Master's Thesis for
Lund University International Master's Programme
In Environmental Science
2003

Going Local or Ecological?

- Comparative Research in Environmental Supply Chain Management (ESCM) Focusing on HSE and CSR in Sweden and in Japan -

Student:
Yumiko Tahara
Box 140
22100 Lund, Sweden
yumiko.tahara.169@student.lu.se

Supervisor:
Kerstin Gustafsson
Design Sciences, Packaging Logistics
Box 118, 22100 Lund, Sweden
Kerstin.Gustafsson@bygg.lu.se

Acknowledgement

First I would like to thank my supervisor who helped me and gave proper advice to keep me on track all the time. I also would like to thank the people who kindly accepted my interviews; Mr. Fukazawa, the Manager in Agriculture Products Department in CoopNet; Mr. Takahashi, the chief in Business Administration Department in Coop Tokyo; Ms. Ohshima in the Environmental Department in Coop Tokyo; Mr. Kaneko, the Director in Produce Department in Seiyu; Mr. Ohno, the Manager in Corporate Affairs in Seiyu; Mr. Natt och Dag, the Environmental Manager in Coop Sverige AB; Mr. Warén, the Manager in Quality and Environment Department in ICA Handlarnas AB; Ms. Lindvall in Environmental Affairs in ICA Handlarnas AB; Mr. Ovegård in Quality Manager for Stores in ICA Handlarnas AB; Mr. Holtz, the storeowner in ICA Malmborg Clemenstorget.

Moreover, my thanks are extended to all the friends who were always with me sharing sadness, happiness and everything.

Finally, all my gratefulness goes to my family who always have always supported me by my side and watch over my growth.

Abstract

Environmental Supply Chain Management (ESCM) has contributed to reducing environmental impacts through various approaches such as by increasing cooperation with suppliers and improving transportation efficiency. However, food scares caused by Bovine Spongiform Encephalophy (BSE) outbreaks that occurred in 1986 in beef (BSE Inquiry, 2003) and the uncertainty surrounding Genetically Modified Organisms (GMO) brought about considerable impacts in retailing business and resulted in a loss of consumer trust, which forced food retailers to reconsider their Supply Chain Management (SCM). In order to regain customer trust and to respond to increasing interests in Health, Safety and the Environment (HSE) and Corporate Social Responsibility (CSR) arising from food scares, some food retailers already started expanding the concept of ESCM to seek further sustainability.

This research tries to show how food retailers enhance ESCM by adding HSE and CSR aspects. The main focus here is on practices related to the purchasing process of local and long-distance supply, especially fruit and vegetables. Two food retailers each in Sweden and in Japan are chosen as case studies to compare practices.

The finding shows that food retailers in each country try to fulfill customer demand of HSE and CSR by taking different approaches. Concerning a product, the retailers in Sweden increase the portion of ecological products with KRAV labeling, while the retailers in Japan increase the portion of local supply. Another aspect was identified in how the retailers influence long-distance suppliers. While the food retailers in Sweden use SA8000 standard and checklists to assure suppliers' practices, the food retailers in Japan have close contacts with retailers to help them to improve the quality of the products, working conditions and other social issues. Even though their approaches are different, the four companies all positively contribute to HSE and CSR. Additional activities to enhance ESCM found in this research are relocating distribution centers, reusing pallets and transport packaging, communicating with consumers, and composting. These activities to improve HSE and CSR related issues give food retailers competitiveness.

