Role of institutions in rural policies and agricultural markets* (p. 199-212). Amsterdam, The Netherlands: Elsevier B.V.
- Hopkins, T., & Wallerstein, I. (1986). *Commodity Chains in the World-Economy Prior to 1800*. Review, 10, 157-170.
- Humphrey, J. (2007). The Supermarket Revolution in Developing Countries: Tidal Wave or Tough Competitive Struggle? *Journal of Economic Geography*, 7 (4), 433-450.
- Humphrey, J., & Schmitz, H. (2004). Governance in global value chains. In H. Schmitz (Ed.), *Local enterprises in the global economy: Issues of governance and upgrading* (95-109). Cheltenham, UK: Edward Elgar Publishing, Inc.
- Hernandez, R., Reardon, T., & Berdegue, J. (2007), Supermarkets, Wholesalers, and Tomato Growers in Guatemala, *Journal of Agricultural Economics* International Association of Agricultural Economists., 36, 281-290.
- Holloway, G., Nicholson, C., Delgado, C., Staal, S. and Ehui, S. (2000). Agroindustrialization Though Institutional Innovation: Transaction Costs, Cooperatives and Mile-Market Development in East-African Highlands, *Agricultural Economics*, 23, 279-288.
- Hutanuwatr, N. (2005). *Organic Rice Production and Marketing in Thailand* (in Thai). Staff paper. Mahasarakham University, Thailand.
- IFAD. (2003). The Adoption of Organic Agriculture Among Small Farmers in Latin America and the Caribbean: Thematic Evaluation. Rome: IFAD.
- IFPRI (1996). *2020 Vision: News and Views – Urbanization and Agriculture to the Year 2020*. International Food Policy Research Institute.
- Isvilanonda, S. , Aungyurekul, N., & Limsomboonchai, V. (2008). *A Study on Production Economic and Marketing of Royal Project's Agricultural Produces*. Kasetsart University.
- Janesick, V. J. (2000). The choreography of qualitative research design: Minuets, improvisations, and crystallization. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (2nd ed.) (p. 379-399). Thousand Oaks, CA: Sage Publications, Inc.
- Jarosz, L.(2000). Understanding agri-food networks as social relations. *Agriculture and Human Values*, 17, 279-283.
- Kaplinsky, R., & Morris, M. (2000), *A Handbook for Value Chain Research*, Bellagio Workshop: IDRC.
- KAPLINSKY, R., & M. MORRIS. (2002). *A Handbook for value chain research*. Prepared for the IDRC. [Online] Available at <www.ids.ac.uk/ids/global/pdfs/vchov01.pdf> [Accessed June 2010].
- KEY, N., & D. RUNSTEN. (1999). Contract Farming, Smallholders, and Rural Development in LatinAmerica: The Organization of Agro processing Firms and the Scale of out Grower Production. *World Development*, 27(2), 381-401.

- Kitboon, P. (2009). *Production and marketing of organic vegetable in Thailand*, Master Thesis, Mahidol University, Thailand.
- Klicher, L. (2001). *Organic Agriculture in Cuba: The Revolution Goes Green*. *Journal of Agriculture in the Tropics and Subtropics*, 102 (2), 185-189.
- Kotschi, J. (2000). Poverty Alleviation in the South: Can Organic Farming Really Help? *AGRECOL*.
- Kotschi, J. (2003). Alter Organic – Local Agendas for Organic Agriculture in Rural Development. *AGRECOL*.
- Krisnamurthi, B (2004). *Research on Supermarket Supply Chain in Indonesia*, Final Report: Center for Development Studies, Bogor Agricultural University.
- Kittiwajphokawatt, P. (2008). Retail Business of Change in Thailand, *Change Management Final Report*, Sriphathum University.
- Kilcher, Lukas (2001) Organic agriculture in Cuba: The revolution goes green. *Journal of Agriculture in the Tropics and Subtropics*, 102 (2), pp. 185-189.
- Kristiansen, P., & Merfield, C. (2006) . *Organic agriculture: a global perspective*. Page 1-23
- Krueger, R. A. (2009). Focus groups: A practical guide for applied research.
- Kline, P. (1993) *An Easy Guide to Factor Analysis*. Routledge, London.
- Knudsen, M. T., Halberg, N., Olesen, J. E., Byrne, J. Iyer, V., & Toly, N. (2006). Global Trends in Agriculture and Food Systems, *Global Development of Organic Agriculture: Challenges and Prospects 1st Ed.* CAB International Publishing, Washington, DC.
- Knudsen, M. T. (2006) Estimated N leaching losses for organic and conventional farming in Denmark, *Cambridge Journal*, Cambridge University Press, UK.
- Kula, O., Downing, J., & Field, M. (2006), *Globalization and the Small Firm: An Industry Value Chain Approach to Economic Growth and Poverty Reduction*, Micro Report no.42, USAID.
- Lampkin, N. (2002). *Organic Farming*. UK: Old Pond.
- Lampkin, N., & Padel, S. (1994). *The Economics of Organic Farming: An International Perspective*. Wallingford, U.K.: CAB International.
- Lang, T. (2004), Food Industrialization and Food Power: Implications for Food Governance, *Development Policy Review*, 21(5-6): 555-568.
- Lattin, J.M., Carroll, J.D., & Green, P.E. (2003). *Analyzing multivariate data*. Pacific Grove, CA: Brooks/Cole-Thomson Learning.
- Latour, B. (1993). *We Have Never Been Modern*. New York: Harvester Wheatsheaf.
- Leslie, D., & Reimer, S. (1999). Spatializing commodity chains, *Progress in Human Geography*. 23 401-420,

- Levins, R. (2002). Collective bargaining by farmers: Fresh look? *Choices*, Winter 2001-2002, 15-18.
- Little, P. D., & Watts, M. J. (1994). Introduction. In: Little, P.D and M.J. Watts. (Eds.). *Living Under Contract: Contract Farming and Agrarian Transformation in Sub Saharan Africa*. The University of Wisconsin Press, Wisconsin Madison and London. p. 285.
- Lohakarn, S. (2007). Organic Business. Asian Institute of Technology. Thailand. [in Thai]
- Lockie, S., & Kitto, S. (2000), Beyond the Farm Gate: Production-Consumption Networks and Agri-Food Research. *Sociologia Ruralis*, 40, 3–19.
- Makatouni, A. (2002). What motivates consumers to buy organic food in the UK? Results from a qualitative study. *British Food Journal*, 104, 345-352.
- MacPherson, M. (2003). *Agricultural Producer Cooperatives in Newfoundland and Labrador-A Discussion Paper*. The Newfoundland and Labrador Department of Forest Resources and Agrifoods. Corner Brook, NL.
- Mair, J., & Marti, I.(2006). Social entrepreneurship research: A source of explanation, prediction, and delight. *Journal of World Business*, (1), 36-44
- Malhotra, N. K. (2004). *Marketing Research: An Applied Orientation*. Upper Saddle River, NJ: Pearson Prentice Hall.).
- Malhotra, N. K. (2008) *Marketing Research: An Applied Orientation*. Upper Saddle River, NJ: Pearson Prentice Hall.
- Marshall, C., & Rossman, G. (2006). *Designing Qualitative Research* (4th Ed.). London : Sage.
- Masakure, O. (2005). *Export Supply Chains and Small-scale Producers in Africa:Horticultural Exports from Zimbabwe*. PhD. Thesis, University of Reading, UK.
- Masakure, O., & Henson, S.J. (2005). Why do Small-Scale Producers Choose to Produce Under Contract? Lessons from Non-Traditional Vegetable Exports from Zimbabwe. *World Development*, Vol. 33 (10): p. 1721-1733.
- Maxwell, J. (1996). Qualitative Research Design: An Interactive Approach. *Harvard Educational Review*, 62, 279-300.
- McCullough, E. B., Pingali, P. L., & Stamoulis, K. G. (2008). *The Transformation Agri-Food Systems: Globalization, Supply Chains and Smallholder Farmers 1st Ed*. FAO.
- McCullough, E. B., & Pingali, P. L. (2008). Overview of Case Studies Assessing Impacts of Food Systems Transformation on Smallholder Farmers. *The Transformation Agri-Food Systems: Globalization, Supply Chains and Smallholder Farmers 1st Ed*. FAO. p.227-234.
- MCCULLOCH, N., & M. OTA. (2002). *Export horticulture and poverty in Kenia* (Working Paper 174). Institute of Development Studies. University of Sussex Brighton, UK.

- McGivern, Y. (2003). *The Practice of Market and Social Research: An Introduction*. London: Prentice Hall.
- McNamara, C., Weiss, C. R. and Wittkopp, A. (2004). Market Success of Premium Product Innovation: Empirical from the German Food Sector. *Marketing Trends of Organic Food in the 21st Century 1st Ed.* World Scientific, p. 127-156.
- Messner, D. (2004). Region in the 'world economic triangle.' In H. Schmitz (Ed.), *Local enterprises in the global economy: Issues of governance and upgrading* (p.20-52). Cheltenham, UK: Edward Elgar Publishing, Inc.
- Ménard, C. (2005). A new institutional approach to organization. In C. Menard & M. M. Shirley (Eds.), *Handbook of new institutional economics* (p. 281-318). Dordrecht, The Netherlands: Springer.
- Ménard, C. (Ed.) 2000. *Institutions, contracts, and organizations: Perspectives from new institutional economics*. Northampton, MA: Edward Elgar Publishing, Inc.
- Ménard, C. (2001). Methodological issues in new institutional economics. *Journal of Economics Methodology*, 8(1), 85-92.
- Ménard, C. & Shirley, M. M. (Eds.). (2005). *Handbook of new institutional economics*. Dordrecht, The Netherlands: Springer.
- Miller, K. D. (1993). Industry and Country effects on manager's perceptions of Environment: State, Effects, and Response Uncertainty. *Academy of Management Review*, 12(1), 133-143.
- Minot, N., & Devesh Roy, D. (2007). Impact of High-Value Agriculture and Modern Marketing Channels on Poverty: An Analytical Framework. *IRPRI Food Policy Review*. Washington, D.C.
- Minten, B., Randrianarison, L., & Swinnen, J. F. M. (2005a), *Global Retail Chain and Poor Farmers: Evidence from Madagascar*, LICOS Centre for Transition Economics, LICOS Discussion Papers.
- Minten, B., Randrianarison, L., & Swinnen, J. F. M. (2005b), *Supermarkets, International Trade and Farmers in Developing Countries: Evidence from Madagascar*, LICOS Centre for Transition Economics, LICOS Discussion Papers.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd Ed.). California: Sage
- Miller, G. J. (2005). *Solutions to principal-agent problems in firms*. In C. Menard & M. M. Shirley (Eds.), *Handbook of new institutional economics* (pp. 349-370). Dordrecht, The Netherlands: Springer.
- Meer, V. D., & Cornelis (Kees) L. J. (2006), Exclusion of Small-scale Farmers from Coordinated Supply Chain: Market Failure, Policy Failure or just Economics of Scale? *Agro-food chains and network for development: Springer*, Netherlands, p. 209 – 217.

- Morgan, Neil A., Kaleka, A., & Gooner Richard A. (2007), Focal Supplier Opportunism in Supermarket Retailer Category Management, Special Issue Evolution of the Field of Operations Management SI/ Special Issue Organization Theory and Supply Chain Management, *Journal of Operations Management*, 25(2), 512-527.
- Morgan, D. (2007). Paradigms Lost and Pragmatism Regained: Methodological Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research*, 1, 48-76.
- Nabli, M. K., & Nugent, J. B. (1989). The new institutional economics and its applicability to development. *World Development*, 17(9), 1333-1347.
- Nadvi, K., & Waltring, F. (2004). Marketing Sense of Global Standards. In H. Schmitz (Ed.), *Local Enterprises in the Global Economy: Issues of Governance and Upgrading* Cheltenham, UK: Edward Elgar Publishing, Inc, p.53-94.
- Nathan, D., & Kalpana V. (2007), *Issues in the Analysis of Global Value Chains and Their Impact on Employment and Incomes in India*”, International Institute for Labour Studies, Geneva.
- National Statistical Office (NSO). (2008). Report of the 1992 Household Socio-Economic Survey (Whole Kingdom), National Statistical Office, Office of the Prime Minister, Thailand: Government Printer.
- _____. (2009). Report of the 1992 Household Socio-Economic Survey (Whole Kingdom), National Statistical Office, Office of the Prime Minister, Thailand: Government Printer.
- _____. (2010). Report of the 1992 Household Socio-Economic Survey (Whole Kingdom), National Statistical Office, Office of the Prime Minister, Thailand: Government Printer.
- Nelson, J. (1991). Marketing of Pesticide-Free Vegetables in Bangkok, Thesis (MSc). Asian Institute of Technology.
- Neven D., Odera, M., & Reardon, T. (2006). *Horticulture Farmers and Domestic Supermarkets in Kenya*, Staff Paper: Department of Agricultural Economics, Michigan State University.
- Neven, D., & T. Reardon. (2004), The Rise of Kenyan Supermarkets and Evolution of Their Horticulture Product Procurement Systems, *Development Policy Review*, 22(6), 669-699.
- Nicholls, A. (2006). *Social Entrepreneurship: New Models of Sustainable Social Change 1st Ed.* Oxford University Press.
- Norse, D., & Tschirley, J. (2003). Agriculture and the Environment: Changing Pressures, Solutions and Trade-offs. In J. Bruinsma (Ed.), *World Agriculture: Towards 2015/2030: An FAO Perspective*, p. 331-336. London: Earthscan Publications and FAO.
- North, D. C. (2005). *Understanding the Process of Economic Change*. Princeton, NJ: Princeton University Press.
- North, D. C. (1995). The New Institutional Economics and Third World Development. In J. Harris, J. Hunter & C. M. Lewis (Eds.), *The New Institutional Economics and Third World Development* (p. 17-26). New York: Routledge.

- Nunally, J.C. (1978). *Psychometric Theory*, McGraw- Hill, New York. p.89
- Oliveira, D., & Santos, L. (2004). Certificacao Participativa de Produtos Ecologicos. *Rede Ecovida de Agroecologia*.
- Onumah, G., Davis, J., Kleih, U., & Proctor, F. (2007). Empowering Smallholder Farmers in Markets: Changing Agricultural Marketing Systems and Innovative Responses by Producer organizations. *Munich Personal RePEc Archive report*. [online] Available at: <<http://www.mpra.ub.uni-muenchen.de/25984/>> [Accessed 10 October 2010].
- Oppenheim, A. N. (1992). Questionnaire Design, Interviewing and Attitude Measurement. New Edition. Printer Publishers. London and New York.
- Ostrom, E., Schroeder, L., & Wynne, S. (1993). *Institutional incentives and sustainable development: Infrastructure policies in perspective*. Oxford, UK: Westview Press, Inc.
- OECD (2006). The Social Enterprise Sector: A Conceptual Framework, [online] Available at: <<http://www.oecd.org/dataoecd/43/40/37753595.pdf>> [Accessed 17 April 2010]
- Panyakul, V. (2003). Thailand's Organic Status. *Ecology and Farming*, 34, 37-39.
- Panyakul, V. (2004). *Organic Agriculture in Thailand*, In: FAO, ed. Production and Export of Organic Fruit and Vegetables in Asia. 3-5 November 2003, Bangkok. FAO, p. 75-81.
- Pallant, J. (2005). *SPSS Survival Manual* (2nd Ed.). New York: McGraw-Hill.
- Parrott, N., & Wright, J. (2007). Influencing Attitudes of Public Institutions towards Organic Agriculture as a Means of Promoting Food Security, *IFOAM Conference on Organic Agriculture and Food Security*.
- Parrott, N., & Marsden, T. (2002). The real green revolution: organic and agroecological farming in the south. *The real green revolution: organic and agroecological farming in the South*. CAB Direct. UK.
- Peattie, K., & Morley, A. (2008). Social Enterprises: Diversity & Dynamics, Contexts and Contributions. A Research Monograph. Cardiff University. UK.
- Peterson, H.C., Wysocki, A., & Harsh, S. B. (2001). Strategic Choice along the Vertical Coordination Continuum. *International Food and Agribusiness Management Review*.
- Pinstrup-Andersen, P. (2002). Food and Agricultural Policy for Globalizing World: Preparing for the Future. *American Journal of Agricultural Economics*, 84(5), 1201-1214.
- Porter, M. (1990). *The Competitive Advantage of Nations*. New York: The Free Press/McMillan.
- Poapongsakorn, T. (2009). *R&D and Performance of the Thai Agriculture and Food Processing Industry: The Role of Government, Agribusiness Firms, and Farmers*. [online] Available at <http://www.eria.org/pdf/Book/Agriculture/CHAPTER%209%20THAILAND.pdf> [Accessed 8 October 2010]

- Pretty, J., & Hine, R. (2001), *Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence*. University of Essex.
- Ramaswami, B., Singh, P., & Joshi, P.K. (2005), *Efficiency and Distribution in Contract Farming: The case of Indian poultry growers*, Paper provided by Indian Statistical Institute, New Delhi, India, Discussion Papers, number 01-05.
- Raworth, K. (2004). *Trading Away Our Rights – Women Working in Global Supply Chains*.
- Raynolds, L.T. (2002). Wages for wives: Renegotiating gender and production relations in contract farming in the Dominican Republic. *World Development*, 30(5), 783-798.
- Reardon, T., Cordon, J-M., Busch, L., & Harris, C. (2001). Global Change in Agri-food Grades and Standards: Agribusiness Strategic Response in Developing Countries. *International Food and Agribusiness Management Review*, 2(3/4), 421-435.
- Reardon, T., Natawidjaja, R. S., & Perez, F. J (2007), *Improving Small Farmer Access to Modernizing Value Chains in Indonesia and Nicaragua*, Basis Brief Assets and Market Access CRSP.
- Reardon, T., & Swinnen, J.F.M. (2004). Agrifood Sector Liberalization and the Rise of Supermarkets in Former State-Controlled Economies: A Comparative Overview”, *Development Policy Review (GBR)* , 22 (5): 515-23.
- Reardon, T. (2004), *The Importance of Being Earnest – How Supermarkets Are Reshaping Farmer Opportunities and Challenges in Developing Country Agrifood Systems*, LAC Trade Matters, published by USAID/Washington, no. 35, November.
- Reardon, T., Berdegue, J. A., & Timmer, C. P. (2005), Supermarketization of the Emerging Markets of the Pacific Rim: Development and Trade Implications, *Journal of Food Distribution Research*, 36 (1), 3-12.
- Reardon, T., Timmer C.P., & Berdegue, J. (2004). The Rapid Rise of Supermarkets in Developing Countries: Induced Organizational, Institutional, and Technological Change in Agrifood Systems, *Journal of Agricultural and Development Economics – e-JADE*, published by FAO, 1(2).
- Reardon, T., & Berdegue, J. A.(2002). The Rapid Rise or Supermarkets in Latin America: Challenges and Opportunities for Development. *Overseas Development Institutes*, Blackwell Publishers: Oxford.
- Reardon, T., Timmer C.P., Barrett C.B., & Berdegue J. (2003). The Rise of Supermarkets in Africa, Asia, and Latin America. *American Journal of Agricultural Economics*, 85(5), 1140-1146.
- Reardon, T., & C.B., BARRETT. (2000). Agroindustrialization, Globalization, and International Development: An overview of Issues, Patters, and Determinants. *Agricultural Economics*, 23, 195-205.

- Rehber, E. (2000). *Vertical coordination in the agro-food industry and contracting farming: A comparative study of Turkey and the USA* (Research Report No. 52). Storrs, CT: University of Connecticut, Food Marketing Policy Center.
- Revoredo, C. (2004). *Trends in the Marketing of Organic Grains and Oilseeds in the U.S., Marketing Trends for Organic Food in the 21st Century, 1st Ed*, p: 51-66.
- Roitner-Schobesberger, B., Darnhofer, I., Somsook, S., & Vogl, C. R. (2007). Consumer Perceptions of Organic Food in Bangkok, Thailand. *Food Policy*, 33, 112-121.
- Roitner-Schobesberger, B. (2006). *Consumer's Perception of Organic Foods in Bangkok, Thailand*. MSc Thesis, University of Natural Resources and Applied Life Sciences, Vienna.
- Rosegrant, M., & Ringler, C. (2005). *Agriculture and Achieving the Millennium Development Goals*. Washington D.C: Agriculture and Rural Development Department, World Bank.
- Robson, C. (1993). *A resource for social scientists and practitioner researchers*. Oxford, UK: Blackwell Publishers.
- Royal Project (2010). *The Royal Project Foundation* [online] Available at: <<http://www.royalprojectthailand.com/general/english/main.html>> [Accessed 17 April 2010]
- Roduner, D (2004). *Analysis of Existing Theories, Methodologies and Discussions of Value Chain Approach within the Development Cooperation Sector*, Report on Value Chains, LBL Bern.
- Rubin, D.B. (1983). The Central Role of the Propensity Score in Observational Studies for Causal Effects', *Biometrika*, 70, 40-50.
- Ruben, R., Boselie, D., & Lu, H. (2007). Vegetables procurement by Asian supermarkets: a transaction cost approach. *Supply Chain Management An International Journal*. 12 (1), 60-68.
- Ruben, R., Slingerland, M., & Nijhoff, H. (2006). *Agro-food Chains and Networks for Development*. Springer, Netherlands.
- Saxowsky, D.M., & Duncan, M.R. (1998). *Understanding agriculture's transitional into the 21st century* (Miscellaneous Report No. 181). Fargo, ND: North Dakota State University, Department of Agricultural Economics.
- Schmerler, C. (2006). *Value Chain Promotion: Experiences with Organic Rice from Cambodia*. Phnom Penh, Cambodia: GTZ Rural Development Programme.
- Schwentesius, R., & Gomez, M.A. (2002). Supermarkets in Mexico: Impacts on horticulture systems. *Development Policy Review*, 20(4), 487-502.
- Schwentesius, R. & Gomez, M. A. (2002). Supermarkets in Mexico: Impacts on horticulture systems. *Development Policy Review*, 20(4), 487-502.
- Scialabba, N., & Hattam, C. (2002). *Organic Agriculture, Environment and Food Security*, (4), Rome. Food and Agriculture Organization of the United Nations.
- SDC. (2007). *Donor Intervention in Value Chain Development*. Berne: Swiss Agency for Cooperation and Development.

- Sekaran, U. (2000). *Research Methods for Business: A Skill Business Approach*. New York: John Wiley and Sons.
- Setboonsarng, S., Leung, P., & Cai, J. (2006). *Contract Farming and Poverty Reduction: the Case of Organic Rice Contract Farming in Thailand*, ADB Institute Discussion Paper No.49.
- Setboonsarng, S. (2006). Organic Agriculture, Poverty Reduction, and the Millennium Development Goals. [Online] Available at http://r0.unctad.org/trade_env/test1/meetings/bangkok7/ADBIOrganicagriculturemdgs.pdf [Accessed April 2010]
- Sharma, S. (1996). *Applied Multivariate Techniques*. John Wiley and Sons. Inc. USA.
- Shankar, B., & Thirtle, C. (2005). Pesticide Productivity and Transgenic Cotton Technology: The South African Smallholder Case, *Journal of Agricultural Economics*, 56, 97-116.
- Shannon, R. (2009). The Transformation of Food Retailing in Thailand 1997-2007. *Asia Pacific Business Review*. 15(1): 79-92.
- Shepherd, A. W. (2007). *Approaches to Linking Producers to Markets: A Review of Experience*. FAO, Rome.
- Shepherd, A. W. (2005). The Implications of Supermarket Development for Horticultural Farmers and Traditional Marketing Systems in Asia. *FAO/AFMA/FAMA Regional Workshop Report on the Growth of Supermarkets as Retailers of Fresh Produce*, Rome.
- Sheldon, I.M., & McCorriston, S. (2003). *Globalization, food industry consolidation and market access: Implication for developing countries*. Paper presented at the conference of Globalization, Agricultural Development and Rural Livelihoods, Cornell University, Ithaca, NY.
- Silverman, D. (2005). *Doing Qualitative Research: A Practical Handbook*. London: Sage Publications.
- Singh, S. (2008). Marketing Channels and Their Implications for Smallholder Farmers in India. *The Transformation of Agri-food Systems: Globalization, Supply Chains and Smallholder Farmers*. FAO.
- Singh, S. (2002). Multi-national Corporations and Agricultural Development: A study of contract farming in the Indian Punjab. *Journal of International Development*, 14, 181-194.
- Smith, J.A., & Todd, P.E. (2005). Does matching overcome Lalonde's critical of nonexperimental estimators?. *Journal of Econometrics*, 125, 305-353.
- Smith, K. G., Carroll, S. J. & Ashford, S. J. (1996). Intra-and Interorganisational Cooperation: Toward a Research Agenda. *Academy of Management Journal*, 38(1), 7-22.
- Springer-Heinze, A. (2004). Shaping Value Chains for Development – Experience in Development Assistance. [online] Available through FFTC Publication Database <<http://www.proceedings2008.tropentag.de/2005/abstracts/full/611.pdf>>. [Accessed 5 May 2010]

- Stoian, D. (2007), *Relevance for the Poor: Business Organization and Institutional Arrangements to Raise the Share of the Poor in Chain Income*, Paper prepared for International Conference “Value Chains for Broad-based Development” GTZ: Berlin.
- Stracke-Labmann, M. (2007). Strategies of Organic Producers in Thailand. Master thesis. University of Agricultural Science, Vienna. [online] Available at http://www.wiso.boku.ac.at/fileadmin/_/H73/H733/pub/DA_Diss/2007_Lassmann_DA.pdf [Accessed 8 October 2010]
- Stringfellow, R. Coulter, J. Lucey, T., McKone, C., & Hussain, A. (1997). Improving the Access of Smallholders to Agricultural Services in Sub-Saharan Africa: Farmer Cooperatives and the Role of the Donor Community. *Natural Resource Perspectives*, 20.
- Swinnen, J. F. M. (2007). Global Supply Chains Standards and the Poor. CABI International, UK and US.
- Tashakkori, A., & Teddlie, CE (2003), *Handbook of Mixed Methods in Social & Behavioral Research*, Sage Publications, Thousand Oaks, CA.
- Taylor, D. H. (2005), Value Chain Analysis: An Approach to Supply Chain Improvement in Agri-food Chains, *International Journal of Physical Distribution & Logistics Management*, 35(10), 744-761.
- Temu A. E., & Marwa, N. W. (2007), *Changes in the Governance of Global Value Chain of Fresh Fruits and Vegetables: Opportunities and Challenges for Producers in Sub-Saharan Africa*, Research Papers. Sokoine University of Agriculture, Morogoro.
- Thailand Development Research Institute (2002). The Retail Business in Thailand: Impact of the Large Scale Multinational Corporation Retailers. Bangkok. [in Thai]
- Thuvachote. (2007). Agricultural Cooperatives in Thailand: Innovations and Opportunities in the 21st Century. [online] Available through FFTC Publication Database <<http://www.agnet.org/library/eb/579>> [Accessed 5 October 2010]
- Tokrisna, R. (2006). Thailand Changing Retail Food Sector: Consequences for Consumer, Producers, and Trade. [online] Available through the Pacific Economic Corporation Council at <http://www.pecc.org/resources/doc_view/394-thailand-changing-retail-food-sector-consequences-for-consumers-producers-and-trade> [Accessed 1 October, 2010]
- Traill, W. B. (2006). The Rapid Rise of Supermarkets? *Journal of Overseas Development Institutes*, Blackwell Publishers, Oxford.
- Tsakirdou, E., Matts, K., & Zotos, Y. (2004). Demand for Organically Produce Fruits and Vegetables in Northern Greece. *Marketing Trends for organic Food in the 21st century*, 3, 37-50.
- Tualananda, A. (2000). Asia's Future Role in World Agricultural Trade: The Perspective from Thailand. 26th IPC Plenary Meeting and Seminar, 9-12 November 2000, Beijing, People's Republic of China. [online] Available at: <<http://www.agritrade.org/Publications/DW%20Book/PDFs/ajva.pdf>> [Accessed 30 January 2010].

- U.N. Social and Economic Council (2000). Sustainable Agriculture and Rural Development. Report Of The Secretary-General; Addendum: Urbanization and Sustainable Agricultural Development. Eighth Session 24 April-5 May 2000.
- UN-ESCAP (2002). Organic Agriculture and Rural Poverty Alleviation: Potential and Best Practices in Asia. Poverty Reduction Section, UN-ESCAP / Poverty and Development Division (PDD), UNESCAP, Bangkok.
- UN World Development Report (2008, 2009). [online] Available at: <<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTWDRS/EXTWDR2008/0,,menuPK:2795178~pagePK:64167702~piPK:64167676~theSitePK:2795143,00.html>> [Accessed March 2010]
- UNCTAD/WTO, (2010). The European Market for Organic Fruit and Vegetables from Thailand, International Trade Centre, [online] Available at <<http://www.intracen.org/organics/documents/Thailand-fruit-and-vegetables.pdf>>. [Accessed on 9 November, 2010]
- UNDP (2003). Thailand Human Development Report 2003, United Nations Development Programme-Royal Speech Given On December 4, 1997. [online] Available at: http://www.undp.org/hdrc/AAPRI/NHDR_Rgn/Thailand_ndr_23.pdf [Accessed June 2010]
- UNESCAP. (2002). Organic Agriculture and Rural Poverty Alleviation: Potential and Best Practices in Asia. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific.
- Uzzi, B. (1997). Social Structure and Competition in Interfirm Networks: the Paradox of Embeddedness. *Administrative Science Quarterly*, Vol.42: pp 35-67.
- Vanit-Anunchai, C. (2001): *Possibilities and constraints of marketing environmentally friendly produced vegetables in Thailand*. Presentation at the Colloquium at the Institute of Economics in Horticulture; University of Hannover, Germany.
- Vanit-Anunchai, C. (2006). *Possibilities and Constraints of Marketing Environmentally Friendly Produced Vegetables in Thailand*, Ph.D, University of Hannover, Hannover.
- Van Dooren (2005). *Rice Value Chain Analysis "Each Life Starts with Little Seed"*, Paper for IFAT/EFTA/FLO. [online] Available at: <http://www.docstoc.com/docs/3607648/Rice-Value-Chain-Analysis-Each-life-starts-with-a-little> > [Accessed November 2010]
- Van Der Meer, L.J. (2006). Exclusion of Small-scale Farmers from Coordinated Supply Chain: Market Failure, Policy Failure or just Economics of Scale?, *Agro-Food Chains and Network for Development: Springer*, Netherlands, 209 – 217.
- Venkatesh and Puntsagdaavan (2007). Retailing Thailand. *Asian Case Research Journal*, 11(2), 215-246
- Von Braun, J., Hotchkiss, D., & Immink, M. (1989). Nontraditional Export Crops in Guatemala: Effects on Production, Income, and Nutrition. (Research Report No. 73). Washington, DC: International Food Policy Research Institute.

- Vorley, B. (2005). Supermarket Standards: A barrier to small scale producers? *Presentation prepared for All Party Parliamentary Group on Overseas Development (APGOOD)*.
- Weatherspoon, D., & T. Reardon (2003a), *Supermarkets in Sub-Saharan Africa: Challenges and Opportunities for Agrifood Suppliers*, Africa Regional Overview, Q2/2003: Lead article. London: The Economist Intelligence Unit: 1-6.
- Weatherspoon, D., & T. Reardon (2003b). The Rise of Supermarkets in Africa: implications for agrifood systems and the rural poor, *Journal of Development Policy Review*, 21(3), 333-355.
- Westgren, R., & Zering, K. (1998). Case Study Research Methods for Firm and Market Research. *Agribusiness*, 14(5), 415-424.
- Wiboonpongse, A. and Sriboonchitta, S. (2004). *Regoverning Markets: Securing Small Producer Participation in Restructured National and Regional Agri-food System in Thailand*. Chiang Mai University. Thailand.[online] Available at http://www.regoverningmarkets.or/docs/Thailand_report_final.pdf [Accessed on 3 May 2009].
- Williamson, O.E. (1985). *The Economic Institutions of Capitalism: Firms, markets, relational contracting*. New York: The Free Press.
- Williamson, O. E. (1991). Comparative economic organization: The analysis of discrete structural alternatives. *Administrative Science Quarterly*, 36, 269-296.
- Williamson, O. E. (2000). The new institutional economics: Taking stock, looking ahead. *Journal of Economics Literature*, 38, 595-613.
- Williamson, O. E. (2004). Transaction cost economics and agriculture: An extension. In G. Van Huylenbroeck, W. Verbeke & L. Lauwers (Eds.), *Role of institutions in rural policies and agricultural markets* (p. 19-38). Amsterdam, Netherlands.
- Elsevier B.V. Williamson (2005). *Handbook Of New Institutional Economics*. Section I, 41-65.
- Willer, H., & Yussefi, M. (2004). The World of Organic Agriculture: Statistics and Emerging Trends 2004 (eds.), *International Federation of Organic Agriculture a Movement*, Bonn.
- Wongsakul, T (2005). *Supply Chain Management for Perishable Foods: A Case Study of TOPs Supermarket, Thailand*. Master thesis. Asian Institute of Technology.
- Woolcock, M. (1996). Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society*, 27, 151-208.
- World Development Report (2008). Bringing Agriculture to the Market. [online] Available at: www.worldbank.org/wdr2008 [Accessed 1 January 2008].
- World Trade Organization (2010). International Trade Statistics 2009. WTO publication [online] Available at: http://www.wto.org/english/res_e/statis_e/its2009_e/its09_toc_e.htm [Accessed 15 October 2010].

- World Bank Workshop Report (2005), *Evolution of Food Marketing Systems: Implications for Producers in Developing Countries: Linking Small-Scale Producers to Markets: Old and New Challenges*.
- World Bank. (2003). *Global Economic Prospects and Developing Countries 2003*. Washington DC. [Online] Available at <<http://worldbank.org/prospects/gep2003/toc.htm>> [Accessed April 2009].
- Yin, R.K.(1994). *Case Study Research: Design and Methods*, 2nd Ed. Sage Publications, Thousand Oaks, and London.
- Young, L. M., & Hobbs, J. E. (2002). Vertical linkages in agri-food supply chains: Changing roles for producers, commodity groups, and government policy. *Review of Agricultural Economics*, 24(2), 428-441.

Appendix A:

Probit estimates of Green Net scheme participation

Determinants of participation in the Green Net Scheme

A probit model was employed to explore the producer's demographics, farm characteristics and income that had an impact on the probability of participating in the Royal Project scheme in producing for modern trade chains.

Table A-1 shows a list of socio-economic and farm characteristic variables that are hypothesised to determine small-scale farmers' participation in the Green Net scheme to produce for modern trade chains. This set of variables has been chosen based on the literature review and the information provided by interviews and focus group discussions. Further discussion on these variables will be presented in the results. The expected relationships of the explanatory variables and the probability of participating in the Green Net scheme in producing for modern trade chains are also presented.

Table A-1: Descriptive statistics of variables determining participation in Green Net scheme

Variables	Abbreviation	Description	Expected Sign
<i><u>Dependent Variable</u></i>			
Participation in the Green Net scheme	PART	1=yes, 0 = no	N/A
<i><u>Independent variables</u></i>			
Total labour available in household	Labour	person	+
Share of female labour in household	Female	person	+
Sex of head of household	HHsex	Male = 1 Female = 0	+
Age of head of household	HHage	Years	+/-
Education of head of household	HHedu	Years	+
Experience in farming of head of household	HHexp	Years	+
Distance of farm from main road	Froad	km	-
Distance of farm from market/cooperative	Fmarket	km	-
Area of farm size	Fsize	rai	-
Land elevation	Land	1 very low land – 4 high	+/-
Soil quality	Qsoil	1 very bad - 5 excellent	+
Yearly household income	Hincome	Baht	+
Proportion of non-farm income	Nincome	%	-
Wealth Index*	WealthIndex	n/a	+

Note: * Wealth Index, calculated from house area and household's assets e.g. car, bicycle and TV using Principal Component Analysis (PCA) method to get a new variable.

The theoretical concept of the probit model application with a list of factors that were identified from previous studies (for example von Braun *et al.*, 1989 and Blandon, 2006) as follows:

Income potentially earned non-farm determines the opportunity cost of working on-farm. In the long-run, farmers are facing a choice of earning non-farm income versus on-farm work. This choice is determined by the non-farm versus on-farm opportunity costs of family labour. Endowment of human capital and established non-farm employment opportunities determine these relationships for a specific household. It is noted, however, that income and proportion of non-farm income should be regarded as co-varying with participation rather than causing it.

It is hypothesized that the choice to become a participant farmer would be determined by the expected income increase, which can be assumed to be determined by the resource endowments of the farm (farm size, soil quality, land elevation, distance of farm from main road and distance of farm to market).

It is further hypothesised that household labour force size and composition (women's share) may be a factor in adoption. A higher share of women's labour may enhance participation in the modern trade crop since women are disadvantage compared to males in accessing non-farm work opportunities (von Braun *et al.*, 1989) Since the key decisions are mainly those of the head of household, their age, education level, and experience in farm are other factors hypothesised to impact participation in the social enterprise scheme.

Based on these hypotheses, the participation model is specified as:

$$Participation = f(Labour, Female, HHsex, HHage, HHedu, Expf, Froad, Fmarket, Fsize, Land, Qsoil, Hincome, Nfincome, Wealthindex)$$

The empirical analysis was conducted using the STATA statistical package. The probit estimates are listed in Table A-2 and can be used to derive probability of participating in modern trade crop production, which can be approximated by marginal effect (dF/dx).

Table A-2: Probit estimates of Green Net scheme participation

Independent Variable	Coefficient	P-Value	Approximate Probability of Joining Social Enterprise Crop Production ⁴²	Mean Value of Variable	Standard Deviation
Labour	-0.0464486	0.865	...	3.18	1.07
Female	-0.3402182	0.217	...	2.35	0.89
HHsex	-1.064158**	0.045	-0.4004979	<u>0.78</u>	0.41
HHage	1.503728***	0.000	0.5941246	47.35	10.39
HHedu	0.2153888**	0.043	0.0851003	6.43	2.78
Expf	-1.442347***	0.000	-0.5698727	27.28	10.50
Froad	0.1723863	0.338	...	1.56	1.02
Fmarket	-0.3869039***	0.001	-0.1528661	4.86	2.21
Fsize	-0.1061752**	0.022	-0.0419499	21.52	11.76
Land	-0.3568991	0.291	...	2.43	0.63
Qsoil	1.588501***	0.000	0.6276184	2.95	0.86
Hincome	0.0000164**	0.037	6.47e-06	128882.00	73832.49
Nfincome	-0.0465426**	0.017	-0.018389	38.00	9.78
NfinL	-0.015621	0.291	...	16.92	13.21
WealthIndex	0.4303167	0.195	...	1.7e-07	1.00

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively.

Number of observations: 120, LR Chi-squared: 90.61

The estimation results indicate the decision of households to participate in the Green Net scheme in producing for modern trade chains is not independent of household and farm characteristics.

1. Increase in age (HHage) and level of education (HHedu) of head of household, which were assumed in order to indicate human capital endowment of the household increase the adoption probability.

2. Household head farm experience (Expf) reduces the probability of joining Green Net scheme. This may be due to greater experience including choices based on familiarity. In addition, social

⁴² The values in this column are the marginal effect (dF/dx) for the parameters estimated with a reasonable degree of statistical significance (above 95 percent level).

enterprise requires modern, closely controlled production systems which farmers who have more experience in traditional production system may not be familiar with.

3. The head of household sex (HHsex) significantly decreases the probability of becoming a Green Net participant farmer in producing for modern trade chains. The result suggests that the probability of growing for Green Net decreases 40 percent if household head is male. However, this result runs counter to the hypothesised relationship between head of household sex and participation in Green Net scheme. This could be explained by the fact that males have more opportunities in accessing non-farm work.

4. Increased quality of soil (Qsoil) significantly increases the probability of becoming a Green Net member producer. As Green Net is an organic scheme, higher quality of soil is required by members to compensate for the loss of chemical and fertilizer application.

5. Increase in yearly household income (Hincome) significantly increases the probability of growing for Green Net. As noted earlier, a major challenge in participating in the Green Net scheme in producing for modern trade crops is primarily high risk of crop failure in the transitional period, and farmers have to have a higher capacity investing through the transitional period which require higher investments such as payment of wages for labour used on farm (see Table 7.8). However, it is possible that increases in household income come from participating in the Green Net scheme or talented or more enterprising farmers tend to become members of Green Net. Since more talented farmers make higher profits than less talented farmers, it may appear that Green Net membership is increasing profits. In reality, it may be the higher underlying talent levels of participating farmers that creates extra profits. This has the potential to create an endogeneity/selectivity problem. As a result, this issue is addressed in next section (Appendix B).

6. Although primary occupation of most farmers in the sample is rice farming, an increase in non-farm income (Nfincome) significantly decreases the probability of becoming a participant grower – that is, relatively secure income from other sources. The estimation result suggests that if this type of relatively secure income increases by 4.25 Baht (which is approximately the difference between the mean and standard deviation of (Nfincome); 28.23 percent of 150 Baht/day⁴³), the probability of participating in the Green Net scheme decreases by 7.81 percent.

7. An increase in farm size (Fsize) significantly decreases the probability of becoming a Green Net participant member. The estimation result suggests that one additional rai of farm size decreases the probability of growing for social enterprise by 4.2 percent. A possible reason for this result is that organic production system is time consuming and has high labour requirement which is not suitable for large scale farmers who have not enough time for organic farming and family labour.

⁴³ Source: Department of Labour Protection and Welfare, 2009. [online] Available at <<http://www.labour.go.th/news/file/minimumWage.pdf>> [accessed on 9 May, 2010]

Moreover, from interviews, most farmers who have somewhat larger farms tend to be entrepreneurs and prefer to use chemicals and are not interested in organic systems.

8. Increased distance from farm to market, the cooperative i.e. Green Net (Fmarket) - that is, relative transportation costs to the market – decreases the probability of joining Green Net in producing for modern trade crop production.

The statistically non-significant results in the Probit model are also interesting to note.

1. Total labour available in the household (Labour) does not significantly affect the choice of becoming a Green Net participant in producing for modern trade chains.

2. An increased share of females in household (Female) does not significantly affect the probability of participating in the Green Net scheme.

3. Distance of farm from main road (Froad) does not significantly influence the probability of joining Green Net scheme. The result shows that the average distance of farm from main road is only 1.562 km, but does not significantly affect the choice of becoming a participant.

4. Land elevation (Land) does not significantly affect the participation probability.

5. Wealth Index (WealthIndex), which was constructed in order to indicate the wealth capital endowment of household, does not significantly affect the choice of becoming a Green Net participant farmer. This may be caused by imperfect data and the complexity in measuring wealth.

In summary, it may be concluded from these results that farmers who have small farm size, small number of female in the household, high education level were most likely to participate in the Green Net scheme in producing for modern trade chains. Farmers on the somewhat bigger farms and those who have access to relatively secure non-farm employment were most likely not to participate in Green Net in producing for modern trade chains.

Appendix B:

Regression model and Sensitivity analysis of Green Net scheme participation

Determinants of farm economic outcomes (profits per rai): Green Net

A regression model was employed to explore the determinants of profit outcomes. This helps determine the effect of participation on key farm outcomes, while controlling for other variables that may affect outcomes. Selectivity/endogeneity issues are addressed during estimation also shown in the next sub-section.

It is hypothesized that the profits per rai is determined by the farm variables, socio-economic, farmer variables, and participating in the Green Net scheme in producing for modern trade chains. Based on the hypothesis, the profits per rai regression model is specified as follow:

$$\text{Profits per rai} = f(\text{farm variables, socio-economic and farmer variables, and participation})$$

The empirical analysis was conducted using the STATA statistical package. The gross margin regression results are reported in Table B-1.

1. The key point to note is that participation (Participation) had a positive and significant effect on the gross margin of the farmers after controlling for other determinants. The result suggests that farmers participating farmers increased profit per rai by 517 Baht compared to non-participants.
2. The distance of farm from main road (Froad) significantly increases the profit per rai. A possible reason for this result is that participant farmers in Green Net scheme have higher distants of farm from main road (see Table 7.3) which is related to participation.
3. An increase in farm size (Fsize) significantly increases profit per rai of the farmer. Every additional rai of farm size is associated with 12.91 more Baht in profits.
4. The number of available persons of working age (Labour) in household has a negative and significant effect on the gross margin of farmers. Based on insights from interviews and focus group discussions, a possible reason of this result is that farmers who have many adults (person of working age) in household tend to diversify away into non-farm income generating activities.

Table B-1: Regression estimate of the determinants of farm economic outcomes (profits per rai)

Independent Variable	Coefficient	Standard error	t	P-Value
Participation	517.3499***	96.33663	5.39	0.000
Labour	-152.9014**	57.46333	-2.66	0.009
Female	47.87481	53.39993	0.90	0.372
HHsex	-113.447	107.9105	-1.05	0.295
HHage	63.97153	73.09624	0.88	0.383
HHedu	18.88891	18.39809	1.01	0.313
Expf	-50.03213	73.11955	-0.68	0.495
Froad	80.23326**	36.60048	2.19	0.031
<u>Fmkt</u>	-11.99439	19.30243	-0.62	0.536
Fsize	12.91042***	4.171504	3.09	0.003
Land	17.86791	61.34598	0.29	0.771
Qsoil	-20.08395	52.41067	-0.38	0.702

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively.
where

Participation	= participation in the Green Net scheme in producing for modern trade,
Labour	= total labour available in the household (that is, persons of working age),
Female	= total female in the household,
HHsex	= sex of head of household (1 male, 0 female),
HHage	= age of head of household (years),
HHedu	= head of household education (years),
Expf	= head of household experience in farming (years),
Froad	= distance of farm from main road (km),
Fmarket	= distance of farm from market (km),
Fsize	= farm size (rai),
Land	= land elevation (1 very low land – 4 high),
Qsoil	= soil quality (1 very bad – 5 excellent)

Selectivity bias

The above profitability comparison and gross margin regression reveals that farmers who participate in Green Net scheme in the sample generally have higher profits than non-participant farmers. However, this profitability difference does not necessarily indicate that participant farmers have higher profits as a result of their participation in the scheme because it could be caused by selection bias. It is possible that more talented or more enterprising farmers tend to become members of Green Net scheme. Since more talented farmers make higher profits than less talented farmers, it may appear that Green Net membership is increasing profits. In reality, it may be the higher underlying talent levels of participating farmers that creates extra profits. If this is true, then the regression coefficient of gross margins on participation would not really reflect the effect of participation, but rather the mix of the effects of participation and the underlying talent levels.

There are many solutions to the selectivity problem, including Heckman correction methods, panel data methods, etc. The method used in this study is “propensity score matching”. The basic idea behind propensity score matching is as follows. The probit model of participation produces a probability of participation for every observation in the sample, including participants and non-participants (see Table A-2). This predicted probability (called the propensity score) is based on the observed values for the independent variables and the coefficient estimates from the probit model.

In one version of propensity score matching, every participant will be compared to a non-participant based on similarity of propensity scores. Their outcomes will be compared, *i.e.*, the difference between their gross margins will be computed. Once this is done for all participants, the differences will be averaged and reported as the average difference. This version is called ‘*nearest neighbour*’ matching (NNM). The intuition is that, *controlling for the probability of participation, i.e.*, comparisons of participants and non-participants with similar propensity scores, is similar to random assignment to control and treatment groups.

There are other versions of propensity score matching. Another method is called ‘*kernel-based*’ matching (KBM). Here, the outcome of each participant is compared to the weighted average outcomes of all non-participants, where the weights depend on the probability of participation. The output will show a row called ‘*ATT*’, the average treatment effect on the treated. The value in this row shown as ‘*difference*’ is the average difference between gross margins of participants and non-participants after matching. It also gives a t-statistic that is used for doing a t-test.

The empirical analysis was conducted using the STATA statistical package and the results are shown in Table B-2.

Table B-2: Average treatment effects and results of sensitivity analysis

Matching algorithm	Outcome	ATT	Number of treated	Number of control
Nearest Neighbour matching	Gross margin (Baht/rai)	715.17** (2.37)	60	60
Kernel-based matching	Gross margin (Baht/rai)	800.52*** (3.01)	60	60

Note: Numbers in parentheses are t-values. Values are significantly different from zero at ***1%, **5% levels. ATT is the average treatment effect for the treated.

Table B -2 resents the average treatment effects estimated by ‘*nearest neighbour*’ matching (NNM) and ‘*kernel-based*’ matching (KBM) methods, as well as the indicators of matching quality from the matching methods. The matching results from both NNM and KBM approaches in the table generally indicate that participant farmers have a positive and significant effect on gross margin (profits per rai). Specifically, the NNM and KBM causal effects of participation on gross margin are at 715.17 and 800.52 Baht, respectively. These positive results suggest that profits per rai of participant farmers are higher by about 715.17 – 800.52 Baht per rai than non-participant farmers.