Terms and Acronyms

BSE: Bovine Spongiform Encephalophy
CLD: Causal Loop Diagram
CPRE: Campaign to Protect Rural England
CSR: Corporate Social Responsibility
Eco-Driving: an economically and ecologically sound driving style, is a cheap method to save fuel and money whilst contributing to road safety
ECRA: Ethical Consumer Research Association
EMS: Environmental Management System
ESCM: Environmental Supply Chain Management
ETI: Ethical Trading Initiative
Fair Trade: giving poor people power through promoting sustainable development by improving market access for disadvantaged producers
Food Miles: the distance the food and its constituent ingredients have traveled from source to consumer
FRAIR: Food and Local Agriculture Information Resource
GMS: General Merchandizing Store
Greenwash: disinformation disseminated by an organization so as to present an environmentally responsible public image
GMOs: Genetically Modified Organisms
HSE: Health, Safety and Environment
LCA: Life Cycle Assessment
Oxfam: a development, relief, and campaigning organization that works with others to find lasting solutions to fight against poverty and suffering around the world
SA8000: standard and verification system which certifies social accountability by assuring humane workplaces
SCM: Supply Chain Management
Traceability: the ability to trace the history, application or location of an entity by means of recorded identifications
VDF: Vegetable Diesel Fuel

Table of Contents

ACKNOWLEDGEMENT I

ABSTRACT II

TERMS AND ACRONYMS III

TABLE OF CONTENTS IV

CHAPTER 1: INTRODUCTION 1

1.1 ENVIRONMENTAL SUPPLY CHAIN MANAGEMENT 1
1.2 INCREASING INTERESTS IN HSE AND CSR 2
1.3 OBJECTIVE AND SCOPE 3
1.4 SYSTEM BOUNDARIES 3

CHAPTER 2: METHOD AND MATERIAL 5

2.1 INTERVIEWS WITH FOOD RETAILERS IN SWEDEN 7
2.2 INTERVIEWS WITH FOOD RETAILERS IN JAPAN 7
2.3 PRIOR RESEARCH AND LITERATURE REVIEW 7
2.3.1 ESCM / Green Supply Chain Management 7
2.3.2 HSE and CSR 8
2.3.3 Effects of Local and Long-distance Supply Chain 8
2.4 HYPOTHESIS 9

CHAPTER 3: ANALYTICAL FRAMEWORK 12

3.1 ESCM THEORY 12
3.1.1 Motivations to promote ESCM 12
3.1.2 Approaches to ESCM 13
3.1.3 Purchasing Theory 14
3.2 HEALTH, SAFETY AND ENVIRONMENT IN ESCM 14
3.3 CORPORATE SOCIAL RESPONSIBILITY IN ESCM 15
3.4 BALANCE OF LOCAL AND LONG-DISTANCE SUPPLY IN ESCM 15
3.5 LOCAL SUPPLY IN ESCM 16
3.5.1 Local Supply Link with HSE/CSR 16
3.5.2 Promoting Local Supply 17
3.5.3 Obstacles for Promoting Local Supply 17
3.6 LONG-DISTANCE SUPPLY IN ESCM 18
3.6.1 Long-distance Supply linkage with HSE/CSR 18

3.6.2 Promoting Ethical Trading *18*
3.6.3 Obstacles in Promoting Ethical Trading *19*
3.7 ESCM to Support Local and Long-distance Supply **19**
3.7.1 Transportation *19*
3.7.2 Packaging *20*
3.7.3 Waste Management *20*
3.7.4 Competitiveness *20*
CHAPTER 4: APPLICATION, RESULTS AND DISCUSSION 21
4.1 Case Studies in Sweden **21**
4.1.1 Background *21*
4.1.2 Local Supply in Sweden *22*
4.1.3 Long-Distance Supply in Sweden *23*
4.1.4 ESCM to Support Local and Long-distance Supply in Sweden *24*
4.2 Case Studies in Japan **26**
4.2.1 Background *26*
4.2.2 Local Supply in Japan *27*
4.2.3 Long-Distance Supply in Japan *29*
4.2.4 ESCM to Support Local and Long-distance Supply *30*
4.3 Comparing Practices of Food Retailers in Sweden and Japan **31**
4.3.1 Local Supply *31*
4.3.2 Long-Distance Supply *33*
4.3.3 ESCM to Support Local and Long-distance Supply *33*
4.4 Overall Discussions and Suggestions **36**
4.4.1 Closing the Loop *37*
4.4.2 Communication with Consumers *37*
CHAPTER 5: CONCLUSION 39
References *40*