This finding confirms that participating in the Green Net scheme in producing for modern trade chains has a positive and significant effect on profits per rai of farmers.

Appendix C:

Probit estimates of Royal Project scheme participation

Determinants of participation in the Royal Project scheme

A probit model was employed to explore the producer's demographics, farm characteristics and income that had an impact on the probability of participating in the Royal Project scheme in producing for modern trade chains.

Table C-1 shows a list of socio-economic and farm characteristic variables that are hypothesized to determine small-scale farmers' participation in the Royal Project scheme, and used in the probit model. This original set of variables has been chosen based on the literature review and the information provided by in-depth interviews and focus group discussions. Further discussion about these variables will be presented in the results. The expected relationships of the explanatory variables and the probability of participating in the Royal Project scheme in producing for modern trade chains are also presented.

The theoretical concept of the probit model application with a list of factors that were identified from previous studies (for example Blandon, 2006, Braun, Hotchkiss and Immink, 1989) as also seen in Chapter 7 is the following:

Income potentially earned non-farm determines the opportunity cost of working on-farm. In the long-run, farmers are facing a choice of earning non-farm income versus on-farm work in growing labour intensive pesticide-safe produce. This choice is determined by the non-farm versus on-farm opportunity costs of family labour. Endowment of human capital and established non-farm employment opportunities determine these relationships for a specific household. It is noted, however, that income and proportion of non-farm income should be regarded as co-varying with participation rather than causing it.

Table C-1: Explanatory variables and descriptive statistics determining participation in the Royal Project scheme

Variables	Abbreviation	Description	Expected Sign
<i>Dependent Variable</i>			
Participation in the RP scheme	PART	1=yes, 0 = no	N/A
<i>Independent variables</i>			
Total labour available in household	Labour	person	+
Share of female labour in household	Female	person	+
Sex of head of household	HHsex	Male = 1 Female = 0	+
Education of head of household (years of schooling)	HHedu	Years	+
Experience in farming of head of household	HHexp	Years	+
Distance of farm from main road	Froad	km	-
Distance of farm from market/RP	Frfp	km	-
Area of farm size	Fsize	rai	-
Land elevation	Land	1 very low land – 4 high	+/-
Soil quality	Qsoil	1 very bad - 5 excellent	+
Yearly household income	Hincome	Baht	+
Proportion of non-farm income	Nincome	%	-
Wealth index*	WealthIndex	n/a	+

Note: * Wealth index, calculated from house area and household's assets e.g. car, bicycle and TV using Principal Component Analysis (PCA) method to get a new variable.

It is hypothesized that the choice to become a participant farmer would be determined by the expected income increase, which can be assumed to be determined by the resource endowments of the farm (farm size, soil quality, land elevation, distance of farm from main road and distance of farm to market).

It is further hypothesised that household labour force size and composition (women's share) may be a factor in adoption. A higher share of women's labour may enhance participation in the modern trade crop since women are disadvantaged compared to males in accessing non-farm work opportunities (von Braun *et. al.*, 1989) and so are available for farm work. Since the key decisions are mainly those of the head of household, their age, education level, and experience in farm are other factors hypothesised to impact participation in the social enterprise scheme.

Based on these hypotheses, the participation model is specified as:

$$Participation = f(Labour, Female, HHsex, , HHedu, Expf, Froad, Fmarket, Fsize, , Land, Qsoil, Hincome, Nfincome, WealthIndex)$$

The probit estimates are listed in Table C-2.

Table C-2: Probit estimates of Royal Project scheme participation

Independent Variable	Coefficient	P-Value	Approximate Probability of Joining Social Enterprise Crop Production ⁴⁴	Mean Value of Variable	Standard Deviation
Labour	-0.3095778	0.187	...	3.27	1.16
Female	0.7339474**	0.012	0.2919462	2.54	0.981
HHsex	1.525511**	0.015	0.490292	1.19	0.40
HHedu	-0.1865008**	0.011	-0.0741854	5.22	3.18
HHexp	-0.0252124	0.307	...	22.97	10.92
Froad	-0.0193208	0.915	...	1.78	1.01
Frpf	-0.057739	0.583	...	4.35	1.82
Fsize	-0.1014732**	0.013	-0.0403635	15.20	9.66
Land	0.4429262	0.269	...	3.58	0.50
Qsoil	1.611479***	0.000	0.6410066	3.12	0.69
Hincome	-3.39e-06*	0.093	-1.35e-06	312624.00	123849.40
Nfincome	-0.0720919***	0.002	-0.0286764	17.71	10.84
WealthIndex	-0.1591592	0.370	...	2.50e-07	1.00

Number of observations: 120, LR Chi-squared: 95.68***
 ***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively.

The estimation results indicate the decision of households to participate in the Royal Project scheme is not independent of household and farm characteristics:

1. Increased quality of soil (Qsoil) significantly increases the probability of becoming a Royal Project participant farmer in producing for modern trade chains. As Royal Project is pesticide-safe producer scheme, higher quality of soil is required by members to compensate for the loss of chemical and fertilizer application. The estimation result suggests that an additional level of soil quality index increases the probability of growing for Royal Project by 64 percent.

2. An increase in labour available in the household (Labour) significantly increases the probability of becoming a participant farmer. This result suggests farmers that have more available

⁴⁴ The values in this column are the marginal effect (dF/dx) for the parameters estimated with a reasonable degree of statistical significance (above 95 percent level).

person of working age (Labour) in household tend to diversify into farm income generating activities than non-farm activities.

3. The head of household sex (HHsex) significantly increases the probability of becoming a Royal Project participant farmer in producing for modern trade chains. The result suggests that the probability of males participating in the Royal Project scheme is 49 percent more than their female counterparts.

4. Increase in level of education (HHedu) of head of household significantly decreases the probability of participating in the Royal Project scheme in producing for modern trade chains. It is noted that similar results have been found in other settings (for example Blandon, 2006) where increased education may increase non-farm work opportunities.

5. The share of female in the household (Female) positively affects the choice of becoming a Royal Project participant. Participating in the Royal Project scheme requires more family labour. This result confirms the finding (von Braun *et al.*, 1989) that females may have difficulty in securing non-farm work, thereby, spending time on farming activities.

6. An increase in farm size (Fsize) significantly decreases the probability of becoming a Royal Project participant member. The estimation result suggests that one additional rai of farm size decreases the probability of growing for Royal Project by 4 percent. A possible reason for this result is that pesticide-safe farming systems are time consuming and have high labour requirement which is not suitable for large scale farmers who have not enough time for pesticide-safe farming systems. Moreover, results from the interviews show that most farmers who have somewhat larger farms tend to be entrepreneurs and prefer to use chemicals and are not interested in pesticide-safe farming systems.

7. Although the primary occupation of most respondents in the sample is farming, an increase in non-farm income (Nfincome) significantly decreases the probability of becoming a participant grower. The estimation result suggests that if income from secure non-farm activities increase by 10.31 Baht (which is approximately the difference between the mean and standard deviation of (Nfincome); 6.87 percent of 150 Baht/day), the probability of participating in the Royal Project scheme decreases by 19 percent.

8. Increase in yearly household income (Hincome) significantly decreases the probability of participating in the Royal Project scheme. This result suggests that higher annual household incomes increase the capacity to invest thereby tending to move such households to entrepreneur status that usually prefer to use chemicals and may not be interested in pesticide-safe farming systems. Also, it is possible that RP tends to prefer to enrol small-scale resource poor farmers in its projects.

It is important to note that variables like distance of farm from main road, farming experience of household head, land elevation and wealth index are not significant determinants of participation in the Royal Project scheme. In particular, the wealth index variable is a complex mix of various household assets and its statistical non-significance could be a result of imperfect data and measurement errors.

In summary, it may be concluded from these results that farmers who have small farm size with high quality of soil were most likely to participate in Royal Project in producing for modern trade chains. Farmers on the somewhat bigger farms which have less cycles, and those who have access to relatively secure non-farm employment were most likely not to participate in the Royal Project scheme .

Appendix D:
Regression model and Sensitivity analysis of Royal Project scheme participation

Determinants of farm economic outcomes (profits per rai): Royal Project

A regression model was employed to explore the determinants of profit outcomes which help determine the effect of participation on key farm outcomes, while controlling for other variables that may affect outcomes. Selectivity/endogeneity issues are addressed in the estimation results of which are shown in the next sub-section.

It is hypothesized that profits per rai is determined by the farm variables, socio-economic and farmer variables, and participation in the RP scheme.

$$\text{Profits per rai} = f(\text{farm variables, socio-economic and farmer variables, and participation})$$

The gross margin regression results are reported in Table D-1.

1. The key point to note is that *Participation* had a positive and significant effect on the gross margin of the farmers after controlling for other determinants. The result suggests that participating farmers increased profit per rai by 2397 Baht compared to non-participants.
2. The level of education (HHedu) of head of household significantly increased profit per rai of the farmers. Every additional level of education (years of schooling) is associated with 179 Baht per rai.
3. The distance from farm to main market (Fmkt) had a negative and significant effect on the gross margin of farmers. Based on insights from interviews and focus group discussions, a possible reason for this result is that transportation cost higher for farmers who have higher distance from farm to main market, especially for farmers who have upland farms.

**Table D-1: Regression estimate of the determinants of farm economic outcomes
(profits per rai)**

Independent Variable	Coefficient	Standard error	t	P-Value
Participation	2397.59***	871.6824	2.75	0.007
Labour	3.93.08	411.6661	0.95	0.342
Female	301.2537	413.0007	0.75	0.454
HHsex	-518.23	884.2253	-0.59	0.559
HHedu	179.8594**	141.5836	2.20	0.023
Expf	-28.90357	41.47112	-0.70	0.487
Froad	-336.6322	319.5282	-1.05	0.294
Fmkt	-358.3839**	180.9486	-1.98	0.050
Fsize	25.23353	42.22014	0.60	0.551
Land	570.333	759.0413	0.75	0.454
Qsoil	484.8337	548.1571	0.88	0.378

***, **, * Sig. (2-tailed) at the 1%, 5% and 10% levels respectively

where Participation = participant farmers with Green Net in production for modern trade,
Labour = total adult available in the household (that is, persons of working age),
Female = total female in the household,
HHsex = sex of head of household (1 male, 0 female),
HHage = age of head of household (years),
HHedu = head of household education (years),
Expf = head of household experience in farming (years),
Froad = distance of farm from main road (km),
Fmkt = distance of farm from market (km),
Fsize = farm size (rai),
Land = land elevation (1 very low land – 4 high),
Qsoil = soil quality (1 very bad – 5 excellent)

Selectivity bias

The above profitability comparison and gross margin regression reveals that farmers who participate in Royal Project scheme in the sample generally have higher profits than non-participant farmers. However, this profitability difference does not necessarily indicate that participant farmers have higher profits as a result of their participation in the scheme because it could be caused by selection bias.

This study used “propensity score matching” method to address the selectivity problem. The matching process is preceded by specification of the propensity scores for the treatment variable. A probit model was employed to predict the probability of participating in the Royal Project scheme as indicated earlier in Table 8.7. The effect of participation on gross margin per rai was estimated with Kernel-based matching (KBM) and nearest neighbour matching (NNM) with results presented in Table D-2.

Table D-2: Average treatment effects and results of sensitivity analysis

Matching algorithm	Outcome	ATT	Number of treated	Number of control
Nearest	Gross margin	2538.15**	60	60
Neighbour matching	(Baht/rai)	(2.01)		
Kernel-based matching	Gross margin	3033.17***	60	60
	(Baht/rai)	(2.99)		

Note: Numbers in parentheses are t-values. Values are significantly different from zero at ***1%, **5% levels. ATT is the average treatment effect for the treated.

The matching results from both NNM and KBM approaches in the table generally indicate that participant farmers have a positive and significant effect on gross margin (profits per rai). Specifically, the NNM and KBM causal effects of participation on gross margin are at 2538.15 and 3033.17 Baht respectively. These positive results suggest that profits per rai of participant farmers are higher by about 2,538.15 – 3,033.17 Baht than non-participant farmers.

This finding confirms that participating in the Royal Project scheme in producing for modern trade chains had a positive and significant effect on profits per rai of farmers.

Appendix I:

SEMI-STRUCTURED INTERVIEW QUESTIONS



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**SMALLHOLDERS COPING WITH FOOD SECTOR TRANSFORMATION:
THE ROLE OF SOCIAL ENTERPRISES AND MODERN SUPPLY CHAINS IN THAILAND**

Semi-structured Interviews with Key Informants

(e.g. Government Officers, NGOs' representative, Private Sector, Donors, Universities' representatives)

This semi-structured interview question is part of a research project conducted by the University of Reading's Department of Agricultural and Food Economics (UK), with no commercial interests involved. It explores the role of small-scale farmers in supermarket chains in Thailand. It aims to assess the impact on smallholders of producing for supermarkets and the constraints that may limit their participation.

We would appreciate you taking some time to answer our questions. I would like to assure you that and information you provide is just for the purposes of this project and will be treated as confidential and not divulged to any third party.

Respondent Number:

Date of Interview:

Time of Interview:

Length of Interview:

Place of Interview:

Semi-structured Interviews with Key Informants

(e.g. Government Officers, NGOs' representative, Private Sector, Donors, Universities' representatives)

1. First, we would like to have some general information about your organization: *Vision, mission, goals, specific projects, relationship with the fresh fruit and vegetable (FFV) sector.*
2. What do you know about the FFV industry in Thailand?
(*eg., Importance for the economy, value of national market, supply chain/value chain of FFV, geographical location, main crops, Main buyers, main suppliers, etc.*)
3. Please describe the development of FFV supply chain changing? (eg. Traditional market, supermarkets?)
4. What is your organization specifically doing in the FFV sector?
(*eg., Programs, projects, etc. Where? How many farmers are involved?*)
5. In your opinion, what are the main limitations faced by the FFV sector, especially by small farmers? Do you know about farmer exclusion? What kind of farmers is excluded?
6. What are the advantages and disadvantages of traditional marketing systems used by small farmers (spot markets)?
7. What are the advantages and disadvantages of new marketing systems used by small farmers (coordinated markets, e.g., supermarkets?)
8. Do you know any experience of farmers producing FFV under contract to supply supermarket chains or specialized wholesalers? If yes, what can you tell about that experience?
9. Do you know about requirements imposed by procurement systems used by supermarket chains or specialized wholesalers? What are the main key success factors to meet the requirements of the new supply chains?
10. What are the main challenges or problems to enter and/or stay in the new supply chains?
11. What specific plans do you have in the near future to support the FFV sector?
12. What recommendations do you have for construction 'best practice' models to enhance the competitiveness of the FFV sector, and specially the competitiveness of small farmers?
13. What role should play institutions and organizations to construct these models? Other comments?

Note: Also ask responder about does he/she knows someone who are working or involved with FFV chains in Thailand? (*Snowball*)

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**SMALLHOLDERS COPING WITH FOOD SECTOR TRANSFORMATION:
THE ROLE OF SOCIAL ENTERPRISES AND MODERN SUPPLY CHAINS IN THAILAND**

Semi-structured Interviews with supermarkets/multiple-retailers' representatives

This semi-structured interview question is part of a research project conducted by the University of Reading's Department of Agricultural and Food Economics (UK), with no commercial interests involved. It explores the role of small-scale farmers in supermarket chains in Thailand. It aims to assess the impact on smallholders of producing for supermarkets and the constraints that may limit their participation.

We would appreciate you taking some time to answer our questions. I would like to assure you that and information you provide is just for the purposes of this project and will be treated as confidential and not divulged to any third party.

Respondent Number:

Date of Interview:

Time of Interview:

Length of Interview:

Place of Interview:

Semi-structured Interviews with supermarkets/multiple-retailers's representatives

✓ **Company background** *(Some of this information may also be usefully obtained from any copies of company brochures/annual reports/websites, etc, that may be available from the company)*

1. What kind of FFV do you buy/sell?
2. What are the various products that the company is involved with?

✓ **Purchasing and Procurement Management**

1. Please describe the main sources of supply of vegetables to your supermarket (*eg. 80% from specialized wholesalers, 10% from farmer organizations/cooperatives/5% from spot market purchase, 5% from imports, etc*).
2. Please describe your relationship with your major suppliers and how the supplier situation has been changing in the last five years. (*eg., we have annual contracts with our specialized wholesalers. These are reviewed every year, but we have not changed our suppliers in the last 3 years, What kind of supplier do you prefer*)
3. What criteria do you use to choose the suppliers? (*eg., quality, quantity, delivery, packaging, price, logistics, transaction costs, etc.*)
4. Do you operate distribution centre of your own? How many, located where?
5. How is the vegetable produce distributed geographically to various stores? (*eg., specialized wholesalers in the region deliver to regional distribution centres in Bangkok, Chiang Mai, Khon Kaen & Phuket, and from these distribution centres, produce is sent to individual stores on a twice-weekly basis*).
6. Do the supply sources and distribution channels vary according to the type of vegetable? Please describe. (*eg., all 'safe' vegetables are from only one source, Dr. Veg; all leafy vegetables are from 3 specialized wholesalers; all potatoes are imported from Cambodia, etc.*).
7. Do you yourself run any contract farming schemes directly with farmers? If so, please describe. (*eg. we only operate one small scheme, with assistance from the government, with 300 small farmers in Korat; we subsidise their irrigation & machinery, and buy a pre-arranged amount at fixed prices*).
8. Do you compare your buying price with the price at wholesale markets? (*eg., at the same price, at a lower or at a higher price (by how much)*) If yes, how do you get informed about the wholesale market prices?
9. Do you have a fixed margin relative to the purchase price to cover your costs? (*eg., the trading on 3 products*)
10. What sort of value added activities do you expect your suppliers to perform? (*eg. the supply has to be washed and packaged prior to arrival at the distribution centre*).
11. Please describe the grading and quality control system you operate for vegetable purchase. (*eg., at each distribution centre, we have a team of graders who grade the produce, and the suppliers are paid according to the grade*).
12. How much of your produce is typically rejected after grading? (*eg. we reject about 20% of the produce after quality checking*).
13. Please describe the main difficulties faced in procuring FFV supplies. (*eg., some vegetables like zzz are affected by seasonality of supply; with safe vegetables, we face problems with suppliers being unable to supply adequate volumes on a regular basis*).
14. According to you, what factors are necessary for small-scale farmers to access the supermarkets?
15. Do you have any ideas to help small-scale farmers to get more income?

✓ Marketing Management

1. Please describe the marketing development of FFV sector of your business in last five year? (eg. *Market share increased 15% per year, forces and trends driving in FFV business, competitors?, changing of marketing strategies, and increasing area of FFV in your supermarket?, how many % of profit increasing?*)
2. What are the main key successful sectors to sell and marketing management of FFV? (eg. *Procurement systems, marketing plan, pricing, brand (own brand?), quality of suppliers, contract farming, logistics systems, staffs, etc*)
3. Do you have your own brand of FFV? How many? What is it?
4. Please describe the main difficulties faced in marketing of FFV in the present and last five years. (eg., *changing of consumer behavior, environmental concerned, food safety, competitors, excess demand or excess supply*)
5. Do you have any projects or specific plans to support your future of FFV business? What are they? Did you have any projects or specific plans to support your FFV business before? How was it?
6. Please describe the future trends and forces driving FFV business? (eg. *FFV market in supermarket is growing up to 50% of total market?, consumer demand changing?, food safety and quality standard of products, economic growth, global market chain?*)
7. Can you distinguish the origin of vegetables coming from different location?
8. What is the basis for your setting your buying and selling price?
9. Do you compare your selling price with the price of retail markets? (eg., *at the same price, at a lower or higher price (by how much)*) If yes, how do you get informed about the retail market prices?
10. Does your supermarket have any projects to support FFV business in the future? If yes, what are they? (eg., *expansion of show (by how much), diversification of products (what are new products), new suppliers (who?), or new shops (where?)*)

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**SMALLHOLDERS COPING WITH FOOD SECTOR TRANSFORMATION:
THE ROLE OF SOCIAL ENTERPRISES AND MODERN SUPPLY CHAINS IN THAILAND**

Semi-structured Interviews with buyers

(supply to modern trade chains e.g. Cooperatives, Brokers/Suppliers)

This semi-structured interview question is part of a research project conducted by the University of Reading's Department of Agricultural and Food Economics (UK), with no commercial interests involved. It explores the role of small-scale farmers in supermarket chains in Thailand. It aims to assess the impact on smallholders of producing for supermarkets and the constraints that may limit their participation.

We would appreciate you taking some time to answer our questions. I would like to assure you that and information you provide is just for the purposes of this project and will be treated as confidential and not divulged to any third party.

Respondent Number:

Date of Interview:

Time of Interview:

Length of Interview:

Place of Interview:

Semi-structured Interviews with Buyers: Supermarket Chains/ Specialized Wholesalers.

1) Company Background (Note: Some of this information may also be usefully obtained from any copies of company brochures/annual reports/websites, etc, that may be available from the company)

2) Relationship with supermarkets/multiple-retailers

1. What product lines (eg. fruits&vegetables/ rice/ dairy products/ grains) does your company supply to supermarkets/multiple-retailer?
2. Which supermarkets/multiple-retailers does it supply to? (*eg tesco/carrefour/big c/makro/tops, etc*).
(if supplying many lines and/or to many supermarkets, ask them to list the major retailer-product line combinations – eg tesco-vegetables or big-c fruits)
3. Main products within the product line to modern trade/supermarket chains (*eg beans, potatoes, or bananas*)
4. Any special nature of products to supermarkets? (*eg hydroponics, safe veggies*)
5. How important is the supermarket supply for the company (*eg 50% of sales is to supermarkets*)
6. Describe historical development of this relationship (*eg since when they are supplying, has it expanded over time, major changes that have happened recently, etc*).
7. Describe distribution/supply chain from farmer to supermarket in as much detail as possible (listing all intermediaries in the chain) (*eg, for beans: village buyer buys from non-contracted farmers, supplies to local fresh market, our company buys from various fresh markets and supplies to supermarket. Or, we have x number of contract farmers in y province, they supply directly to us, we sell to a distribution center in Bangkok, which supplies supermarkets*).
8. Does the company perform value-addition activities after receiving product from farmer and before supplying to supermarkets. Describe these, for example.
 - *washing of vegetables*
 - *sorting of vegetables*
 - *packaging of vegetables*
 - *labelling of vegetable packaging*.
9. Describe the food safety activities undertaken by the company before supply to supermarket, *eg: checking for pesticide residue levels*.
10. Did they have to qualify for a 'preferred contractor' relationship with the supermarket, *ie*, did they have to go through some kind of qualification procedure to be able to supply to supermarkets? If so, describe the qualification process and its history.
11. Describe the nature of the contract with the supermarket, including
 - *how long is the contract for? (eg, one year contract to be reviewed annually)*
 - *food safety expectations in the contract (eg company has to check pesticide residue levels by x method for y proportion of product before sending to supermarket)*
 - *value added activities expectations in the contract (eg all product has to be washed, sorted and labelled)*
 - *any requirements about regularity of supply (eg supply x volume every y number of days)*
 - *penalties stipulated in the contact if expectations are not met (eg reduced price, termination of contract, etc).*
 - *price agreement (eg, price agreed in advance, etc)*
 - *regularity of supply (eg, x volume has to be supplied during a, b, c, d months).*

12. View about main advantages of supplying to supermarkets, *eg, better prices, stable demand, guaranteed purchase, high volume of purchase.*
13. View about main difficulties in supplying to supermarkets, *eg, high cost due to supermarket requirements about food safety standards, value added requirements, etc; low bargaining power in contractual relationships).*
14. View about future of their business with supermarkets – is it likely to expand, are they likely to supply to other supermarkets, any new products or product lines that they wish to add to their portfolio of supermarket supply.
15. View about concerns for the future of their business with supermarkets – are there other competitors who may replace them as suppliers, are supermarket expectations from suppliers likely to get stricter, etc.