Lists of Tables

Table 1 Motivations for undertaking ESCM 12
Table 2 Benefits from implementing HSE and CSR 36

Lists of Figures

Figure 1 Changes in Focus in ESCM 9
Figure 2 Causal Loop Diagram of ESCM 10
Figure 3 Causal Loop Diagram of Food Supply Chain 11
Figure 4 Dimensions, consequences, and value of the local food from the entrepreneurs' viewpoint (Source: Forsman and Paananen, 2001) 16
Figure 5 Vegetables with KRAV label 23
Figure 6 Fruit in an ICA store 25
Figure 7 Coop Tokyo: "Every day direct from farmers to stores (Maiasa Chokusou)" 28
Figure 8 Coop Tokyo: Information about pesticides inspections in the Internet 28
Figure 9 Seiyu: Detailed information about local supply (maps and pictures of farmers), introduced as "transporting from the nearest production area, just after harvested, and they are very fresh!" 28
Figure 10 Labeling of Bananas, Banana which was grown with less pesticides in contracted plantation 29
Figure 11 Recycling VDF in Coop Tokyo 30
Figure 12 Recycling organic wastes generated from stores 31
Figure 13 Life Cycle Assessment of Food Supply Chain concerning Waste Management (Input) 34
Figure 14 Life Cycle Assessment of Food Supply Chain concerning Waste Management (Output) 35
Figure 15 Closing the Loop 37

Chapter 1: Introduction

Environmental Supply Chain Management (ESCM) has contributed to reducing environmental impacts with various approaches. Examples of this are increasing cooperation with suppliers and improving transportation efficiency. However, loss of consumer trust caused by food scares such as Bovine Spongiform Encephalophy (BSE) and Genetically Modified Organisms (GMOs) gave an opportunity for food retailers to reconsider ESCM. Increasing consumer interests in Health, Safety and the Environment (HSE) and Corporate Social Responsibility (CSR) caused by the food scares encourage food retailers to seek further sustainability by adding HSE and CSR aspects to ESCM. This research takes a holistic view to look at ESCM practices of food retailers concerning HSE and CSR. The key issue in this research is to identify the strategies involving decisions concerning local and long-distance supply.

1.1 Environmental Supply Chain Management

Firstly, the basic understanding of ESCM is important to explain this research topic. ESCM is a management tool which is used to reduce environmental impact in every process in the supply chain. Zsidisin and Siferd (2001) explain that "ESCM for an individual firm is the set of supply chain management policies held, actions taken, and relationships formed in response to concerns related to the natural environment with regard to the design, acquisition, production, distribution, use, reuse, and disposal of the firm's goods and service". As the practices of actors in the supply chain are closely related, involvement of actors in the supply chain is a key for the success in ESCM. By cooperating with actors in the supply chain, environmental impact can be reduced beyond the limitation of each boundary. Zsidisin and Siferd (2001) argue that a firm's strong relationship with certain suppliers can better align their interests and goals with those of their supplying firms. It is also critical that actors in the supply chain require the leadership of a focal company, which serves as a promoter in the supply chain. Without the leadership of a focal company, the cooperation of players in the supply chain may not be achieved. There are various forms of cooperation such as information gathering, setting mandates and standard, knowledge transfer, and partnership (Green Business Network and The National Environmental Education & Training Foundation. 2001).

ESCM in the food supply chain is of great importance, as food is a major contributor to the national gross domestic product, international trade, public health and welfare (Bran and Shelleman, 1999) and food is the one that cannot be separated from our lives. It means that ESCM in food retailing especially has social, economic, political, and environmental importance in terms of volume and frequency. Therefore, food retailers should seek sustainability in their practice, which can be achieved by applying ESCM.