3) Relationship with farmers

1. What are the various sources of the products that your company supplies the supermarkets? (*eg., for vegetables – 50% from contract farmers, 50% by direct buying from fresh markets, etc.*).
2. What is the procedure for choosing the farmers? What are the main parameters? Do the farmers have to go through a qualification procedure? How do you know about suppliers? How do suppliers know about you?
3. What is the profile of the current set of farmers supplying the company? (*eg, 10 large farmers from Khon Kaen province, 100 small farmers from Kalasin province, etc.*)
4. Does the company have a formal, written contract with the farmers that supply the product? Please describe the contract.
5. Does the company provide inputs to farmers? Describe. (*eg, farmers get x packets of seed for every rai, y kgs of fertilizer for every rai, etc.*).
6. What is the process by which produce from farmers reaches the company (*eg, farmers have to deliver to Khon Kaen branch every month, or company representatives visit farms to collect produce on specific dates*).
7. How does the company monitor the quality of the output from the farmers (*eg quality checking after receiving, and company pays only for proportion of product with which it is satisfied*).
8. What is the basis on which prices are paid to farmers (*eg, prices are announced at the start of the season, or prices are based on current market price at the time of delivery, or prices are based upon what is received from supermarkets*).
9. How does the company maintain regularity of supply from farmers (since farmers tend to grow and harvest crops at the same time)?
10. View about the future prospects and problem with contracting with farmers (*eg, proportion of small farmers likely to reduce a lot in coming years since larger farmers are more reliable or low-cost*).
11. What are the main key success factors of successful suppliers? What are the motivations of your suppliers for selling to your business?
12. What are the main limitations faced by suppliers to enter and stay in the supply chain? What percentage of suppliers that enter the supply chain can stay on it?
13. What opportunities are offered by your business to small farmers? What benefits?
14. What are the motivations of your suppliers for selling to your business?
15. What percentage of suppliers that enter the supply chain can stay on it?

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**SMALLHOLDERS COPING WITH FOOD SECTOR TRANSFORMATION:
THE ROLE OF SOCIAL ENTERPRISES AND MODERN SUPPLY CHAINS IN THAILAND**

Semi-structured Interviews with Farmers: Participant Farmer

This semi-structured interview question is part of a research project conducted by the University of Reading's Department of Agricultural and Food Economics (UK), with no commercial interests involved. It explores the role of small-scale farmers in supermarket chains in Thailand. It aims to assess the impact on smallholders of producing for supermarkets and the constraints that may limit their participation.

We would appreciate you taking some time to answer our questions. I would like to assure you that and information you provide is just for the purposes of this project and will be treated as confidential and not divulged to any third party.

Respondent Number:

Date of Interview:

Time of Interview:

Length of Interview:

Place of Interview:

Semi-structured Interviews with Contracted Farmers

✓ **Basis household information** (*Briefly*)

1. What about your personal information? Name, age, gender, education, household size.
2. What are your farm characteristics? Size of the farm, crops cultivated, economic importance of crops, food importance of crops, labour used in farming (own/hired), female participation, off-farm activities, income generated by off-farm activities, ownership of the land.

✓ **Farm and marketing characteristics**

3. What kind of FFV do you produce? How many years of experience in FFV production do you have? What other particular skills do you have? Where did you learn them?
4. Where to whom do you sell the produce? Do you have written contracts, verbal contracts? How can you enforce them? How do you deal with risk? What are the most important risks that you face? What are the payment mechanisms used in your transactions? Advantages, disadvantages, risk?
5. How did you enter to a contract-farming scheme? How long have you been producing under contract? How did you know about the buyer? How did the buyer know about you? How were you chosen/did you choose to participate in contract farming? What are the main parameters set by your buyers?
6. What specific investments are required for producing under contract? Irrigation equipment, greenhouses, etc? If you go out of contract farming, are there alternative markets? Do the specific investments have an alternative use?
7. How is your produce graded? Who sets the grades? Do you agree with them? Percentage rejected? Is there alternative market or use for rejected produce?
8. What are the general standards required for your produce? Quantity, quality, frequency, variety, packing, safety? What are the specific requirements for the products that you sell?
9. What are the main key success factors to enter and stay in the supply chain?
10. Where and how do you get credit, inputs, transportation, technical and market information? How difficult is to access all the items mentioned before?
11. What are the main limitations to enter and stay in the supply chain? What opportunities do buyers offer to small farmers? What benefits? Do you know about farmer exclusion? What kind of farmers is excluded?
12. What are the main motivations to produce under contract?
13. What are the advantages and disadvantages of producing under contract instead of producing to sell in traditional markets (spot markets)?
14. What is the participation of women in the production and marketing of FFV? What is their contribution, what benefits are they getting? Can women participation and benefits be enhanced? How?
15. What is your participation in collective actions (e.g., networks, cooperatives, alliances, etc.)? how does this participation help you in the production and marketing of FFV? What specific benefits do you get from participation in collective actions? What are the main limitations of collective actions? How can they be ameliorated?
16. What recommendations do you have for constructing 'best practice' models to enhance the competitiveness of the FFV sector, and specially the competitiveness of small farmers?

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**SMALLHOLDERS COPING WITH FOOD SECTOR TRANSFORMATION:
THE ROLE OF SOCIAL ENTERPRISES AND MODERN SUPPLY CHAINS IN THAILAND**

Semi-structured Interviews with Farmers: Non-participant Farmer

This semi-structured interview question is part of a research project conducted by the University of Reading's Department of Agricultural and Food Economics (UK), with no commercial interests involved. It explores the role of small-scale farmers in supermarket chains in Thailand. It aims to assess the impact on smallholders of producing for supermarkets and the constraints that may limit their participation.

We would appreciate you taking some time to answer our questions. I would like to assure you that and information you provide is just for the purposes of this project and will be treated as confidential and not divulged to any third party.

Respondent Number:

Date of Interview:

Time of Interview:

Length of Interview:

Place of Interview:

Semi-structured Interviews with Non-contracted Farmers

✓ **Basis household information** (*Briefly*)

1. What about your personal information? Name, age, gender, education, household size.
2. What are your farm characteristics? Size of the farm, crops cultivated, economic importance of crops, food importance of crops, labour used in farming (own/hired), female participation, off-farm activities, income generated by off-farm activities, ownership of the land.

✓ **Farm and marketing characteristics**

3. What kind of FFV do you produce? How many years of experience in FFV production do you have? What other particular skills do you have? Where did you learn them?
4. Where to whom do you sell the produce? Do you have written contracts, verbal contracts? How can you enforce them? How do you deal with risk? What are the most important risks that you face? What are the payment mechanisms used in your transactions? Advantages, disadvantages, risk?
5. How is your produce graded? Who sets the grades? Do you agree with them? Percentage rejected? Is there alternative market or use for rejected produce?
6. What are the general standards required for your produce? Quantity, quality, frequency, variety, packing, safety? What are the specific requirements for the products that you sell?
7. What specific investments do you have for producing FFV? Irrigation equipment, greenhouses, etc.? If you go out of FFV production do these specific investments have an alternative use?
8. Have you heard about contract farming? Have you tried to produce under contract farming schemes? If yes, what are the reasons that hamper you to produce under contract farming? If not, what are the reasons that motivate you to stay away of contract farming? Do you know about the advantages and disadvantages of producing under contract instead of producing to sell in traditional markets (spot markets)?
9. Where and how do you get credit inputs transportation technical and market information? How difficult is to access all the items mentioned before?
10. What are the main key success factors to enter and stay in FFV production?
11. What are the main limitations to enter and stay in the FFV production? What opportunities do buyers offer to small farmers? What benefits? Do you know about farmer exclusion? What kind of farmers is excluded?
12. What is the participation of women in the production and marketing of FFV? What is their contribution, what benefits are they getting? Can women participation and benefits be enhanced? How?
13. What is your participation in collective actions (e.g., networks, cooperatives, alliances, etc.)? How does this participation help you in the production and marketing of FFV? What specific benefits do you get from participating in collective actions? What are the main limitations of collective actions? How can they be ameliorated?
14. What recommendations do you have for constructing 'best practice' models to enhance the competitiveness of the FFV sector, and specially the competitiveness of small farmers?

Appendix II:

QUESTIONNAIRES FOR THE SURVEY

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United Kingdom

**SMALLHOLDERS COPING WITH FOOD SECTOR TRANSFORMATION:
THE ROLE OF SOCIAL ENTERPRISES AND MODERN SUPPLY CHAINS
IN THAILAND**

**Survey of Small-scale Horticulture Producers
PARTICIPANT FARMER**

This questionnaire is part of a research project conducted by the University of Reading's Department of Agricultural and Food Economics (UK) and Mae Fah Luang University (Thailand), with no commercial interests involved. It explores the role of small-scale farmers in cooperative/Green Net chains in Thailand. It aims to assess the impact on smallholders of producing for cooperatives/Green Net (Social Enterprise) and the constraints that may limit their participation.

We would appreciate you taking some time to answer our questions. I would like to assure you that and information you provide is just for the purposes of this project and will be treated as confidential and not divulged to any third party.

Respondent Number:

Date of Interview:

Time of Interview:

Length of Interview:

Place of Interview:

PARTICIPANT FARMER

To the farmer, before the interview:

Our study is trying to understand the economic conditions of farmers involved in supplying specialty organic rice, especially where some of these products are sold through cooperatives/Green Net (social enterprise scheme). We would like to understand the opportunities and problems faced by farmers involved in this business and how it affects farming income. We will be interviewing several other farmers like yourself. All the information provided will be treated as strictly confidential, will be used only for research purposes, and will not be released to anyone else.

I. BASIC HOUSEHOLD INFORMATION)

- Q1. Name of household head* (HH) _____
 (* Household head is the person who takes decision/manages the family)
- Q2. Name of respondent (R), If not HH _____
- Q3. Home address of HH _____
- Q4. Village _____
- Q5. Province _____

- Q6. How many people live in your household? Are there any non-academic people?
 How much education do head of household (HH) have?

How many person in family	Gender	HH	Level of HH Education	HH Occupation
6.1 .....Person	6.2 Male =	6.3 M/F?	6.4 Codes: 0: non 1:Pathom (P) 2:Mathayom (M3) 3.Mathayom (M6) 4:Undergraduate (U) 5:Higher (H)	6.5 Primary occupation?
6.1.1Adult = 6.1.2Children/ Non-academically = 6.1.3Non-income =	Female =	Age?		Secondary occupation?
Note:				

Q7. Household head's years of experience in farming (all farming)_____year (s)

II. FARM CHARACTERISTICS

Q8. How far is your farm from the road (main road) (km)? _____

Q9. How far is your farm from **Cooperative/Green Net's buying point** (km)?

Q10.What is the total size of your farm (*owned (+operational holding), rented and/or borrowed, and including all farming activities*)?_____Rai

Q11.How many plots? _____

Q12.Information on each plot of land:

Plot number	1.Rai	2.Ownership	3.Land elevation	4.Soil quality	5.Irrigated?	6.Water sources
1						
2						
3						
		Codes: 1: owned 2: rented 3: communal 4: other (specify)	Codes: 1: very low land 2: low land 3: medium 4: high	Self Rating: 1: Very bad 2: Bad 3: Ok 4: Good 5: Excellent	1: No 2: Yes	1.Rain 2.Natural pond 3. own pond 4. Communal pond 5.Communal irrigated

Q13 Crop for elsewhere?.....

Q14. Information on each crops and costs and returns information:

[illegible]

Note: Q15

1 Average total amount planted/harvested for Green Net =

2 Average price from cooperative/Green Net=

3 Average total amount planted/harvested for Traditional market =

4 Average price from traditional markets =

Average amount consumed at home or seeding =

*Main use codes: 1.Crop grown for cooperative/Green Net, 2.Crops grown for sale elsewhere, 3. Crops for own consumption, 4. Animals, 5.Not used, 6.

Other (specify) e.g. housing

** Crops grown last year: May 2008 – April 2009

Q16. Costs and returns, continued:

Costs (per Rai)	Crop 1		Crop2		Crop3		Crop 4	
	GRN or Traditional mkt		GRN or Traditional mkt		GRN or Traditional mkt		GRN or Traditional mkt	
	Cash	Non- cash	Cash	Non- cash	Cash	Non- cash	Cash	Non- cash
1.Variable cost								
<i>1.1 Material/input cost</i>	.....Rai		.....Rai		.....Rai		.....Rai	
1. seed cost								
2. fertilizer/manure								
3. pesticide cost								
4. energy/fuel cost								
5. irrigation water cost								
6. cost of hiring machinery**+land rent								
7. other costs of production+interest/ credit costs		Eg. Rice straw						
<i>1.2 Labour cost</i>								
1. family labour								
2. hired labour(d,h)								
3. group labour(job)								
Total cost (per Rai)								
Note								

**include any equipment or building hiring costs

III. INCOME AND ASSETS

Q17. Estimated importance of various sources of HOUSEHOLD income

Source of Income	% of Total Household Income
1.Supplying to cooperative/Green Net	
2.Other (non-Green Net) crop production	
3.Livestock/fishing	
4.Providing labour to other farms	
5.Small business and other non-farm work	
6.Remittances	
7.Other (specify)	

Q18. Based on all these categories, what is your estimated YEARLY HOUSEHOLD income?

_____ Baht

ASSETS:

Q19. Housing characteristics:

1.Area* (square meters)	2.Walls made of 1=leaves/mud/bamboo 2=zinc 3=wood 4=concrete 5=other(specify)	3.Roof made of 1=leaves/bamboo 2=zinc 3=fibro 4=tiles 5=wood 6=other (specify)	4.Electricity supply 1=petroleum/other fuels 2=generator, 3=electricity from grid
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Q20. Household durable asset ownership:

		Number owned
1	TV	
2	Radio	
3	Bicycle	
4	Motorbike	
5	Car/Van/Truck	
6	Telephone/Mobile	
7	Refrigerator	
8	DVD/VCD Player	

Note:.....

IV. MARKETING DETAILS

Q21. What proportion of your rice production is sold to each of the following?

Q	Rice Buyer	Organic rice	Conventional rice	Note
2		..... %	.....%	100%
1	Middlemen (at farm gate)			
2	Local spot market			
3	Cooperatives/Green Net			
4	Rice-mill/wholesalers			
5	Own consumption			
6	Brokers			
7	Exporter			
8	Others (<i>Specify</i>):			
r	Total			

e

quently do you normally sell your rice production? (*Circle one*)

Once a year	1
Twice a year	2
Every six months	3

Q23. How important are each of the following factors in your choice of market (Green Net/cooperatives)? (*Circle the number that apply for each factor*)
And, rank the top 3. (1 is most important)

factor	Unimportant	Neither unimportant nor important	Important	Rank (Top 3)
1 Level of market prices	1	2	3	
2 Variability of market prices	1	2	3	
3 Level of market demand	1	2	3	
4 Variability of market demand	1	2	3	
5 Specific products demanded	1	2	3	
6 Grading requirements	1	2	3	
7 Access to information	1	2	3	
8 Frequency of selling	1	2	3	
9 Place of selling	1	2	3	
10 Payment mechanism	1	2	3	
11 Need for producer organize	1	2	3	
12 Costs to enter market	1	2	3	
13 Cost of transportation	1	2	3	
14 Ease of transportation	1	2	3	

Q24. How much of a problem is transportation to cooperative for you? (*Circle one*)

Not a problem at all	1
Minor problem	2
Moderate problem	3
Major problem	4
Very major problem	5

Q25. What is your cost of transportation organic rice to cooperative?.....

Q26. How many days after delivering your product in the market that you sell most to do you normally get paid?_____day(s)

Q27. How does the cooperative pay you? (*Circle one*)

By cheque	1
By cash	2
Bank transfer	3

Q28. How much of a problem is grading for you? (*Circle one*)

Not a problem	1
Minor problem	2
Moderate problem	3
Major problem	4
Very major problem	5

Q29. Does the buyer grading for you? No = 0, Yes = 1.....

Q30. What percentage (*average*) of your production generally meets the grade required by cooperative/GN?_____

Q31. What do you do with produce that does not meet the grade? (*Record verbatim*):

1	_____
2	_____
3	_____

Q32. What kind of investments have you made to your farm during the last five years?
(*Circle all that apply*)

	Yes	No
1 Irrigation system	1	0
2 Greenhouse	1	0
3 Oxen	1	0
4 Land	1	0
5 Well	1	0
6 Buildings	1	0
7 Transportation	1	0
8 Others (<i>Specify</i>)_____		

V. HISTORY AND EXPERIENCE OF GROWING FOR COOPERATIVE/GREEN NET RELATIONSHIP

Q33. Which year did you start growing for the cooperative/Green Net? _____

Q34. How many rai did you farm before you joined the cooperatives/Green Net? _____ Rai

Q35. Did you have experience of growing any of the **organic rice** you grow now for the cooperative, before you joined the cooperative/Green Net? **No = 0, Yes = 1**

Q36. When you joined the cooperative, did you approach the cooperative to join or did they approach you? **(I approached / They approached)**

Q37. In the last section we talked about the **seasonal** (variable) cost of producing crops for the Cooperatives/Green Net. Apart from these seasonal costs, did you have to invest any money to be able to grow for the cooperatives/Green Net? (for example, for building glasshouse, fee for joining cooperative, buying new equipment)? **No = 0, Yes = 1**

If yes, how much did you invest? _____ For what purpose? _____

Q38. When you first joined the cooperatives/Green Net supply chains, did you take any loans to enable you to produce for the supermarkets? **No = 0, Yes = 1**

If yes, amount (baht.) _____

Source of credit:

1=RP/ cooperative	2=bank, Agri. bank	3=village fund (1 million baht)	4=moneylender	5=relative/friend	6. Other (specify)
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Q39. Did you receive training from cooperatives/Green Net in production? **No = 0, Yes = 1**

If yes, how many days of training? _____

Q40. Does cooperative/supermarket/Royal Project provide you with inputs, and who pays for these inputs? (Repeat for each input below)

Input	Provided by	Costs paid by	Credit?*
1 Seed			
2 Fertiliser			
3 Water			
4 Pesticide			
5 Labour			
6 Land			
7 Equipment			
	1 = farmer 2 = cooperative/Green Net 3 = shared	1 = farmer 2 = cooperative/Green Net 3 = shared	

*if cooperative/Green Net provides inputs, but farmer has to pay, does cooperative/Green Net allow the input to be bought on credit, to be paid later?

If cooperative/Green Net provides credit for any of the inputs above, what rate of interest does it charge per month? _____

Q41. Who has most influence over how many rai should be planted to which crop?

1= cooperative /Green Net	2=shared	3=farmer
---------------------------	----------	----------

Q42. Which of the following is most true about prices paid by cooperative/Green Net?

1=fixed price decided before planting	2=price depends on market conditions at time of sale
---------------------------------------	--

Q43. Which of the following is most true about quantity purchased by cooperative/Green Net?

1=cooperative/Green Net will buy entire quantity if quality is acceptable	2=cooperative/Green Net will buy only fixed quantities agreed in advance	3=cooperative/Green Net will buy fixed quantity, but will also buy extra output at lower prices.	4=cooperative/Green Net will buy only quantity it wants to at the time of sale
---	--	--	--

Q44. Which aspects do cooperative/Green Net check/monitor regularly (tick all that apply)?

1=chemical input	2=fertilizer input	3= application of other inputs – seed, labour, water, <i>etc.</i>	4=quality of output before sale	5=soil quality
------------------	--------------------	---	---------------------------------	----------------

Q45. How many times have officials from the cooperative/Green Net visited your farm in the last one year to monitor your production practices? _____ Times.

Q46. How important do you consider each of the following factors in cooperative/Green Net willingness to accept you as a grower? And, **rank the top three** (1 is most important).

	Unimportant	Neither Important nor Unimportant	Important	Rank (Top 3)
1 Availability of water	1	2	3	
2 Availability of land	1	2	3	
3. Delivery/logistic	1	2	3	
4 Quality of product	1	2	3	
5 Farming knowledge	1	2	3	
6 Reputation as a farmer	1	2	3	
7 Personal wealth	1	2	3	
8 Commitment to grow	1	2	3	
Other (Specify)	1	2	3	

Q47. Please rate the importance of each of these potential benefits of growing for Cooperative/supermarkets, and **rank the top 3** (1 is most important).

	Unimportant	Neither important nor unimportant	Important	Rank (Top 3)
1 Extra income	1	2	3	
2 Guaranteed purchase	1	2	3	
3 Guaranteed minimum price	1	2	3	
4 Group relationship with other farmers	1	2	3	
5 Acquiring new knowledge	1	2	3	
6 Credit provided by cooperative/Green Net	1	2	3	
7 No need to transport crop to market	1	2	3	
8 Other (specify)	1	2	3	

Q48. Rate the main problems you have experienced in growing for coop/supermarket?
And, **rank the top three** (1 is most important).

	Not at all a problem	A bit of a Problem	A big problem	Rank (Top 3)
1 Risk of crop failure	1	2	3	
2 Heavy labour requirement	1	2	3	
3 Low price	1	2	3	
4 Unstable income	1	2	3	
5 Heavy investment at start	1	2	3	
6 Technological requirements difficult to follow	1	2	3	
7 Technological requirements Make production very costly	1	2	3	
8 Lack of credit	1	2	3	
9 Lack of inputs	1	2	3	
10 Delay in payment	1	2	3	
11 Very high quality standard rejected often	1	2	3	
12 Not able to spend time on other crops and activities	1	2	3	
13 Lack of advice from Coop/Green Net	1	2	3	
14 Poor soil	1	2	3	
Other (specify)	1	2	3	

Q49. How do you think farmers that grow for cooperative/Green Net are generally compared to farmers that do not grow for cooperative/Green Net?

1	2	3	4	5
Much worse	A bit worse	About the same	A bit better	Much better

Q50. Rate your overall satisfaction with your farming business after joining cooperative/Green Net chain, compared to before it:

1	2	3	4	5
Much worse	A bit worse	About the same	A bit better	Much better

Q51. Do you plan to change the amount of land on which crops for the cooperative/Green Net in the future?

1=decrease	2=same	3=increase
------------	--------	------------

Q52. Do you consider that your income today is greater than if you did not grow for the cooperative/Green Net?

1=decrease	2=same	3=increase
------------	--------	------------

Q53. How much has your household's income increased/decreased as a direct result of growing for cooperative/Green Net? _____% or Baht?

Q54. Overall, how would you describe your relationship with cooperative/Green Net?

1	2	3	4	5
Very bad	Bad	Satisfactory	Very	Very good

Thank you very much for your cooperation and valuable time.



Thank you for your kind attention

No. _____

**Agricultural and Food Economics
University of Reading
United Kingdom**

**SMALLHOLDERS COPING WITH FOOD SECTOR TRANSFORMATION:
THE ROLE OF SOCIAL ENTERPRISES AND MODERN SUPPLY CHAINS
IN THAILAND**

Survey of Small-scale Horticulture Producers

NON-PARTICIPANT FARMER

This questionnaire is part of a research project conducted by the University of Reading's Department of Agricultural and Food Economics (UK) and Mae Fah Luang University (Thailand), with no commercial interests involved. It explores the role of small-scale farmers in cooperatives/Green Net chains (Social Enterprise) in Thailand. It aims to assess the impact on smallholders of producing for cooperatives/Green Net and the constraints that may limit their participation, and non-participants.

We would appreciate you taking some time to answer our questions. I would like to assure you that and information you provide is just for the purposes of this project and will be treated as confidential and not divulged to any third party.

Respondent Number:

Date of Interview:

Time of Interview:

Length of Interview:

Place of Interview:

NON-PARTICIPANT FARMER

To the farmer, before the interview:

Our study is trying to understand the economic conditions of farmers involved in supplying rice (conventional rice), especially where some of these products are sold through traditional markets. We would like to understand the opportunities and problems faced by farmers involved in this business and how it affects farming income. We will be interviewing several other farmers like yourself. All the information provided will be treated as strictly confidential, will be used only for research purposes, and will not be released to anyone else.

I. BASIC HOUSEHOLD INFORMATION)

- Q1. Name of household head* (HH) _____
 (* Household head is the person who takes decision/manages the family)
- Q2. Name of respondent (R), If not HH _____
- Q3. Home address of HH _____
- Q4. Village _____
- Q5. Province _____

- Q6. How many people live in your household? Are there any non-academic people?
 How much education do head of household (HH) have?

How many person in family	Gender	HH	Level of HH Education	HH Occupation
6.1 .....Person	6.2 Male =	6.3 M/F? Age?	6.4 Codes: 0: non 1:Pathom (P) 2:Mathayom (M3) 3.Mathayom (M6) 4:Undergraduate (U) 5:Higher (H)	6.5 Primary occupation?
6.1.1Adult = 6.1.2Children/ Non-academically = 6.1.3Non-income =	Female =			Secondary occupation?
Note:				

Q7. Household head's years of experience in farming (all farming) _____ year (s)

II. FARM CHARACTERISTICS

Q8. How far is your farm from the road (main road) (km)? _____

Q9. How far is your farm from **main market** (km)?
How far is your farm from **cooperative/GN** (km)?

Q10. What is the total size of your farm (*owned (+operational holding), rented and/or borrowed, and including all farming activities*)? _____ Rai

Q11. How many plots? _____

Q12. Information on each plot of land:

Plot number	1. Rai	2. Ownership	3. Land elevation	4. Soil quality	5. Irrigated?	6. Water sources
1						
2						
3						
		Codes: 1: owned 2: rented 3: communal 4: other (specify)	Codes: 1: very low land 2: low land 3: medium 4: high	Self Rating: 1: Very bad 2: Bad 3: Ok 4: Good 5: Excellent	1: No 2: Yes	1. Rain 2. Natural pond 3. own pond 4. Communal pond 5. Communal irrigated

Q13 Crop for Green Net?.....

Q14. Information on each crops and costs and returns information:

Plot No.	1 Main Use*	2 Crops	3 Area (Rai)	4 Crop Grown last year** January → December			5 Average amount harvested (kg/Rai)	6 Total amount sold (kg)	7 Specify Buyer sources/amount	8 Average received price (Baht)	9 Total amount received (Baht)
				Cycle 1	Cycle 2	Cycle 3					
1		Crop1									
		Crop 2									
		Crop3									
2		Crop1									
		Crop 2									
		Crop3									
3		Crop1									
		Crop 2									
		Crop3									

Note: Q15

- 1 Average total amount planted/harvested for Green Net =
2 Average price from cooperative/Green Net=
3 Average total amount planted/harvested for Traditional market =
4 Average price from traditional markets =
Average amount consumed at home or seeding =

*Main use codes: 1.Crop grown for cooperative/Green Net, 2.Crops grown for sale elsewhere, 3. Crops for own consumption, 4. Animals, 5.Not used, 6. Other (specify) e.g. housing

** Crops grown last year: May 2008 – April 2009

Q16. Costs and returns, continued:

Costs (per Rai)	Crop 1		Crop2		Crop3		Crop 4	
	GRN or Traditional mkt		GRN or Traditional mkt		GRN or Traditional mkt		GRN or Traditional mkt	
	Cash	Non - cash	Cash	Non-cash	Cash	Non-cash	Cash	Non-cash
1.Variable cost								
<i>1.1 Material/input cost</i>	.....Rai		.....Rai		.....Rai		.....Rai	
1. seed cost								
2. fertilizer/manure								
3. pesticide cost								
4. energy/fuel cost								
5. irrigation water cost								
6. cost of hiring machinery**+land rent								
7. other costs of production+interest/credit costs		Eg. Rice straw						
<i>1.2 Labour cost</i>								
1. family labour								
2. hired labour(d,h)								
3. group labour(job)								
Total cost (per Rai)								
Note								

**include any equipment or building hiring costs

III. INCOME AND ASSETS

Q17. Estimated importance of various sources of HOUSEHOLD income

Source of Income	% of Total Household Income
1.Supplying to cooperative/Green Net	
2.Other (non-Green Net) crop production	
3.Livestock/fishing	
4.Providing labour to other farms	
5.Small business and other non-farm work	
6.Remittances	
7.Other (specify)	

Q18. Based on all these categories, what is your estimated YEARLY HOUSEHOLD income?

_____ Baht

ASSETS:

Q19. Housing characteristics:

1.Area* (square meters)	2.Walls made of 1=leaves/mud/bamboo 2=zinc 3=wood 4=concrete 5=other(specify)	3.Roof made of 1=leaves/bamboo 2=zinc 3=fibro 4=tiles 5=wood 6=other (specify)	4.Electricity supply 1=petroleum/other fuels 2=generator, 3=electricity from grid
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Q20. Household durable asset ownership:

		Number owned
1	TV	
2	Radio	
3	Bicycle	
4	Motorbike	
5	Car/Van/Truck	
6	Telephone/Mobile	
7	Refrigerator	
8	DVD/VCD Player	

Note:.....

IV. MARKETING DETAILS

Q21. What proportion of your rice production is sold to each of the following?

Q	Rice Buyer	Organic rice	Conventional rice	Note
2		..... %	.....%	100%
1	Middlemen (at farm gate)			
2	Local spot market			
3	Cooperatives/Green Net			
4	Rice-mill/wholesalers			
5	Own consumption			
6	Brokers			
7	Exporter			
8	Others (<i>Specify</i>):			
r	Total			

e

quently do you normally sell your rice production? (*Circle one*)

Once a year	1
Twice a year	2
Every six months	3

Q23. How important are each of the following factors in your choice of market (Green Net/cooperatives)? (*Circle the number that apply for each factor*)
And, rank the top 3. (1 is most important)

factor	Unimportant	Neither unimportant nor important	Important	Rank (Top 3)
1 Level of market prices	1	2	3	
2 Variability of market prices	1	2	3	
3 Level of market demand	1	2	3	
4 Variability of market demand	1	2	3	
5 Specific products demanded	1	2	3	
6 Grading requirements	1	2	3	
7 Access to information	1	2	3	
8 Frequency of selling	1	2	3	
9 Place of selling	1	2	3	
10 Payment mechanism	1	2	3	
11 Need for producer organize	1	2	3	
12 Costs to enter market	1	2	3	
13 Cost of transportation	1	2	3	
14 Ease of transportation	1	2	3	

Q24. How much of a problem is transportation to cooperative for you? (*Circle one*)

Not a problem at all	1
Minor problem	2
Moderate problem	3
Major problem	4
Very major problem	5

Q25. What is your cost of transportation rice to main market?.....

Q26. How many days after delivering your product in the market that you sell most to do you normally get paid? _____ day(s)

Q27. How does the cooperative pay you? (*Circle one*)

By cheque	1
By cash	2
Bank transfer	3

Q28. How much of a problem is grading for you? (*Circle one*)

Not a problem	1
Minor problem	2
Moderate problem	3
Major problem	4
Very major problem	5

Q29. Does the cooperative/GN grading for you? No = 0, Yes = 1.....

Q30. What percentage (*average*) of your production generally meets the grade required by cooperative/GN? _____

Q31. What do you do with produce that does not meet the grade? (*Record verbatim*):

1	_____
2	_____
3	_____

Q32. What kind of investments have you made to your farm during the last five years?
(*Circle all that apply*)

	Yes	No
1 Irrigation system	1	0
2 Greenhouse	1	0
3 Oxen	1	0
4 Land	1	0
5 Well	1	0
6 Buildings	1	0
7 Transportation	1	0
8 Others (<i>Specify</i>)	_____	_____

V. REGARDING THE COOPERTIVES/GREEN NET CHAINS

Q33. Did you have experience of growing rice for the cooperatives/Green Net? **Yes/No**
When? _____ How many year? _____

Q34. If you would like to become a farmer for the Green Net/cooperatives, what do you consider each of the following factors in supermarkets willingness to accept you as a grower?

And, please rank top 3 (1 is most important)

	Unimportant	Neither Important nor Unimportant	Important	Rank (Top 3)
1 Availability of water	1	2	3	
2 Availability of land	1	2	3	
3 Delivery/logistic	1	2	3	
4 Quality of products	1	2	3	
5 Farming knowledge	1	2	3	
6 Reputation as a farmer	1	2	3	
7 Personal wealth	1	2	3	
8 Commitment to grow	1	2	3	
Other (Specify)	1	2	3	

Q35. Would you like to become a farmer for the Green Net/cooperative?

Yes please answer **35.1** / **No** please answer **35.2**

35.1 If you would like to become a farmer for the Green Net/cooperatives, what are the main reasons? (Tick all that apply) **And, please rank top 3** (1 is most important).

	Unimportant	Neither important nor unimportant	Important	Rank (Top 3)
1 Extra income	1	2	3	
2 Guaranteed purchase	1	2	3	
3 Guaranteed minimum price	1	2	3	
4 Group relationship with other farmers	1	2	3	
5 Acquiring new knowledge	1	2	3	
6 Credit provided by coop/supermarkets	1	2	3	
7 No need to transport crop to market	1	2	3	
Other (specify)	1	2	3	

35.2 If you **do not want** to become a farmer for the Green Net/cooperatives, what are the main reasons? (Tick all that apply) **And, please rank top 3** (1 is most important).

	Very unimportant	Neither Important nor Unimportant	Important	Rank (Top 3)
1 Not interested in organic vegetable farming	1	2	3	
2 Do not have knowledge of organic production methods	1	2	3	
3 Investment required to join is too heavy	1	2	3	
4 Do not have access to credit to get into business	1	2	3	
5 Prices offered for the FFV are inadequate/unstable	1	2	3	
6 Risk of crop failure is too high in farming	1	2	3	
7 Labour requirement is too high	1	2	3	
8 Do not have relationship with Green Net/cooperatives	1	2	3	
9 Quality standards of Green Net/cooperatives are too high	1	2	3	
10 Being late of payment	1	2	3	
11 Poor transportation/ delivery systems	1	2	3	
Other (specify)	1	2	3	

Q36. Rate the **main problems** you have experienced in growing for Traditional markets (non-cooperative/Green Net)?

	Not at all a problem	A bit of a Problem	A big problem	Rank (Top 3)
1 Risk of crop failure	1	2	3	
2 Heavy labour requirement	1	2	3	
3 Low price	1	2	3	
4 Unstable income	1	2	3	
5 Heavy investment at start	1	2	3	
6 Technological requirements difficult to follow	1	2	3	
7 Technological requirements Make production very costly	1	2	3	
8 Lack of credit	1	2	3	
9 Lack of inputs	1	2	3	
10 Delay in payment	1	2	3	
11 Very high quality standard rejected often	1	2	3	
12 Not able to spend time on other crops and activities	1	2	3	
13 Lack of advice from supporter(s)	1	2	3	
14 Poor soil	1	2	3	
Other (specify)	1	2	3	

Q37. How do you think farmers that grow for cooperatives/Green Net are generally compared to farmers that do not grow for cooperative/Green Net?

-2	-1	0	1	2
Much worse	A bit worse	About the same	A bit better	Much better

Q38. Rate your overall satisfaction with your farming business if you can join cooperatives/ Green Net chains, compared to before it:

-2	-1	0	1	2
Much worse	A bit worse	About the same	A bit better	Much better

Q39. Do you consider that your income today is greater than if you did grow for cooperatives/ Green Net?

-1=decrease	0=same	1=increase
-------------	--------	------------

Q40. Did you take any loans to enable you to produce for the elsewhere? **No = 0, Yes = 1**

If yes, amount (baht.) _____

Source of credit:

1= cooperative	2=bank, Agri. bank	3=village fund (1 million baht)	4=moneylender	5=relative/friend	6. Other (specify)
----------------	--------------------	---------------------------------	---------------	-------------------	--------------------

Thank you very much for your cooperation and valuable time.



Appendix III:

DATA SOURCES AND KEY INFORMANTS

Table E-1: Key characteristics of famers participated in focus groups

Code	Gender	Age	Participation with modern		Year Joined
			trade markets	Crop	
Farmer 01P	Male	32	Yes	Vegetable	97
Farmer 02P	Female	45	Yes	Vegetable	98
Farmer 03P	Female	23	Yes	Vegetable	97
Farmer 04P	Male	34	Yes	Vegetable	97
Farmer 05P	Male	37	Yes	Vegetable	97
Farmer 01NP	Female	28	No	Vegetable	97
Farmer 02NP	Female	26	No	Vegetable	98
Farmer 03NP	Female	33	No	Vegetable	99
Farmer 04NP	Male	50	No	Vegetable	00
Farmer 05NP	Male	46	No	Vegetable	01
Farmer 06P	Male	39	Yes	Rice	98
Farmer 07P	Male	30	Yes	Rice	01
Farmer 08P	Male	34	Yes	Rice	99
Farmer 09P	Female	28	Yes	Rice	97
Farmer 10P	Male	26	Yes	Rice	98
Farmer 06NP	Female	37	No	Rice	97
Farmer 07NP	Male	33	No	Rice	97
Farmer 08NP	Female	30	No	Rice	99
Farmer 09NP	Male	43	No	Rice	99
Farmer 10NP	Male	34	No	Rice	00

Table E-2: Summary of farmers participated in focus groups

Chinese Cabbage Producers (Date 2 nd July, 2008) at Chiang Mai Province		Rice Producers (Date 25 th July, 2009) at Yasothorn Province	
Participants (5 farmers)	Non-participants (5 farmers)	Participants (5 farmers)	Non-participants (5 farmers)
-The Royal Project participant farmers * All farmers are pesticide-safe/organic producers under GAP systems	They are conventional Chinese cabbage producers from Nong Hoy District, Chiang Mai Province	- Farmers from OrganiceRice Producer's Cooperative	They are conventional rice producers from Fang District, Chiang Mai Province
* All farmers have formal contract farming		* All farmers have formal contract farming	
3 Male : 2Female	2 Male : 3Female	4 Male : 1Female	3 Male : 2Female
<i>Others:</i> - 1 staffs from Agri. Cooperative - 1 staff from The Royal Project Foundation Officer		<i>Others:</i> - 2 staffs from Cooperative's manager	

Table E-3: Data sources and key informants participated in the in-depth interviews

Data sources	Representatives
1) Supermarket	<ul style="list-style-type: none"> - TOPs - Makro - Tesco Lotus - Big C <p><u>Supermarkets' representatives</u></p> <ul style="list-style-type: none"> - Dr.Darmp Sukontasap, Senior Vice-president, Tesco Lotus Supermarket. - Mr.Sathaporn Phucharean (FFV Purchasing Manager), Miss Thaniya Asawaprecah (Corporate Affairs Executive), Tesco Lotus. Mrs. Nalemon Chutipanyaporn, Senior Merchandise Manager (Fresh Food), Big C Supermarket. Miss Kantimat Ponpim, Quality Assurance Manager of TOPs and Mr.Sumran Khansugorn, Merchandising Manager of TOPs - Makro Supermarket (head office) – Mr.Tossawat Keawwises (Purchasing Manager (FFV))
2) supplier/buyer/wholesaler	<ul style="list-style-type: none"> - Royal Project - Green Net - KC Fresh Company - Doctor Vegetable - A Trading Company - J company Brokers/suppliers from Talad Thai Market and Talad See Mung Muang Market (Thailand's agricultural products central markets)
3) Key informants/ Organizations/ other administrations	<p><u>Government officers</u></p> <ul style="list-style-type: none"> - Department of International Trade, Chiang Mai (Mrs. Benjawan Soontra, Vice director) - Office of Commercial Affairs, Chiang Mai. (Mrs.Wanida, officer) - Mr.Chayout, Department of Agricultural Extension, Chiang Mai - Office of Agricultural Economics, Bangkok - Ministry of Agriculture and Cooperatives - Department of Agricultural Extension, Bangkok <ul style="list-style-type: none"> - Department of Agriculture, Bangkok. <p><u>NGOs' representative</u></p> <p>Dr. Peter Aun-Chuan Ooi from AVRDC, Bangkok.</p> <p><u>Academicians</u></p> <ul style="list-style-type: none"> - Assoc.Prof.Somporn Isvilanonda, Department of Agricultural Economics, Kasetsart University - Prof.Dr.Aree Wiboonpong, Head of Department of Agricultural Economics, Chiang Mai University.

Output:

Manuscript จากการเข้าร่วมนำเสนอผลงานวิชาการระดับนานาชาติ และการตีพิมพ์เผยแพร่แบบ Proceeding

1. Nimsai S. and Boonchoo P., Organic Food Supply Chain Restructuring and Marketing Development: The Role of Social Enterprises and Modern Supply Chains in Thailand (proceeding). the International Conference on Value Chain Sustainability (ICOVACS 2011) hold in Leuven, Belgium, 2011
2. Nimsai S., Boonchoo P., Mingmalairaks P., Kantabutra S., Han Ren C., Organic Food Supply Chain Restructuring and Marketing Development: The Role of Smallholders and Modern Supply Chains in Thailand (proceeding). The Value Chain Management and Logistics International Conference (ICLT 2012). Chiang Mai, Thailand. November 22-23, 2012.
3. Nimsai S., Boonchoo P., Han Ren C., Mingmalairaks P., Organic Food Supply Chain Restructuring and Marketing Development: The Role of Social Enterprises and Modern Supply Chains in Thailand (proceeding). Inaugural Conference on Sustainable Business in Asia (COSA International Conference 2012). Bangkok, Thailand. November 22-23, 2012.

Submission has been accepted for presentation and publication (proceeding) at the International Conference on Value Chain Sustainability (ICOVACS 2011) hold in Leuven, Belgium, 2011.

Organic Food Supply Chain Restructuring and Marketing Development: The Role of Social Enterprises and Modern Supply Chains in Thailand¹

Suthep Nimsai² and Pattana Boonchoo³

1. Introduction

Agri-food systems (food chains)⁴ have faced dramatic changes over the past two decades (Blandon, 2006). Scholars who are interested in these changes agree that forces and driving factors of these changes include agro-industrialization, globalization and multinationalization, advances in technology, trade liberalization and policies as well as changes in consumer demand, and growing influences of modern trade chains⁵ (Saxowsky and Duncan, 1998; Brester and Penn, 1999; Reardon and Swinnen, 2004; Reardon and Berdegue, 2002; Blandon, 2006; Onumah *et al.*, 2007).

Agri-food systems that were based on traditional markets are now increasingly channeled through modern trade chains with new requirements on farmers, which result in alterations to traditional marketing relationships (Reardon and Barrett, 2000; Peterson *et al.*, 2001; Blandon, 2006). The development of modern trade chains in modern trade markets rely heavily on the successful management of their supply chains. Large firms with higher power in the supply chain usually have more negotiating power with their producers and suppliers, so they are able to cut cost and minimize risks in the supply chain than smaller firms (Brown, 2005). New business models have emerged to increase profits for shareholders and maintain an effective cost structure while consumers' demands have led to the emergence of measures to improve "flexibility through 'just-in-time' delivery, tighter control over inputs and standards, and ever-lower prices" (Brown, 2005). Modern trade markets can achieve competitive advantage due to their proper management of supply chains and their marketing strategies by means of market positioning, promotional activities and pricing strategies (Brown, 2005; McCullough *et al.*, 2008b; Singh, 2008). In addition, modern trade markets often demand greater flexibility and reliability of supply. They are likely to avoid storing large inventories of perishable products; at the same time, they need to make sure that store shelves are always fully stocked. For these reasons, modern trade markets are close attention to quality improvement and supply chain reliability; quantity, delivery and cost reduction are carefully managed and

¹ The research has been conducted under a research grant of The Thailand Research Fund (TRF) and it is gratefully acknowledged.

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⁴ The definition of agri-food systems is adapted from Hobbs *et al.* (2000) with regards to the scope of the present study. Hobbs *et al.* (2000: 9) stated that agri-food systems can be viewed in terms of local as well as global "supply chains" or "value chains", which include "the entire vertical chain of activities: from production on the farm, through processing, distribution, and retailing to the consumer – in other words, the entire spectrum, from [farm] gate to [consumer's] plate".

⁵ Modern trade chains can be grouped as supermarkets, hypermarkets, convenience stores, discount convenience stores, green/special shops, as well as export companies. This study refers to modern trade chains as supermarket chains to fit the context of Thailand.

controlled. The modern trade markets have to constantly increase the efficiency of their supply chains to cope more efficiently with the intensified competitive environments in the industry (Neven *et al.*, 2004; Neven *et al.*, 2006).

In the case of Thailand, its rapid growth of the economy over the last few decades has led to a strong expansion of modern trade chains (Wiboonpongse and Sriboonchitta, 2004; Shepherd, 2005; Mingmalairaks, 2011). The role of social enterprises, in integrating small-scale farmers into modern trade chains in Thailand, has been a trend towards ‘supermarketization’⁶. In addition, the growth of organic farming due to increasing consumer awareness of food safety was observed. The purpose of this study aimed to explain the current situation and development in agri-food systems and presenting the development of farmers’ organizations and a modern trade, thus discussing the integration of small-scale farmers in modern supply chains in Thailand and how smallholders cope with the transformation of the food sector in Thailand. The study considered contract farming within the context of the value chain analysis framework. It employed in-depth case studies of social enterprises supplying produce to modern trade markets and small-scale producers under contract farming (social enterprise schemes).

2. Research Methodology

This study adopted mixed-method approach, which combines both qualitative and quantitative approaches. However, information presented in this paper was designed to utilise a qualitative approach to prepare information for the quantitative approach.

Qualitative data was adopted to develop a general mapping and characteristics of the agri-food value chain and the role of social enterprises in integrating small-scale farmers with modern supply chains in Thailand (Miles and Huberman, 1994; Silverman, 2009). A set of semi-structured question is used in the focus groups and in-depth interviews with key informants to gain more insight of what supply chain systems and kind of challenges or risk they are facing in supplying produces for modern trade chain. This information provided an essential input to design a survey for collecting quantitative data in a second phase.

In order to understand the farming and marketing systems, technology and environment context in supply chain management, a case study of organic rice producer under social enterprise scheme (Green Net Cooperative) was used in this study. A case study accepts and encourages multiple methods of data collection procedures, and it also provides a deeper understanding from the smallholders coping with food sector transformation. Furthermore, the information derived from qualitative approach was used to support and complement the quantitative results in the later phase.

3. The Retail Food Sector’s Transformation and Development in Thailand

The Thai retail food industry has changed drastically in recent years. Those changes have spread across developed as well as developing economies thanks to changes in consumer behaviour, evolving food safety and environmental concerns, increased importance of food quality, and the increasing role of information and logistics management (Reardon and Berdegue, 2002; Reardon *et al.*, 2003; Brown, 2005; Shepherd, 2005; McCullough *et al.*, 2008). It has experienced many of the same changes as those by some other countries. In past decades, Thai people bought food for their daily consumption from traditional markets such wet markets (fresh markets) and the local grocery store.

In addition, a close examination of the patterns of sales of foods in both traditional markets and modern trade chains between 2002 and 2010 shows that the proportion of food sold in the modern markets have been on the increase while that in the traditional markets have been in decline (Wiboonponse and Sriboonchitta, 2004; TDRI, 2002; Shannon, 2009). For example, the percentage of foods sold in the modern markets rose from 35 percent in 2002 to 40 percent in 2007 and rose again to about 50 percent in 2010 while that of traditional markets dropped from 65 percent to 60 percent and about 50 percent in corresponding years respectively (Research Institute for Developing Thailand (2002); Wiboonponse and Sriboonchitta, 2004; Shannon (2009))

The accelerating rate of change and competitiveness in the retail food sector will drive the evolution of the retail food value chain over the next decade. Modern retail businesses have accelerated their expansion scheme to open more branches and new (mini) formats in an effort to obtain a larger market share. Most retail businesses

⁶ “Supermarketization”: Technical term to describe the evolution of modern trade

follow a similar model of focusing on low prices, providing and a wider selection of products while meeting higher standards of quality. To achieve these goals, they have had to change their supply chain management systems. These changes affect both suppliers and producers, especially in agri-food supply chains where they must achieve higher standards and requirements which have become part of the modern trade market. The trends in retail food supply chain requirements in Thailand are summarized in Table 2.

Table 2: Trends in retail food supply chain requirements in Thailand

	Traditional Markets	Modern Trade Markets
Product - Production	<ul style="list-style-type: none"> - do not require contracts/agreements - prefer a short-run production and usually unplanned - do not have any specifications on diversification or intensive chemical/input use - do not require traceability and/or chemical residue check 	<ul style="list-style-type: none"> - require agreement or contract (can be formal or informal contract). - prefer long-run production under suppliers/organizations plan - have some specifications on farming systems and chemical/input used. - require product traceability and/or chemical residue (safety standard) check in most markets
Purchasing	<ul style="list-style-type: none"> - do not have regular order system 	<ul style="list-style-type: none"> - use regular order systems in advance
Purchasing Price	<ul style="list-style-type: none"> - use market price 	<ul style="list-style-type: none"> - use market price and price under contract farming scheme (usually higher than market price)
Procurement systems	<ul style="list-style-type: none"> - prefer traditional chains such as wholesale markets and direct chain from producers 	<ul style="list-style-type: none"> - prefer modern supply chains such as suppliers, brokers and social enterprise companies
Coordination	<ul style="list-style-type: none"> - use relationships or informal connections 	<ul style="list-style-type: none"> - use formal connection via contract or agreement (nowadays most are informal contract) - prefer company/organization/institution relationships along the chain

Source: By Authors

This study explores the changes in the agri-food supply chain and the difficulties faced by smallholders in Thailand because of these changes. This section explains the development of the agri-food supply chain and its effects on small-scale farmers and focuses on the results of focus group and in-depth interviews.

4. Agri-Food Supply Chain Restructuring and Effects on Small-Scale Farmers in Thailand

The main reason that induced most of the smallholders to sell their products in traditional (local) markets was because they had an easy access to the market and most of them had business experiences with local buyers. In addition, most farmers usually sold their produces in two ways. First, the farmers delivered or transported the produce to the market on their own or rental vehicles. Second, the farmers sold their produce to intermediaries who came to pick them up by their vehicles or they came to take the whole crops during harvest. The intermediaries usually made an agreement about buying and selling the whole crop in advance. However, this study found that most farmers lacked the ability to search for buyers and negotiation ability for an appropriate price.

The growth rate of agri-food sale in modern trade market has also been increasing each year with an average increases around 10 to 20 percent per year. Modern trade markets attempted to fulfil all customers' demands with notable changes in consuming behaviours. Therefore, the patterns of farm-shop linkages between small-scale producers and modern trade supply chain have to be developed (especially the department store owned by foreigners).

The findings from this research indicated four main traditional market chains can be identified; selling through intermediaries, selling at local markets, selling at traditional wholesale markets, and selling through minor markets. Several participants stated that which market suited a farmer, and which market a farmer decided to use, depended on farming and marketing potential and anticipated transaction costs.

In-depth interviews with participants regarding the possible channels of small-scale farmers' participation in modern supply chains indicated that there are five potential channels; selling through lead farmers (high potential farmers/agribusiness farmers), using wholesalers/traders, using brokers/suppliers, farmer associations/groups or social enterprises. However, the following section discusses the modern trade in forms of small scale farmer participation in the modern trade chains.

5. Small-scale farmer participation in the modern trade chains

This study found five channels of small-scale farmer participation in the modern trade as shown in Figure 1-2.

Figure 1: Agri-food supply chains in Thailand

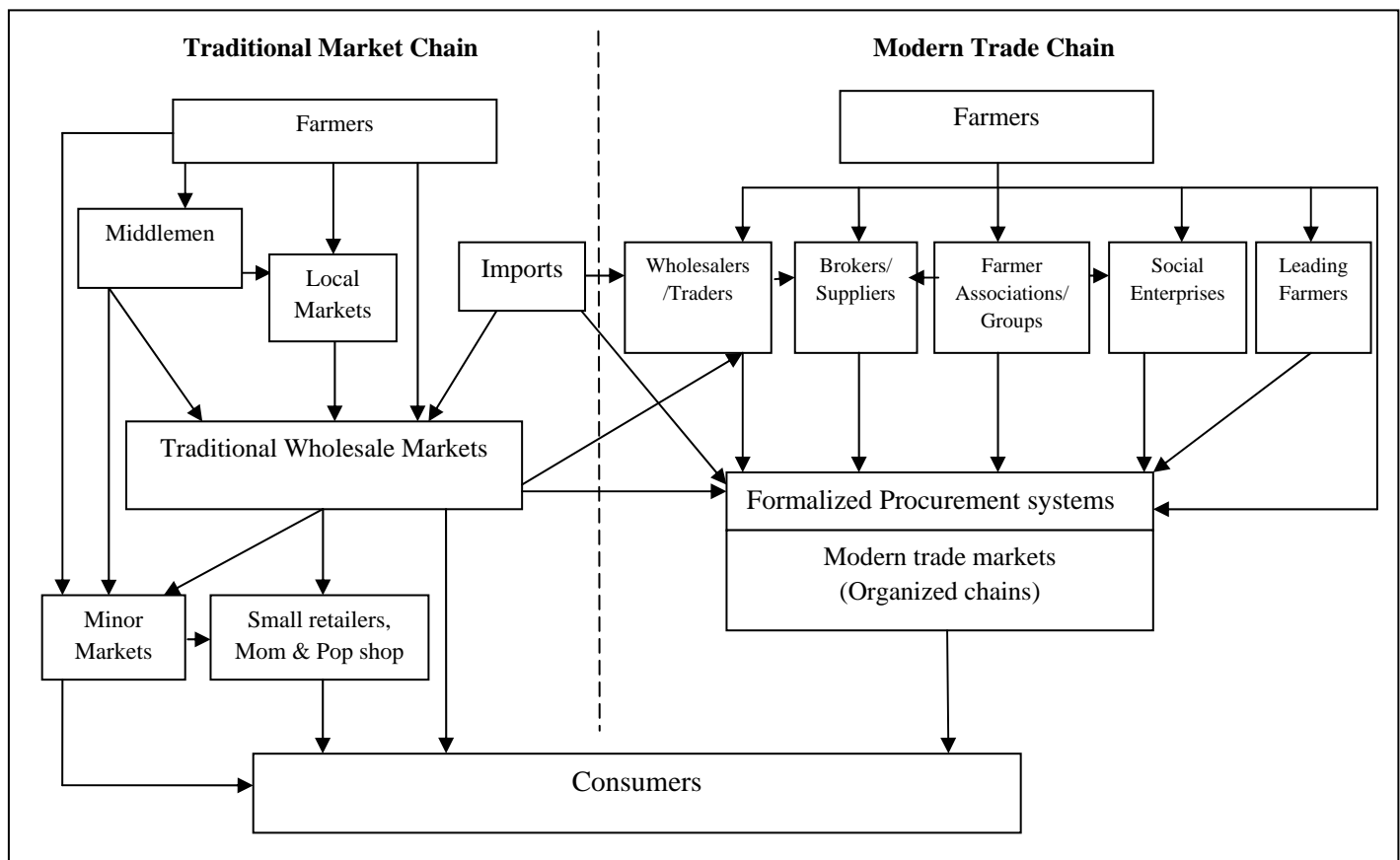
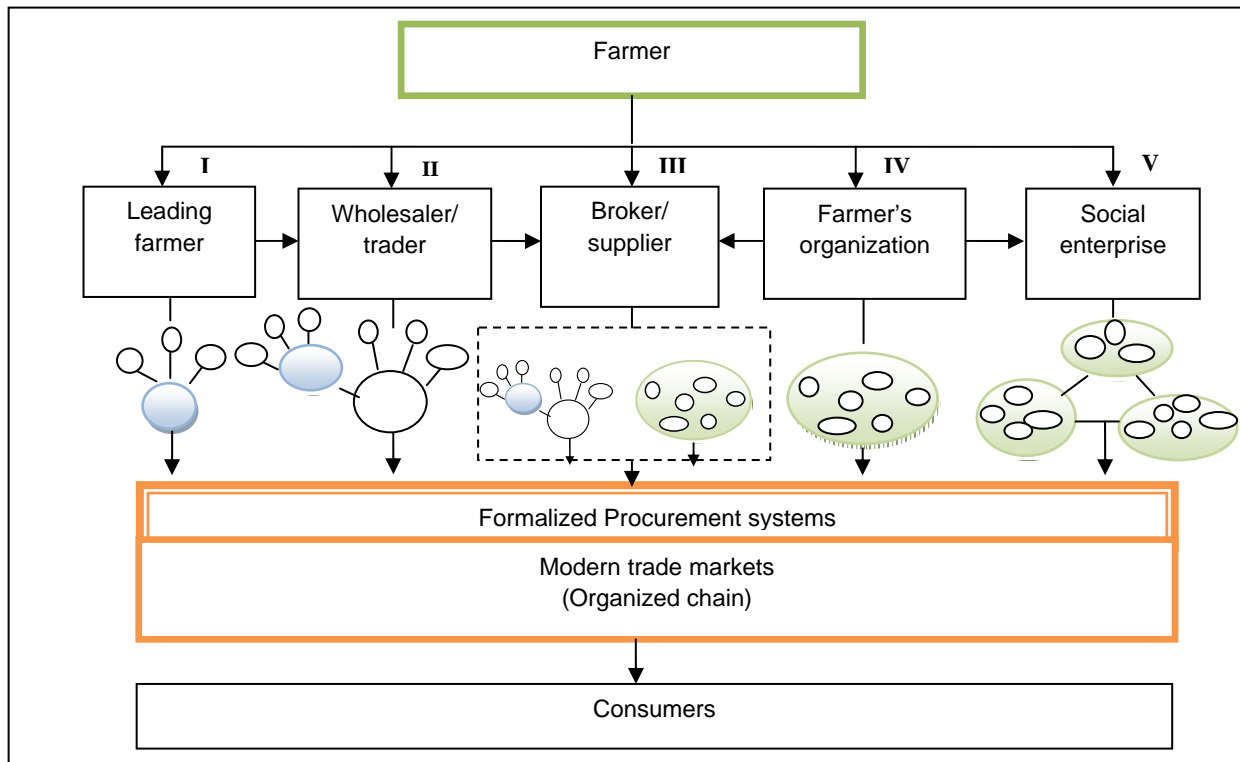


Figure 2: The channel of small-scale producer's participation in the modern trade chains



Chain V: Farmer => Social enterprise => Modern trade store or DC

There are farmers that participate in a group or farmers from the association in previous chain (V) to sell their produce to a social enterprise such as the Royal Project (pesticide-safe fruits and vegetables supplier) and Green Net (organic rice producer), who supply modern trade markets. These farmers are almost similar to the previous chain, but the farmer's association does not work individually and directly with modern trade markets. In this case, due to the lack of managerial and business management skills of farmer's associations, the farmer's associations form a group under the social enterprise organization in order to join in their production, grading, packaging, and marketing.

The study found that social enterprise helped small-scale farmers to improve their benefits in terms of profitability, stability as well as sustainability in the long-run participation. The collaboration between farmer's associations and social enterprise are more economies of scale. The farmers have higher negotiation power due to professional business management skills of social enterprise. Moreover, most social enterprises work with international organizations (for example fair trade organization) in order to join in the international and global trade systems. This cooperation helps small-scale farmers get a better price as well as increase their market opportunity.

Regarding five difference chains as mentioned previously, the study also provides a rough indication of which of these chains are relatively most crucial (largest proportion of small-scale farmers), and which ones are becoming more or less crucial over time as below.

In addition, regarding the information from interviews and group discussions with modern trade chains' representatives, currently, social enterprise has become more salient and increased its market share in organic or pesticide-safe products markets. As a result, the social enterprise has a strong supply chain management system to assure the quality of products throughout the supply chain before distributing the produce to the markets and finally to consumers. Another reason is the increasing number of organic and pesticide-safe products market share in modern trade markets. However, broker/supplier chain is still prominent in the products market.

The following table presents the advantages and five supply chains as perceived by modern trade markets in Thailand (which is based on interviews and group discussions).

Table 3: The modern trade advantage of five supply chains

Characteristics of supply channel required by modern trade		Supply channel				
		Through leading farmer	Through wholesaler/trader	Through brokers/suppliers	Through farmer's organization	Through social enterprise
Capacities	Production					
	- Control of quality and quantity of produce	✓		✓✓	✓	✓✓
	- Financial and farm managerial capacity		✓	✓✓	✓	✓✓
	- Control of farming contract violate			✓✓	✓	✓✓
Incentives	Operation Management					
	- Price plus transaction costs	✓	✓✓	✓	✓✓	✓✓
	- Delivery and logistics	✓	✓✓	✓✓	✓	✓✓
	- Reliable supply		✓✓	✓✓	✓	✓✓
	- Tractability	✓		✓		✓✓
	- Managerial cost		✓	✓		✓✓
	Business Cooperation					
	- Control of business agreements and conditions	✓		✓✓	✓	✓✓
	- Terms and conditions negotiation	✓	✓✓	✓✓	✓	✓
	- Control of farmer remuneration				✓✓	✓✓
	- Corporate social responsibility				✓✓	✓✓
	- Sustainable for long-run cooperation and supports			✓✓		✓✓

Source: By Authors

Advantages and challenges associated with the modern trade chains

The traditional market is highly uncertain, farmers are never sure if they will find a buyer of their products, and what price they will get. Whilst markets in modern trade chains are highly certain; the farmers can be confident in participating if their produces are sold. Even though the production for most modern trade chains nowadays does not use formal contract or agreement with small-scale farmers, the small-scale farmers can still be confident to participate in and keep working with their productivity and quality adjustment until it meets the standards. Most modern trade chains provide some supports such as information about products demanded, technology and farming management skills training to help farmers develop their producing and marketing systems. Thus, modern trade chains allow farmers to enhance the planning of their production and marketing activities; for example, dates of planting, harvesting, delivering, and expected cash flow. The study also found differences in principal characteristics of small-scale farmers' participation in the different market chains which affected the level of farmer's advantages.

Prices in the modern trade chains are characterized for being more stable permitting farmers to forecast expected returns, which helps them in their planning activities. Additionally, prices in modern trade chains are usually higher than average prices paid in the traditional market (depending on grades and standards) which results in better profit margins for farmers participating in the modern trade chains.⁷ Prices in the traditional markets may be higher during a short season in a year, motivating contracted farmers to 'side-selling' their produce to this market instead of delivering to the modern trade chain as set in contracts.

⁷ This is based on interviews with farmers, and therefore no quantitative data is available to verify

5. Conclusions

In this paper, we observed the general overview of the retail food sector's transformation and the challenges faced by small-scale farmers in Thailand. In addition, social enterprises and their pivotal roles in integrating small-scale farmers into modern trade chains, in Thailand, are also explored. It can be concluded that though the majority of agri-food is channelled through traditional markets, modern trade chains are expected to replace them and will continue growing because of the influence exerted by the local and international retail chains in the region. As a result from these changes in the agri-food system, modern retail businesses have accelerated their expansion scheme to open more branches and new (mini) formats to try to gain a larger market shares. Modern trade chains are offering new market opportunities to farmers.

Moreover, six main channels for small-scale farmers to use to gain participation in modern trade chains in Thailand were identified; directly sell to markets, selling through lead farmers, wholesalers/traders, brokers/suppliers, farmers associations and through social enterprises. Currently, the social enterprise chain has increased its market share and is pivotal in the organic and pesticide-safe product market. Furthermore, more small-scale farmers participate in the modern trade through participation with social enterprises than with any other modern trade chain. This study also found that social enterprise schemes have several significant roles in increasing the profitability, the stability and the sustainability of small-scale farmers' production and participation in the modern supply chains.

References:

- Alter, S. K. (2006). Social Enterprise Models and Their Mission and Money Relationships. *Social Entrepreneurship* (1st Ed). Oxford University Press.
- Blandon, J. (2006). *Supermarket Supply Chain for Fresh Fruits and Vegetables: Opportunities and Challenges for Small Farmers*. PhD. thesis, University of Guelph, Canada.
- Brester, W. W., & Penn, J. B. (1999). *Strategic business management principles for the agricultural production sector in a changing global food system* (Policy Issue Paper No. 11). Bozeman, MT: Montana State University, Trade Research Center.
- Brown, O. (2005). Supermarket Buying Power, Global Commodity Chain and Smallholder Farmers in the Developing World. *Human Development Report*. Human Development Report Office.
- Hobbs, J. E. (1996). A transaction cost approach to supply chain management. *Supply Chain Management*, 1(2), 2-15.
- Hobbs, J. E., Cooney, A. and Murray, E. (2000). *Value Chain in the Agri-Food Sector: What Are They? How Do They Work? Are They for Me?*, Department of Agricultural Economics, University of Saskatchewan.
- McCullough, E. B., Pingali, P. L., & Stamoulis, K. G. (2008). *The Transformation Agri-Food Systems: Globalization, Supply Chains and Smallholder Farmers 1st Ed*. FAO.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd Ed.). California: Sage
- Mingmalairaks, P. (2011). *Innovation Adoption in Thai SMEs*. Melbourne, Australia.
- Neven D., Odera, M., & Reardon, T. (2006). *Horticulture Farmers and Domestic Supermarkets in Kenya*, Staff Paper: Department of Agricultural Economics, Michigan State University.
- Neven, D., & T. Reardon. (2004), The Rise of Kenyan Supermarkets and Evolution of Their Horticulture Product Procurement Systems, *Development Policy Review*, 22(6), 669-699.

- Onumah, G., Davis, J., Kleih, U., & Proctor, F. (2007). Empowering Smallholder Farmers in Markets: Changing Agricultural Marketing Systems and Innovative Responses by Producer organizations. *Munich Personal RePEc Archive report*. [online] Available at: <<http://www.mpra.ub.uni-muenchen.de/25984/>> [Accessed 10 October 2010].
- Peterson, H.C., Wysocki, A., & Harsh, S. B. (2001). Strategic Choice along the Vertical Coordination Continuum. *International Food and Agribusiness Management Review*.
- Reardon, T., & Berdegue, J. A. (2002). The Rapid Rise of Supermarkets in Latin America: Challenges and Opportunities for Development. *Overseas Development Institutes*, Blackwell Publishers: Oxford.
- Reardon, T., & C.B., BARRETT. (2000). Agroindustrialization, Globalization, and International Development: An overview of Issues, Patterns, and Determinants. *Agricultural Economics*, 23, 195-205.
- Reardon, T., & Swinnen, J.F.M. (2004). Agrifood Sector Liberalization and the Rise of Supermarkets in Former State-Controlled Economies: A Comparative Overview", *Development Policy Review (GBR)*, 22 (5): 515-23.
- Silverman, D. (2005). *Doing Qualitative Research: A Practical Handbook*. London: Sage Publications.
- Shannon, R. (2009). The Transformation of Food Retailing in Thailand 1997-2007. *Asia Pacific Business Review*. 15(1): 79-92.
- Shepherd, A. W. (2005). The Implications of Supermarket Development for Horticultural Farmers and Traditional Marketing Systems in Asia. *FAO/AFMA/FAMA Regional Workshop Report on the Growth of Supermarkets as Retailers of Fresh Produce*, Rome.
- Saxowsky, D.M., & Duncan, M.R. (1998). *Understanding agriculture's transition into the 21st century* (Miscellaneous Report No. 181). Fargo, ND: North Dakota State University, Department of Agricultural Economics.
- Singh, S. (2008). Marketing Channels and Their Implications for Smallholder Farmers in India. *The Transformation of Agri-food Systems: Globalization, Supply Chains and Smallholder Farmers*. FAO.
- Wiboonpongse, A. and Sriboonchitta, S. (2004). *Regoverning Markets: Securing Small Producer Participation in Restructured National and Regional Agri-food System in Thailand*. Chiang Mai University. Thailand. [online] Available at http://www.regoverningmarkets.or/docs/Thailand_report_final.pdf [Accessed on 3 May 2009].

ICOVACS 2011
(International Conference on Value Chain Sustainability)
Katholieke Universiteit Leuven, Leuven, Belgium

PROGRAM AT A GLANCE¹

Monday , 15th November

08,00 – 08,30	Registration
08,30 – 08,45	Conference opening ceremony
08,45 – 10,15	Plenary sesión: <i>"A Supply Chain Management Perspective on Humanitarian Relief Operations"</i> by Prof Luk Van Wassenhove
10,15 – 10,45	Coffee break
10,45 – 12,30	Parallel sessions A
12,30 – 14,30	Lunch
14,30 – 16,30	Parallel sessions B
16,30 – 18,30	Parallel sessions C

Tuesday, 16th November

08,30 – 10,30	Parallel sessions D
10,30 – 11,00	Coffee break
11,00 – 12,30	Plenary sesión: <i>"Reverse logistics: A Review "</i> by Prof. Surendra M. Gupta
12,30 – 14,30	Lunch
14,30 – 16,00	Parallel sessions E
16,00 – 17,20	Parallel sessions F
17:20-17:45	Coffee break
17:45-19:45	Parallel sessions G and presentation of the book <i>"Climate Change, Supply Chain Management and Enterprise Adaptation: Implications of Global Warming on the Economy"</i> by Prof. Costas P. Pappis
21:00 – 24:00	Gala Dinner

Miércoles 17 de noviembre 2010

08,30 – 10,30	Session H
10,30 – 11,00	Coffee break
11,00 – 12,30	Plenary session: <i>"What previous disasters teach us: the hard lessons of Katrina, Haiti s and Chile earthquakes for humanitarian Logistics"</i> by Prof. José Holguin-Veras
12,30 – 13,15	Closing ceremony with Spanish wine.
13,15 – 15,30	Visit to "Ciudad de las Ciencias" (Option)

¹ All coffee breaks and Monday/Tuesday lunches are included

All the presentations will be of 20 minutes (including questions)
Gala dinner and the visit to city of science are not included in the conference fee.

Plenary sessions:

Monday, November the 15th, 8,45-10,15

"A Supply Chain Management Perspective on Humanitarian Relief Operations" by Prof Luk Van Wassenhove

Chairman: Cristóbal Miralles

Professor Van Wassenhove's research and teaching are concerned with operational excellence, supply chain management, quality, continual improvement and learning. His recent research focus is on closed-loop supply chains (product take-back and end-of-life issues) and on disaster management (humanitarian logistics). He is senior editor for Manufacturing and Service Operations Management and departmental editor for Production and Operations Management. He publishes regularly in Management Science, Production and Operations Management, and many other academic as well as management journals (like Harvard Business Review and California Management Review). He is the author of several award-winning teaching cases and regularly consults for major international corporations. In 2005, Professor Van Wassenhove was elected Fellow of the Production and Operations Management Society (POMS). In 2006, he was the recipient of the EURO Gold Medal for outstanding academic achievement. In 2009 he was elected Distinguished Fellow of the Manufacturing and Services Operations Management Society (MSOM), and received the Lifetime Achievement Faculty Pioneer Award from the European Academy of Business in Society (EABIS) and the Aspen Institute. Before joining INSEAD he was on the faculty at Erasmus University Rotterdam and Katholieke Universiteit Leuven. At INSEAD he holds the Henry Ford Chair of Manufacturing. He is also the academic director of the INSEAD Social Innovation Centre

Tuesday, November the 16th, 11,00-12,30

"Reverse logistics: A Review " by Prof. Surendra M. Gupta

Chairman: José Pedro Garcia-Sabater.

Dr. Surendra M. Gupta is a Professor of Mechanical and Industrial Engineering and Director of the Laboratory for Responsible Manufacturing at Northeastern University in Boston. He received his B.E. in electronics engineering from Birla Institute of Technology and Science, M.B.A. from Bryant University, and M.S.I.E. and Ph.D. in industrial engineering from Purdue University. His research interests are in the areas of production/manufacturing systems and operations research. He is mostly interested in environmentally conscious manufacturing, disassembly modeling, remanufacturing, and reverse and closed-loop supply chains. He has authored and coauthored over 400 technical papers published in prestigious journals, books, and conference proceedings. His publications have been cited by thousands of researchers all over the world in journals, proceedings, books, and dissertations. He is an editorial board member of a variety of journals and has served as Conference Chair, Track Chair, and member of Technical Committees of numerous international conferences. Dr. Gupta has been elected to the memberships of several honor societies. He is a recipient of Outstanding Research Award and the Outstanding Industrial Engineering Professor Award (in

recognition of Teaching Excellence) from Northeastern University. His recent activities can be viewed at <http://www1.coe.neu.edu/~smgupta/>.

Wednesday, November the 17th, 11,00-12,30

"What previous disasters teach us: the hard lessons of Katrina, Haiti s and Chile earthquakes for Humanitarian Logistics" by Prof. José Holguín-Veras

Chairman: Carlos Andrés.

Dr. José Holguín-Veras is Professor of Civil and Environmental Engineering at Rensselaer Polytechnic Institute, and Director of the Center for Infrastructure, Transportation, and the Environment. He received his B.Sc. from the Universidad Autónoma de Santo Domingo, Magna Cum Laude in 1981, his M. Sc. from the Universidad Central de Venezuela in 1984, and his Ph.D. from The University of Texas at Austin in 1996. He is the recipient of a number of national awards, including the Milton Pikarsky Memorial Award in 1996 and the National Science Foundation's CAREER Award, for his contributions to freight transportation modeling and economics. His research interests are in the areas of: humanitarian logistics, intermodal freight transportation, freight transportation modeling, transportation planning, and transportation economics. He has published extensively in these areas. He is a member of a number of Technical Committees of the Transportation Research Board; the American Society of Civil Engineers, and is a referee for the major professional journals. He is in the editorial boards of prestigious journals, the Transportation Area Editor for Networks and Spatial Economics, member of the Council of the Pan-American Conference of Traffic and Transportation Engineering, and elected member of the Council of the Association for European Transport.

DETAILED SCHEDULE

Monday, November 15th

Parallel sessions A: 10,45 – 12,30

Session A1: Ethics in OR/ Inclusive Design & Universal Design

Chairman: Cristóbal Miralles.

1. Kathy Kanwalroop Dhanda & Laura Hartman. *Carbon offsets: an emerging component for carbon neutrality.*
2. Teresa Barberá Ribera *The internal social responsibility: analysis of the situation of women and the equality of opportunities in the labor market.*
3. Lourdes Canos-Daros, Cristobal Miralles, Cristina Santandreu-Mascarell & Juan A. Marin-Garcia. *Can people be measured? performance and disabled employees.*
4. Cristobal Miralles, Raymond Holt & Juan A. Marin-Garcia. *The potential of Pokayokes for Universal Design in the workplace: a case study.*

Session A2 : Sustainable Demand & Supply Chain Management (I)

Chairman: Sunderesh Heragu

1. Banu Ekren. *Analytical and simulation models to investigate the performance of Autonomous Vehicle Storage and Retrieval Systems.*
2. Banu Atrek & Sevkinaz Gumusoglu. *From supply chain management to demand chain management: evaluation of different approaches on demand chain management.*
3. Sandra Klute & Robert Refflinghaus. *Structuring requirements as necessary premise for customer-oriented development of complex products– a generic approach.*
4. Tom van Lier, Cathy Macharis, An Caris & Huub Vrenken. *Reducing transport costs and improving sustainability simultaneously through horizontal logistics collaboration: a case study.*

Parallel sessions B: 14,30 – 16,30

Session B1: Environmental Management and Green Product Design.

Chairman: Oznur Yurt

1. Omur Tosun & Fahriye Uysal. *Linking green supply chain management with environmental technologies and an application of technology selection.*
2. Funda Yercan & Turkey Yildiz. *Analysis of green logistics services and supply chain practices: an empirical study.*
3. Derya Kelgökmen Ilic & Nazli Ayse Ayyildiz Unnu. *Web sites as a tool of creating value and green image: the case of Istanbul stock exchange.*
4. Bersam Bolat. *A decision making for recovery options evaluation by using artificial neural network.*
5. Ilke Bereketli & Müjde Erol Genevois. *Integrating LCA into QFD: a green design approach for EEEs.*
6. Umut rifat tuzkaya. *Transportation modes and comparison of their environmental effects: an integrated methodology.*

Session B2: Competition and innovation in the sustainable supply chain management (I)

Chairman: Suresh P. Sethi

1. Ayça Altay, Gulgun Kayakutlu. *Risks in SME collaboration for research supply chain.*
2. Suresh P. Sethi. *Cooperative advertising in a dynamic retail market duopoly*
3. Ignacio Eguia, Sebastian Lozano & Jesus Racero. *Disassembly Process Planning of Reconfigurable Disassembly Systems.*
4. Engin Demirel & Nihal Caliskan. *Econometric analysis on effects of vehicle credits on automotive industry in turkey.*
5. Aysu gocer, isik ozge yumurtaci, tuncdan baltacioglu & Oznur yurt. *Risk based performance management through supply chain operations reference (SCOR) and supply chain management maturity model.*

Parallel sessions C: 16,30 – 18,30

Session C1: Sustainable Demand & Supply Chain Management (II)

1. Tugba Orten & Bengu Sevil Oflac. *The role of trust in sustainable supply chain collaborations.*
2. Mahmure Ovul Arioglu Salmona, Ayse Aycim Selam & Ozalp Vayvay. *Sustainable supply chain management: a literature review*
3. Ning Ma. *Creating sustainability through Robust Optimization of Supply Chain Downsizing.*
4. Isik Ozge Yumurtaci. *A holistic approach to performance management in retail supply chains.*
5. Sevda Dede. *On-shelf availability as a tool for creating Sustainable Supply Chains.*
6. Salvatore Cannella. *On the significance of demand and inventory smoothing interventions in supply chain.*

Session C2. Competition and innovation in the sustainable supply chain management (II)

1. Javier Montoya. *Governance in the high quality organic cocoa value chain of Nicaragua.*
2. Secil Ercan & Gulgun Kayakutlu. *Patent mapping for R&D in home appliance manufacturing.*
3. Angel Peiró-Signes, Maria-del-Val Segarra-Oña, José Albors-Garrigós, Lluís Miret-Pastor. *Eco-innovation: one step ahead innovation. An empirical study of the spanish ceramic industry.*
4. Bahman Naderi & Nasser Salmas. *An efficient mathematical model for permutation flowshops sequence dependent group scheduling.*
5. Tuba Öztürk & Gülgün Kayakutlu. *Analyzing Decisions under Uncertainty in the Manufacturing Supply Chain.*
6. Fahriye Uysal & Omur Tosun. *Evaluation of innovation in sustainable supply chain management using graph theory and matrix approach.*

Tuesday, November 16th

Parallel sessions D: 8,30 – 10,30

Session D1: Sustainable Demand & Supply Chain Management (III)

1. Sandra Klute & Robert Refflinghaus. *Structuring requirements as necessary premise for customer-oriented development of complex products– a generic approach.*
2. Tom van Lier, Cathy Macharis, An Caris & Huub Vrenken. *Reducing transport costs and improving sustainability simultaneously through horizontal logistics collaboration: a case study.*
3. Hassanali Aghajani, Mehdi Sohanian & Ramzan Gholami. *Evaluation and ranking suppliers in supply chain using fuzzy topics (case study: automobile manufacturing companies of Iran).*
4. Wirat Krasachat. *Organic golden banana farms and sustainable supply chain management in Thailand.*

5. Costas Pappis, Thomas Dasaklis & Nikos Karacapilidis. *Integrating climate change considerations into supply chain management.*
6. Paulina Golinska. *Remanufacturing in automotive industry- challenges and benefits.*

Session D2: Human resources management in sustainable supply chain

1. Sabina Asensio-Cuesta, Lourdes Canos-Daros, José-Antonio Diego-Mas & Carlos Andrés-Romano. *A multi-criteria algorithm to generate rotation schedules through both ergonomics and competence approaches.*
2. Eva Llera, Alfonso Aranda, Sabina Scarpellini & Ignacio Zabalza. *Training plans in eco-efficiency and industry Corporate Social Responsibility opportunities.*
3. Juan A. Marin-Garcia, Tomas Bonavia & Julio J. Garcia-Sabater. *Evolution of Lean production and high involvement work practices in automotive suppliers.*
4. Juan A. Marin-Garcia, Cristobal Miralles, Julio J. Garcia-Sabater & M. Rosario Perello-Marin. *Alternative tools to mass production and human performance indicators in Sheltered Work Centers of Valencian Community (Spain)*

Parallel sessions E: 14,30 – 16,00

Session E1: Invited session: Sustainability experiences in Spain.

Chairman: Carlos Mataix Aldeanueva

1. Ruth Carrasco-Gallego. *A management model for closed-loop supply chains of reusable articles.*
2. Ángel Mahou. *Human resources policies for strategic CSR. the experience of REE (Red Eléctrica de España).*
3. Ana Moreno. *Dialogue with stakeholders. Approaches and tools for strategic Corporate Social Responsibility (CSR).*
4. Carlos Mataix. *Public-private alliances and networks for human development.*

Session E2: Logistics and Humanitarian Logistics.

Chairman: Jose Holguin-Veras

1. Jesus Gonzalez-Feliu. *Simulation and optimization methods for logistics pooling approaches.*
2. Burcu Ozcam Adivar, Tugba Orten, Bengu Sevil Oflac & Tarik Atan. *Social welfare chain: classification of problems and the role of operations research.*
3. Jose Holguin-Veras. *On the need to reformulate humanitarian logistics modeling.*

Parallel sessions F: 16,00 – 17,20

Session F1: Inventory Control in Reverse Supply Chains/ Green Design: Tools and Models

1. Raul Francisco Oltra & Hermenegildo Gil. *ERP solution for the management of reverse logistics.*

2. Ernest Benedito & Albert Corominas. *Assessing the impact on optimal production capacities in a closed-loop logistics system of the assumption that returns are stochastically independent of sales.*
3. Sahar Validi & PJ Byrne. *A review of different mathematical techniques used for analyzing and designing 'green supply chain networks' and offering an appropriate technique.*
4. Conrado Carrascosa-López, Maria-del-Val Segarra-Oña & Baldomero Segura-García-del-Río. *Environmental proactivity as a value generating element: an application to the Spanish ceramic industry.*

Session F2: Marketing a Market-driven Design of Green Products/ Reverse Logistics Network Design

1. Rodrigo Alejandro Soria Fuentes. *Market of green products: cost of substitution in the economy.*
2. Fahri Apaydin & Volkan Polat. *Green IT and EPEAT Purchasing Program.*
3. Jalal Ashayeri, Gulfem Tuzkaya. *Design of demand driven return centers for high-tech products.*
4. Mehmet Gürel Tekelioglu & Özalp Vayvay. *Location selection for Reverse logistics.*

Parallel sessions G - 17:45-19:45

Session G1: Product Recovery through Recycling

1. Angel Uruburu & Carlos Mataix. *Used-tyres reverse logistic networks in Spain: a global approach.*
2. Eva Ponce-Cueto, José Ángel González, Ruth Carrasco-Gallego. *Reuse or recycle? Recovery options for end-of-use mobile phones in Spain.*
3. Ceren Altuntas, Ozlem Dogan & Nese Bahar Ors. *The efficiency analysis of the recycling activities in Izmir within the context of environmental management standard.*
4. Ziya Hakki Ulukan, Can Üçüncüowlu. *Management of EEE waste by using fuzzy AHP method.*
5. Alex J. Ruiz-Torres. *Supplier allocation model for textile recycling operations.*
6. Julio Mar Ortiz, Belarmino Adenso Diaz & Jose Luis Gonzalez Velarde. *A VNS algorithm for the reconfigurable disassembly cells formation problema.*

Session G2: Sustainable Demand & Supply Chain Management/ Non-governmental organization and social enterprises management

1. Mehmet Yorukoglu & Gulgun Kayakutlu. *An integrated approach on the aviation supply chain.*
2. Banu Ekren. *Analytical and Simulation Models to Investigate the Performance of Autonomous Vehicle Storage and Retrieval Systems.*
3. Sevkinaz Gumusoglu & Banu Atrek. *From supply chain management to demand chain management: evaluation of different approaches on demand chain management.*
4. Jairo R. Coronado-Hernandez & Eliana M. Pardo Mora. *Multi-objective Model for Selection of Projects for Finance New Enterprise SMEs in Colombia.*

5. Suthep Nimsai & Pattana Boonchoo. *Organic Food Supply Chain Restructuring and Marketing Development: The Role of Social Enterprises and Modern Supply Chains in Thailand*
6. Melike Demirbag Kaplan, Tugba Orten & Tuncdan Baltacioglu. *A slow path to sustainability: cittáslows and seferihisar case.*

Presentation of book:

1. Prof. Costas P. Pappis will present his new book *"Climate Change, Supply Chain Management and Enterprise Adaptation: Implications of Global Warming on the Economy"*.
2. Round table and debate on the topics exposed.

Wednesday, November 17th

Session H. 8:30-10:30: Sustainable Demand & Supply Chain Management

Chairman: Esther Álvarez

1. Xavier Puig-Bernabeu, Julien Maheut, Jose Pedro Garcia-Sabater & Francisco-Cruz Lario-Esteban. *Algorithm for planning the supply of product with FTL strategy in lean environment: an industrial case.*
2. Alberto Gomez, David De la Fuente. *Particles for problem for solving the CVRP.*
3. Vicente Calvo-Peña, Julian Canto-Perello & Jorge Curiel-Esparza. *Urban underground sustainability: utility tunnels joint-use case study.*
4. Alberto de la Calle Vicente, Esther Álvarez. *Supply Chain practices in its last step: Experiences on last mile in freight distribution in Bilbao city.*
5. Jon Benito, Germán del Río, Esther Alvarez. *Military logistics in humanitarian emergencies: a Haiti case study.*

ORGANIC FOOD SUPPLY CHAIN RESTRUCTURING AND MARKETING DEVELOPMENT: THE ROLE OF SMALLHOLDERS AND MODERN SUPPLY CHAINS IN THAILAND

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ABSTRACT

Purpose: There have been many changes in agri-food systems in the last two decades, both in developed and developing countries. These changes were driven by forces, such as agricultural industrialization, globalization, trade liberalization, consumer's demands, safety and environmental concerns, and increasing role of information and logistics management. The food sector in Thailand undergoes two major transformations: "supermarketization" and the demand for organic and low-chemical products both from local and international markets. This presents threats as well as opportunities for smallholders. The standard set by buyers requires farmers to adjust their production and marketing systems. Assistance for farmers are derived from social enterprise and government and collaborations amongst these two parties.

Design/methodology/approach: A supply chain restructuring framework is used to analyze the participation of small-scale producers in schemes run by the social enterprises to assist smallholders with production and marketing.

Findings: This study, consequently, intends to explore empirically the pattern of agri-food (organic) supply chain restructuring and the role of social enterprises. The patterns of supply chain found in this study are substantiated and linked with the existing social enterprise and modern trade schemes to see whether there are inconsistencies in the policies and actual implementations.

Research limitations/implications: Focuses on the modern trade as the fastest growing segment in Thailand.

Originality/value: An enhancement of smallholders towards an integration of modern supply chain

Keywords: Organic food; Supply chain; Social enterprise; Smallholder

Paper type: Research Paper

Introduction

Agri-food systems (food chains)¹ have faced dramatic changes over the past two decades (Blandon, 2006). Scholars who are interested in these changes agree that forces and driving factors of these changes include agro-industrialization, globalization and multinationalization, advances in technology,

¹The definition of agri-food systems is adapted from Hobbs *et al.* (2000) with regards to the scope of the present study. Hobbs *et al.* (2000: 9) stated that agri-food systems can be viewed in terms of local as well as global "supply chains" or "value chains", which include "the entire vertical chain of activities: from production on the farm, through processing, distribution, and retailing to the consumer – in other words, the entire spectrum, from [farm] gate to [consumer's] plate".

trade liberalization and policies as well as changes in consumer demand, and growing influences of modern trade chains² (Saxowsky and Duncan, 1998; Brester and Penn, 1999; Reardon and Swinnen, 2004; Reardon and Berdegue, 2002; Blandon, 2006; Onumah *et al.*, 2007).

Agri-food systems that were based on traditional markets are now increasingly channeled through modern trade chains with new requirements on farmers, which result in alterations to traditional marketing relationships (Reardon and Barrett, 2000; Peterson *et al.*, 2001; Blandon, 2006). The development of modern trade chains in modern trade markets rely heavily on the successful management of their supply chains. Large firms with higher power in the supply chain usually have more negotiating power with their producers and suppliers, so they are able to cut cost and minimize risks in the supply chain than smaller firms (Brown, 2005). New business models have emerged to increase profits for shareholders and maintain an effective cost structure while consumers' demands have led to the emergence of measures to improve "flexibility through 'just-in-time' delivery, tighter control over inputs and standards, and ever-lower prices" (Brown, 2005). Modern trade markets can achieve competitive advantage due to their proper management of supply chains and their marketing strategies by means of market positioning, promotional activities and pricing strategies (Brown, 2005; McCullough *et al.*, 2008b; Singh, 2008). In addition, modern trade markets often demand greater flexibility and reliability of supply. They are likely to avoid storing large inventories of perishable products; at the same time, they need to make sure that store shelves are always fully stocked. For these reasons, modern trade markets are close attention to quality improvement and supply chain reliability; quantity, delivery and cost reduction are carefully managed and controlled. The modern trade markets have to constantly increase the efficiency of their supply chains to cope more efficiently with the intensified competitive environments in the industry (Neven *et al.*, 2004; Neven *et al.*, 2006).

In the case of Thailand, its rapid growth of the economy over the last few decades has led to a strong expansion of modern trade chains (Wiboonpongse and Sriboonchitta, 2004; Shepherd, 2005; Mingmalairaks, 2011). The role of social enterprises, in integrating small-scale farmers into modern trade chains in Thailand, has been a trend towards 'supermarketization'³. In addition, the growth of organic farming due to increasing consumer awareness of food safety was observed. The purpose of this study aimed to explain the current situation and development in agri-food systems and presenting the development of farmers' organizations and a modern trade, thus discussing the integration of small-scale farmers in modern supply chains in Thailand and how smallholders cope with the transformation of the food sector in Thailand. The study considered contract farming within the context of the value chain analysis framework. It employed in-depth case studies of social enterprises supplying produce to modern trade markets and small-scale producers under contract farming (social enterprise schemes).

Research Methodology

This study adopted mixed-method approach, which combines both qualitative and quantitative approaches. However, information presented in this paper was designed to utilise a qualitative approach to prepare information for the quantitative approach.

Qualitative data was adopted to develop a general mapping and characteristics of the agri-food value chain and the role of social enterprises in integrating small-scale farmers with modern supply chains in Thailand (Miles and Huberman, 1994; Silverman, 2009). A set of semi-structured question is used in the focus groups and in-depth interviews with key informants to gain more insight of what supply chain systems and kind of challenges or risk they are facing in supplying produces for modern trade chain. This information provided an essential input to design a survey for collecting quantitative data in a second phase.

In order to understand the farming and marketing systems, technology and environment context in supply chain management, a case study of organic rice producer under social enterprise scheme (Green Net Cooperative) was used in this study. A case study accepts and encourages multiple methods of data collection procedures, and it also provides a deeper understanding from the

²Modern trade chains can be grouped as supermarkets, hypermarkets, convenience stores, discount convenience stores, green/special shops, as well as export companies. This study refers to modern trade chains as supermarket chains to fit the context of Thailand.

³ "Supermarketization": Technical term to describe the evolution of modern trade

smallholders coping with food sector transformation. Furthermore, the information derived from qualitative approach was used to support and complement the quantitative results in the later phase.

The Retail Food Sector's Transformation and Development in Thailand

The Thai retail food industry has changed drastically in recent years. Those changes have spread across developed as well as developing economies thanks to changes in consumer behaviour, evolving food safety and environmental concerns, increased importance of food quality, and the increasing role of information and logistics management (Reardon and Berdegue, 2002; Reardon et al., 2003; Brown, 2005; Shepherd, 2005; McCullough et al., 2008). It has experienced many of the same changes as those by some other countries. In past decades, Thai people bought food for their daily consumption from traditional markets such wet markets (fresh markets) and the local grocery store. The development of the retail food sector in Thailand can be classified into 7 periods as shown in Table 1.

Table 1: "Supermarketization" Timeline

Event	Year											
	1950	1964	1982	1983	1988	1989	1996	1997	2002	2003	2008	2011
Traditional Food Retail	■	■										
Development of Department Store		■	■									
Expansion Of Department Store to Suburbs				■	■							
Over-Investment in Modern Food Retail						■	■					
Economic Crisis Lead to Acquisition by Foreign Caompanies								■	■			
Development of Smaller Stores										■	■	
Expansion Of Smaller Store to Suburbs												■

Source: By Authors

In addition, a close examination of the patterns of sales of foods in both traditional markets and modern trade chains between 2002 and 2010 shows that the proportion of food sold in the modern markets have been on the increase while that in the traditional markets have been in decline (Wiboonponse and Sriboonchitta, 2004; TDR, 2002; Shannon, 2009). For example, the percentage of foods sold in the modern markets rose from 35 percent in 2002 to 40 percent in 2007 and rose again to about 50 percent in 2010 while that of traditional markets dropped from 65 percent to 60 percent and about 50 percent in corresponding years respectively (Research Institute for Developing Thailand (2002); Wiboonponse and Sriboonchitta, 2004; Shannon (2009))

The accelerating rate of change and competitiveness in the retail food sector will drive the evolution of the retail food value chain over the next decade. Modern retail businesses have accelerated their expansion scheme to open more branches and new (mini) formats in an effort to obtain a larger market share. Most retail businesses follow a similar model of focusing on low prices, providing and a wider selection of products while meeting higher standards of quality. To achieve these goals, they have had to change their supply chain management systems. These changes affect both suppliers and producers, especially in agri-food supply chains where they must achieve higher standards and requirements which have become part of the modern trade market. The trends in retail food supply chain requirements in Thailand are summarized in Table 2.

Table 2: Trends in retail food supply chain requirements in Thailand

	Traditional Markets	Modern Trade Markets
Product - Production	<ul style="list-style-type: none"> - do not require contracts/agreements - prefer a short-run production and usually unplanned - do not have any specifications on diversification or intensive chemical/input use - do not require traceability and/or chemical residue check 	<ul style="list-style-type: none"> - require agreement or contract (can be formal or informal contract). - prefer long-run production under suppliers/organizations plan - have some specifications on farming systems and chemical/input used. - require product traceability and/or chemical residue (safety standard) check in most markets
Purchasing	<ul style="list-style-type: none"> - do not have regular order system 	<ul style="list-style-type: none"> - use regular order systems in advance
Purchasing Price	<ul style="list-style-type: none"> - use market price 	<ul style="list-style-type: none"> - use market price and price under contract farming scheme (usually higher than market price)
Procurement systems	<ul style="list-style-type: none"> - prefer traditional chains such as wholesale markets and direct chain from producers 	<ul style="list-style-type: none"> - prefer modern supply chains such as suppliers, brokers and social enterprise companies
Coordination	<ul style="list-style-type: none"> - use relationships or informal connections 	<ul style="list-style-type: none"> - use formal connection via contract or agreement (nowadays most are informal contract) - prefer company/organization/institution relationships along the chain

Source: By Authors

This study explores the changes in the agri-food supply chain and the difficulties faced by smallholders in Thailand because of these changes. This section explains the development of the agri-food supply chain and its effects on small-scale farmers and focuses on the results of focus group and in-depth interviews.

Agri-Food Supply Chain Restructuring and Effects on Small-Scale Farmers in Thailand

The main reason that induced most of the smallholders to sell their products in traditional (local) markets was because they had an easy access to the market and most of them had business experiences with local buyers. In addition, most farmers usually sold their produces in two ways. First, the farmers delivered or transported the produce to the market on their own or rental vehicles. Second, the farmers sold their produce to intermediaries who came to pick them up by their vehicles or they came to take the whole crops during harvest. The intermediaries usually made an agreement about buying and selling the whole crop in advance. However, this study found that most farmers lacked the ability to search for buyers and negotiation ability for an appropriate price.

The growth rate of agri-food sale in modern trade market has also been increasing each year with an average increases around 10 to 20 percent per year. Modern trade markets attempted to fulfil all customers' demands with notable changes in consuming behaviours. Therefore, the patterns of farm-shop linkages between small-scale producers and modern trade supply chain have to be developed (especially the department store owned by foreigners).

The findings from this research indicated four main traditional market chains can be identified; selling through intermediaries, selling at local markets, selling at traditional wholesale markets, and selling through minor markets. Several participants stated that which market suited a farmer, and which market a farmer decided to use, depended on farming and marketing potential and anticipated transaction costs.

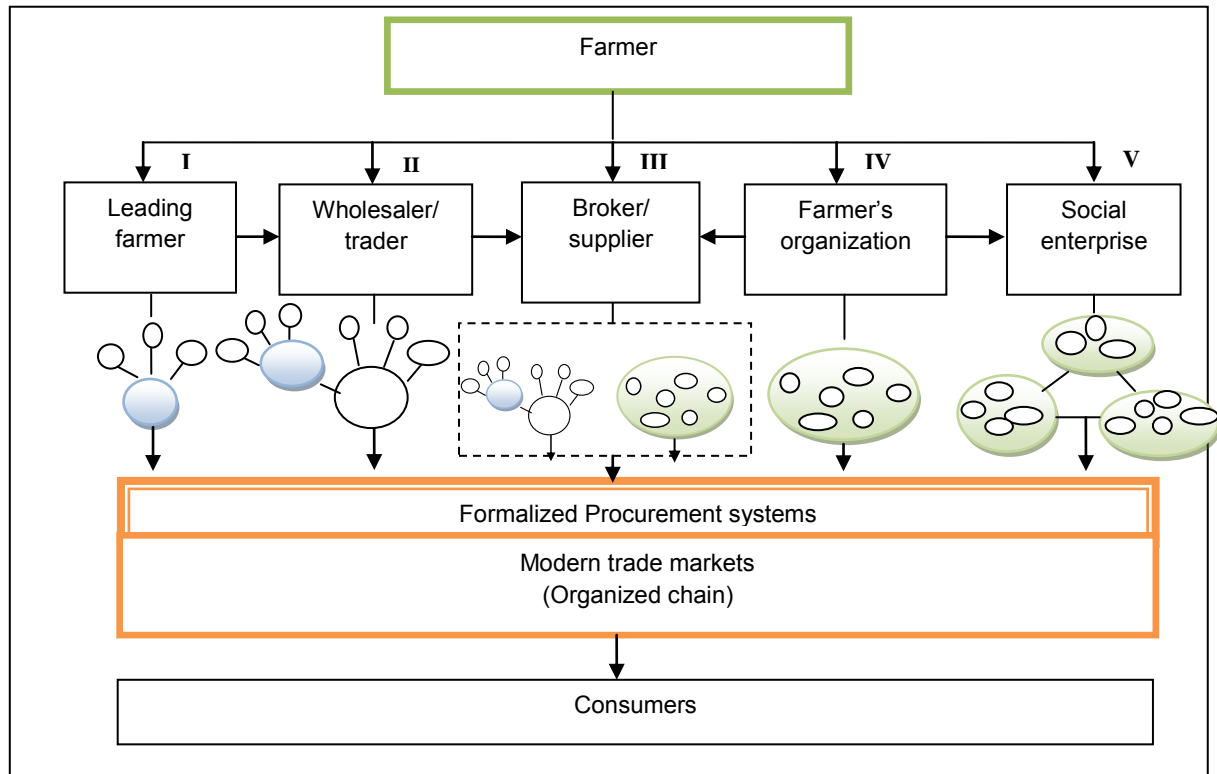
In-depth interviews with participants regarding the possible channels of small-scale farmers' participation in modern supply chains indicated that there are five potential channels; selling through lead farmers (high potential farmers/agribusiness farmers), using wholesalers/traders, using

brokers/suppliers, farmer associations/groups or social enterprises. However, the following section discusses the modern trade in forms of small scale farmer participation in the modern trade chains.

Small-scale farmer participation in the modern trade chains

This study found five channels of small-scale farmer participation in the modern trade as shown in Figure 1.

Figure 1: The channel of small-scale producer's participation in the modern trade chains



Chain V: Farmer => Social enterprise => Modern trade store or DC

There are farmers that participate in a group or farmers from the association in previous chain (V) to sell their produce to a social enterprise such as the Royal Project (pesticide-safe fruits and vegetables supplier) and Green Net (organic rice producer), who supply modern trade markets. These farmers are almost similar to the previous chain, but the farmer's association does not work individually and directly with modern trade markets. In this case, due to the lack of managerial and business management skills of farmer's associations, the farmer's associations form a group under the social enterprise organization in order to join in their production, grading, packaging, and marketing.

The study found that social enterprise helped small-scale farmers to improve their benefits in terms of profitability, stability as well as sustainability in the long-run participation. The collaboration between farmer's associations and social enterprise are more economies of scale. The farmers have higher negotiation power due to professional business management skills of social enterprise. Moreover, most social enterprises work with international organizations (for example fair trade organization) in order to join in the international and global trade systems. This cooperation helps small-scale farmers get a better price as well as increase their market opportunity.

Regarding five difference chains as mentioned previously, the study also provides a rough indication of which of these chains are relatively most crucial (largest proportion of small-scale farmers), and which ones are becoming more or less crucial over time as below.

In addition, regarding the information from interviews and group discussions with modern trade chains' representatives, currently, social enterprise has become more salient and increased its market share in organic or pesticide-safe products markets. As a result, the social enterprise has a strong supply chain management system to assure the quality of products throughout the supply chain before distributing the produce to the markets and finally to consumers. Another reason is the increasing number of organic and pesticide-safe products market share in modern trade markets. However, broker/supplier chain is still prominent in the products market.

The following table presents the advantages and five supply chains as perceived by modern trade markets in Thailand (which is based on interviews and group discussions).

Table 3: The modern trade advantage of five supply chains

Characteristics of supply channel required by modern trade		Supply channel				
		Through leading farmer	Through wholesaler/trader	Through brokers/suppliers	Through farmer's organization	Through social enterprise
Capacities	Production					
	- Control of quality and quantity of produce	✓		✓✓	✓	✓✓
	- Financial and farm managerial capacity		✓	✓✓	✓	✓✓
	- Control of farming contract violate			✓✓	✓	✓✓
Incentives	Operation Management					
	- Price plus transaction costs	✓	✓✓	✓	✓✓	✓✓
	- Delivery and logistics	✓	✓✓	✓✓	✓	✓✓
	- Reliable supply		✓✓	✓✓	✓	✓✓
	- Tractability	✓		✓		✓✓
	- Managerial cost		✓	✓		✓✓
	Business Cooperation					
	- Control of business agreements and conditions	✓		✓✓	✓	✓✓
	- Terms and conditions negotiation	✓	✓✓	✓✓	✓	✓
	- Control of farmer remuneration				✓✓	✓✓
	- Corporate social responsibility				✓✓	✓✓
	- Sustainable for long-run cooperation and supports			✓✓		✓✓

Source: By Authors

Advantages and challenges associated with the modern trade chains

The traditional market is highly uncertain, farmers are never sure if they will find a buyer of their products, and what price they will get. Whilst markets in modern trade chains are highly certain; the farmers can be confident in participating if their produces are sold. Even though the production for most modern trade chains nowadays does not use formal contract or agreement with small-scale farmers, the small-scale farmers can still be confident to participate in and keep working with their productivity and quality adjustment until it meets the standards. Most modern trade chains provide some supports such as information about products demanded, technology and farming management skills training to help farmers develop their producing and marketing systems. Thus, modern trade chains allow farmers to enhance the planning of their production and marketing activities; for example, dates of planting, harvesting, delivering, and expected cash flow. The study also found differences in principal characteristics of small-scale farmers' participation in the different market chains which affected the level of farmer's advantages.

Prices in the modern trade chains are characterized for being more stable permitting farmers to forecast expected returns, which helps them in their planning activities. Additionally, prices in modern

trade chains are usually higher than average prices paid in the traditional market (depending on grades and standards) which results in better profit margins for farmers participating in the modern trade chains.⁴ Prices in the traditional markets may be higher during a short season in a year, motivating contracted farmers to 'side-selling' their produce to this market instead of delivering to the modern trade chain as set in contracts.

Conclusions

In this paper, we observed the general overview of the retail food sector's transformation and the challenges faced by small-scale farmers in Thailand. In addition, social enterprises and their pivotal roles in integrating small-scale farmers into modern trade chains, in Thailand, are also explored. It can be concluded that though the majority of agri-food is channelled through traditional markets, modern trade chains are expected to replace them and will continue growing because of the influence exerted by the local and international retail chains in the region. As a result from these changes in the agri-food system, modern retail businesses have accelerated their expansion scheme to open more branches and new (mini) formats to try to gain a larger market shares. Modern trade chains are offering new market opportunities to farmers.

Moreover, six main channels for small-scale farmers to use to gain participation in modern trade chains in Thailand were identified; directly sell to markets, selling through lead farmers, wholesalers/traders, brokers/suppliers, farmers associations and through social enterprises. Currently, the social enterprise chain has increased its market share and is pivotal in the organic and pesticide-safe product market. Furthermore, more small-scale farmers participate in the modern trade through participation with social enterprises than with any other modern trade chain. This study also found that social enterprise schemes have several significant roles in increasing the profitability, the stability and the sustainability of small-scale farmers' production and participation in the modern supply chains.

References

- Alter, S. K. (2006). Social Enterprise Models and Their Mission and Money Relationships. *Social Entrepreneurship* (1st Ed). Oxford University Press.
- Blandon, J. (2006). *Supermarket Supply Chain for Fresh Fruits and Vegetables: Opportunities and Challenges for Small Farmers*. PhD. thesis, University of Guelph, Canada.
- Brester, W. W., & Penn, J. B. (1999). *Strategic business management principles for the agricultural production sector in a changing global food system* (Policy Issue PaperNo. 11). Bozeman, MT: Montana State University, Trade Research Center.
- Brown, O. (2005). Supermarket Buying Power, Global Commodity Chain and Smallholder Farmers in the Developing World. *Human Development Report*. Human Development Report Office.
- Hobbs, J. E. (1996). A transaction cost approach to supply chain management. *Supply Chain Management*, 1(2), 2-15.
- Hobbs, J. E., Cooney, A. and Murray, E. (2000). *Value Chain in the Agri-Food Sector: What Are They? How Do They Work? Are They for Me?*, Department of Agricultural Economics, University of Saskatchewan.
- McCullough, E. B., Pingali, P. L., & Stamoulis, K. G. (2008). *The Transformation Agri-Food Systems: Globalization, Supply Chains and Smallholder Farmers 1st Ed*. FAO.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd Ed.). California: Sage
- Mingmalairaks, P. (2011). *Innovation Adoption in Thai SMEs*. Melbourne, Australia.

⁴ This is based on interviews with farmers, and therefore no quantitative data is available to verify

Neven D., Odera, M., & Reardon, T. (2006). *Horticulture Farmers and Domestic Supermarkets in Kenya*, Staff Paper: Department of Agricultural Economics, Michigan State University.

Neven, D., & T. Reardon. (2004), The Rise of Kenyan Supermarkets and Evolution of Their Horticulture Product Procurement Systems, *Development Policy Review*, 22(6), 669-699.

Onumah, G., Davis, J., Kleih, U., & Proctor, F. (2007). Empowering Smallholder Farmers in Markets: Changing Agricultural Marketing Systems and Innovative Responses by Producer organizations. *Munich Personal RePEc Archive report*. [online] Available at: <<http://www.mpra.ub.uni-muenchen.de/25984/>> [Accessed 10 October 2010].

Peterson, H.C., Wysocki, A., & Harsh, S. B. (2001). Strategic Choice along the Vertical Coordination Continuum. *International Food and Agribusiness Management Review*.

Reardon, T., & Berdegue, J. A. (2002). The Rapid Rise of Supermarkets in Latin America: Challenges and Opportunities for Development. *Overseas Development Institutes*, Blackwell Publishers: Oxford.

Reardon, T., & C.B., BARRETT. (2000). Agroindustrialization, Globalization, and International Development: An overview of Issues, Patterns, and Determinants. *Agricultural Economics*, 23, 195-205.

Reardon, T., & Swinnen, J.F.M. (2004). Agrifood Sector Liberalization and the Rise of Supermarkets in Former State-Controlled Economies: A Comparative Overview", *Development Policy Review (GBR)*, 22 (5): 515-23.

Silverman, D. (2005). *Doing Qualitative Research: A Practical Handbook*. London: Sage Publications.

Shannon, R. (2009). The Transformation of Food Retailing in Thailand 1997-2007. *Asia Pacific Business Review*. 15(1): 79-92.

Shepherd, A. W. (2005). The Implications of Supermarket Development for Horticultural Farmers and Traditional Marketing Systems in Asia. *FAO/AFMA/FAMA Regional Workshop Report on the Growth of Supermarkets as Retailers of Fresh Produce*, Rome.

Saxowsky, D.M., & Duncan, M.R. (1998). *Understanding agriculture's transition into the 21st century* (Miscellaneous Report No. 181). Fargo, ND: North Dakota State University, Department of Agricultural Economics.

Singh, S. (2008). Marketing Channels and Their Implications for Smallholder Farmers in India. *The Transformation of Agri-food Systems: Globalization, Supply Chains and Smallholder Farmers*. FAO.

Wiboonpongse, A. and Sriboonchitta, S. (2004). *Regoverning Markets: Securing Small Producer Participation in Restructured National and Regional Agri-food System in Thailand*. Chiang Mai University. Thailand. [online] Available at http://www.regoverningmarkets.or/docs/Thailand_report_final.pdf [Accessed on 3 May 2009].

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OFFICIAL LETTER OF INVITATION TO PRESENT AT COSA 2012

July 3, 2012

Title of Accepted Abstract: ***COSA2012_0094 Organic Food Supply Chain Restructuring and Marketing Development: The Role of Social Enterprises and Smallholders in Thailand***

Author(s): Suthep Nimsai, Han Ren Chong, Phoommhiphat Mingmalairaks, Sangchan Kantabutra

Dear Dr. Suthep Nimsai:

On behalf of the COSA 2012 Organizing Committee, I am pleased to write that your proposal has been accepted for **oral presentation** at the 2012 Inaugural Conference on Sustainable Business in Asia.

Conference sessions will be held in Bangkok, Thailand at the Landmark Bangkok Hotel, on Thursday, November 1st through Saturday, November 3rd, 2012. Please note that if you cannot attend for any reason, please notify the congress coordinator at coordinator@cosa2012.org.

Your name and presentation title will be listed in the Conference Program after confirmation of payment of your registration fees. Please check the Program at that time to make sure all information pertaining to you is correctly included. Congratulations on your acceptance and we look forward to your participation in COSA 2012.

Yours Sincerely,



Takayuki Yamada
Chairman, Board of Governors
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TITLES OF ACCEPTED PROPOSALS

Titles of Accepted Proposals	Author(s)
<i>Strategic Review of Financial Regime of Iran's Local Management (Case study: Islamic Council of Tehran Metropolis)</i>	Seyed Ali Hossein Pour, Mohamad Hadi Javid, Fahimeh Yari
<i>From Unknown to Ideal: the Story of a Journey towards Sustainable Livelihood - a Case study of Hiware Bazar, Ahmadnagar District, Maharashtra, India</i>	Mrinal Rao
<i>A study on green marketing initiatives in the Indian corporate sector</i>	Prof. Sarwade Walmik Kachru
<i>Business competition between Malaysia Airlines and AirAsia: To compete or to share?</i>	Jamil Jusoh
<i>The Role of Transport in Sustainable Development</i>	Mohammad Ali Mosaberpanah
<i>Sustainability Governance in India: An Assessment among Leading Stakeholders</i>	Prasad Satya Venkat Mulakalapalli, Sandhya Sri Bonela
<i>Assessing Climate Change Impact on Forest Produce and Its Economic Impact on Tribal Community in India</i>	Sandhya Sri Bonela, Prasad Satya Venkat Mulakalapalli
<i>Efficiency of the Melon Market in the Aba area of Abia state, Nigeria: implications for poverty reduction.</i>	Obasi Igwe Oscar
<i>Self and Consumption as Voters for Responsible Consumption</i>	Neillada Keongamaroon
<i>Environmental Economic Analysis of Agroforestry Systems in Germany</i>	Tobias Jorissen, Sebastian Hauk
<i>Inside-firm Incentives and Corporate Environmental Performance</i>	Jing Xu
<i>Energy turnaround in Germany - Public perception of external effects of biogas technology by German inhabitants in their roles as citizens, residents and consumers under economic, ecological and social viewpoints</i>	Willie Stiehler, Thomas Decker, Klaus Menrad
<i>Short Rotation Forestry: A Way to Sustainable Agribusiness</i>	Sebastian Hauk, Sanjeev K. Chauhan, Thomas Lewis, Stefan Wittkopf
<i>Integrating Taiwan and Western Indicators for Corporates' Environmental Sustainability Awards</i>	Hsin-Jui Yu

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<i>The Influence of Consumer Knowledge on Willingness to Pay for Green Food in Malaysia</i>	Phuan Kit Teng, Rezai Golnaz, Mohamed Zainalabidin, Shamsudin Mad Nasir
<i>Architectural Application to Agricultural Setup</i>	Milind Gujarkar, Vinayak Adane
<i>Foreign Direct Investment with Technological Advancement for Sustainable Development: The Asia Perspective</i>	Bharati Muthu
<i>Advances in the approach for the evaluation of the tourist competitiveness of Colima as a tourist destination: The Service Experience in Manzanillo</i>	Irma Magaña Carrillo, Ernesto Manuel Conde Pérez, Rafael Covarrubias Ramírez
<i>Balancing The Sustainability In Human Capital: Role Of Corporate Social Responsibility</i>	Sayontika Das, Sayan Ganguly
<i>Sustainability practices, product/service development, and organizational performance: the exploitation and exploration perspective</i>	Matjaz Maletic, Damjan Maletic, Bostjan Gomiscek
<i>Financial Inclusion and Sustainable Development: An Empirical Study on Financial Inclusion in India</i>	Saundarjya Borbora
<i>Strategic Corporate Social Responsibility to Stakeholders Expectation</i>	Mohammed Abdullah Mamun
<i>the effect of past purchase and company image on repurchase intention towards green products</i>	Titik Desi Harsoyo
<i>Singapore Grand Prix (F1 Racing) as Provocative Value Propositions for Creating stronger FDI in Sustainable Tourism</i>	Bharati Muthu
<i>Innovative Financing – A Crucial Component for Energy Efficiency Market Transformation</i>	Christopher C. Seeley
<i>Sustainable Solution for E-Waste in China and Asia: Harmonizing E-Waste Reuse and Recycle and Building a Regional Market</i>	Shiming Yang
<i>EEEcono</i>	Elena Mechik
<i>Rural Women Contribution to the Sustainability in Agro –Based Industries in Sri Lanka.</i>	S.Damayanthi Edirisinghe
<i>The Evaluation of Water and Poultry in Integrated Farms.</i>	Michael Adedotun
<i>Study on ITC e-Choupal</i>	Akshay Tewari, Prashant Ghosh, Sunanda Sangwan
<i>Tourism Development and its Impact on Residents'</i>	Tania Maria Tangit, Akmal Adanan

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<i>Does WTO accession and Law matter play an important role in attracting FDI? The case for Viet Nam</i>	Chien Nguyen Dinh, Zhang Ke Zhong
<i>Geotourism as a Potential Tourism Concept in Oman: The Case of Al Jabal Al Akhdar</i>	Galal Afifi
<i>Towards business sustainability: corporate social responsibility support for workers' social security</i>	Che Thalbi Md. Ismail, Aspalella A.Rahman
<i>The Impact of Anti-Money Laundering Laws on Sustainable Business: Malaysian Experience</i>	Aspalella A Rahman
<i>An Institutional Panorama of Corporate Social Responsibility</i>	Vijayta Doshi
<i>Preliminary Study of Senior Managers' Social Values and Their Perceptions on Company's Social Performance and Delivery in Indonesia</i>	Muhammad Ariono Margiono
<i>Appreciative Inquiry (AI) Framework and Participatory Techniques for Sustainable Tourism Development: Case examples from Thailand</i>	Jutamas Wisansing, Udom Hongchatikul
<i>Exploring the Determinants of Memorable Tourism Experiences</i>	Lalith Chandralal
<i>Measure, Monitor and Impact of CSR Initiatives by Indian Companies</i>	Sunil Kumar, Shanti J.
<i>A Conceptual Framework of Relationship between the Resource-based view, External Factor, Competitive Advantage and Export Performance</i>	Yingluk Khemchotigoon
<i>A Comparative Study on Photovoltaic Tendering Mechanism in Taiwan, France and Other Major Countries: Will it hamper the Sustainability of the Development of PV Industries?</i>	Anton Ming-Zhi Gao, Ponnampalam Dino
<i>Determination of Tourism Strategies with a Participatory Approach: A Case Study of Sarikum Nature Reserve Area, Sinop, Turkey</i>	Sevgi Ozturk, Ali Can, Nuray Turker, Faruk Alaeddinoglu
<i>Supply Chain Disruptions: The Role of Information Processing and Resource Dependence</i>	Masood Nawaz Kalyar, Nosheen Rafi
<i>Factor Decomposition of Improvement of Energy Utilization Efficiency in China</i>	Hui Liu, Tao Liu
<i>Sustainable Livelihood</i>	Tarun Panwar
<i>Does Scaling Matter? The case of solar cells</i>	Jeffrey Funk

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<i>Major Policy Issues and Economic Efficiency of Renewable Energy in Korea: Based on Empirical Analysis of Tidal Power</i>	Shin Won Kang
<i>Basic Motivations and Activities of Foreign Ecotourists: A Case of Lake Van Basin, Turkey</i>	Faruk Alaeddinoglu, Nuray Turker, Ali Selcuk Can, Sevgi Ozturk
<i>ZERO CARBON RESORTS: increasing energy efficiency of tourist resorts in the Philippines. Part 1: project description and methodology</i>	Robert Wimmer, Guillermo Zaragoza
<i>ZERO CARBON RESORTS: increasing energy efficiency of tourist resorts in The Philippines. Part 2: description of the results and energy savings obtained</i>	Guillermo Zaragoza, Robert Wimmer, Maria Luz Martinez
<i>Application of Blue Ocean Strategy to Cassava Agribusiness as input for Food and Biofuel Industry</i>	Dessy Anggraeni, Brian Guntur, Amli Harahap
<i>Who Gains from Apple farming in Uplands of Balochistan, Pakistan?</i>	Murtaza Ghulam, Thapa Gopal Bahadur
<i>Embracing Sustainable Service Operations: Creating Sustainable Business Processes in Service Centres - A Practitioner's Perspective</i>	Shreekant Vijaykar
<i>Social Entrepreneurship for Sustainable Poverty Alleviation through Value Chain Incubation</i>	Amer Khan, Praveen Balakrishnan Nair
<i>The Impacts of El Nino on Crops' Production in Asia</i>	Li-Fen Lei, YeowTiong Siang
<i>Effect of credit on agricultural commercialization and household food security: insights of smallholders in Pakistan</i>	Abid Hussain, Gopal B. Thapa
<i>Using common set of weights for eco-efficiency analysis of China's provinces</i>	Mahdi Mahdiloo
<i>organic food supply chain restructuring and marketing development: the role of social enterprises and smallholders in Thailand</i>	Suthep Nimsai, Han Ren Chong, Phoommhiphat Mingmalairaks, Sangchan Kantabutra
<i>Renewable energy and energy management in oil industry</i>	Omid Khaledi
<i>Women in Entrepreneurship: Pakistan's Context</i>	Ayesha Mukhtar

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<i>Post War Development Process, Sustainability And Foreign Direct Investments: Sri Lankan Perspective</i>	Dilini Pathirana
<i>Assessing agricultural sustainable development in Jiangsu, China</i>	Shudong Zhou, Felix Mueller, Benjamin Burkhard, Ying He, Xingjin Cao
<i>Towards A Sustainable Society</i>	Charnchai Athichitskul
<i>Role of Emerging Southern Multinationals in Strengthening Environmental Governance in Asia</i>	Dilini Pathirana
<i>Enhancing Biodiversity Co-Benefits of REDD</i>	Kanako Morita
<i>Emerging Issue of Climate Change & Sustainable Development: a case for Pakistan</i>	Sardar Muhammad Usman, Muhammad Imran
<i>Ensuring continuous success of relevant learning and teaching in an Asian business school: A modest experience</i>	Aaron Loh, Glen Chatelier
<i>The Importance of Environmental Education for University Students: The Case of Unzen Volcanic Area Global Geopark in Japan</i>	Satoshi Fukami, Mamoru Okubo, Yurie Kamura
<i>Trusts Law in the Modern Context: The Role of Business Trusts to Enhance the Business Development</i>	M.P.S. Kaushani Pathirana
<i>Alternative Methods of Construction in Projects with Short Turnover Time</i>	Luis Maria Bo-ot, Raymond Clarin
<i>How both the first and second-level digital divides are hampering greater economic participation in Asia</i>	Ali Mohamed
<i>Sustainability Reporting in Academia: Today and Tomorrow</i>	Aarushi Singhanian, Saurabh Saraf, Mitalee Gupta
<i>The effect of light quality on rice seedling growth and metabolism.</i>	Chang-Chang Chen, Meng-Yuan Huang, Shau-Lian Wong, Wen-Dar Huang, Chi-Ming Yang
<i>Acceptance of e-shopping: A study of e-shopper intentions in Oman</i>	Sujeet Sharma
<i>Evaluation of Efficiency and Biogas Utilization system in Thai Cassava Starch Industry</i>	Chatree Wattanasilp, Roongrojana Songprakorp, Annop Nopharatana
<i>Multi-physics Simulation for Sustainable Design</i>	Raj C Thiagarajan
<i>Managing Climate Change Mitigation Goals through the Supply Chain</i>	Thomas Long

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<i>Potential of Green Resources as a Sustainable City Brand in Hong Kong</i>	Chung-shing Chan, Lawal M. Marafa
<i>An evaluation and suggestion of photovoltaic power plant locations based on environmental and social impacts, and sustainability</i>	Youngho Kim
<i>Self concept, attitude towards brand, perception on price, and perception on product quality to consumer's intention to buy.</i>	Robert Butarbutar
<i>Application of Life Cycle Management for Sustainable Consumption and Production of Polyethylene Terephthalate (PET) Water Bottle in Thailand</i>	Taksina Chai-ittipornwong
<i>Sustainable livelihoods in developing countries</i>	Sathya Srinivas Vayuvegula
<i>Understanding the Octopus for Retailing Payments in Hong Kong: an Extended Technology Acceptance Model Analysis</i>	C K Lok
<i>Impact of Advertisements on Sustainable Consumption: A Comparative Analysis to Build a Sustainable South Asia</i>	Fathima Shamila Dawood Lebbe
<i>Corporate Social Responsibility: the Malaysian Legal Perspective</i>	Mohammad Rizal Salim
<i>Strategies to Ensure that Outsourcing of Government Services Creates Sustainable Communities</i>	Robert Smith
<i>Potential Impact of Thailand Australia Free Trade Agreement on Business Sustainability in Thailand: a Legal Perspective</i>	Nucharee Nuchkoom, Carolyn Sappideen
<i>Sustainable Quality of Work life & Job Satisfaction: A Case Study on PCL Solapur, India</i>	Bapusaheb Sawant, Avinash Dhavan

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