Many approaches have been taken by food retailers so far to improve ESCM. Such examples are to increase transportation efficiency and energy efficiency in stores, and to reduce packaging. However, one of the most important approaches to ESCM for food retailers is cooperation with suppliers in the purchasing process, as the quality of the products in the stores is of great value and quality can be different depending on the

relationship with suppliers. If a firm's relationship with suppliers is good enough to improve the quality of the products by sharing information, the quality of the products could be assured. Therefore, it is necessary for food retailers to have successful linkages in food supply chains because of the shelf life constraints of food products and increased consumer attention to safety and environment and animal-friendly production methods (Boehlje et al., 1995). This means, on the other hand, if food retailers are not careful enough with the relationship with suppliers, a supply risk could occur. Supply risk is "the potential occurrence of an incident associated with inbound supply from individual supplier failures or the supply market, in which its outcomes result in the inability of the purchasing firm to meet customer demand or cause threats to customer life and safety" (Zsidisin, 2002). Supply risk can cause loss of consumer trust, damage of corporate image and even could force companies into bankruptcy.

1.2 Increasing interests in HSE and CSR

Supply risk is one of the reasons why food retailers have emphasized ESCM in the past few years, as food scares such as the BSE disease and GMOs caused loss of consumer trust. Therefore, an interest in safe and sustainably produced food has been growing among consumers (Jongen and Meulenborg, 1998). According to Inger Klöfver at Swedish EPA, "Increased requirements for health, safety and environment put increased pressure on the food industry. This is a complex area, with many links from production to the consumer and waste stage" (Swedish Environmental Ministry, 2000). This implies that the practice of ESCM by food retailers should cover a broader area including HSE and CSR. Food retailers cannot avoid dealing with the issues about HSE and CSR as they have direct connections with consumers.

Responding to the needs of HSE and CSR among consumers, the recent trend in ESCM is going toward local supply. Local supply can reduce food miles meaning that they contribute to saving energy in transport and in storage. The shorter supply chain also enables to assure traceablity[1], better quality and less environmental impacts if it is well organized. It means that local supply can encourage HSE. Furthermore, local supply can internalize externalities stemming from environmental degradation. Waste could be reduced by a well-managed logistic system through local supply chain. Local supply is a way to encourage the vitality of rural areas and sustain the national food strategy (Forsman and Paananen, 2001). By promoting vitality of rural areas, companies can also promote CSR.

It is true that there is a limitation of local supply due to seasonal changes and consumer preferences, however, the efforts to increase local supply surely contribute to sustainability in ESCM. Focus on local supply makes it easier for food retailers to sell fresh products with high quality in stores.

Long-distance supply, on the other hand, should also promote fair trade and handle concerns related to CSR and HSE because long-distance supply cannot be avoided, as seasonal changes and consumer preferences always exist. Special concerns about child labor and bad working conditions in the developing counties have been focused on and social responsibility and ethics of companies have been widely discussed in recent years. So it is also critical for food retailers to deal with long distance supply in terms of HSE and CSR. One

[1] the ability to trace the history, application or location of an entity by means of recorded identifications

example for food retailers to promote HSE and CSR is to have close contacts with suppliers overseas. By doing so, the quality of the products could be handled better and ethical issues could be assured. As a result, it can contribute to HSE and CSR.
By dealing with HSE and CSR through local and long distance supply, food retailers can gain benefits, such as costs reductions, greater operational efficiencies, and enhanced value to customers. Furthermore, brand image by contributing HSE and CSR gives companies a great advantage. In a whole, contribution to HSE and CSR leads companies to increased competitiveness.

1.3 Objective and Scope

The objective of this research is to bring understanding of the practice of ESCM taken by food retailers, especially about local and long-distance supply, responding to customer demands of HSE and CSR. This research also intends to compare practices of food retailers in Sweden and Japan.

The main research question is:

- How do food retailers deal with local and long-distance supply in order to respond to customer demands of HSE and CSR through ESCM?

This is followed by subsequence questions:

- What have food retailers done to enhance HSE in ESCM?
- What have food retailers done to enhance CSR in ESCM?
- How do food retailers cooperate with suppliers?
- What are the other activities to support local and long-distance supply in ESCM?

1.4 System Boundaries

Setting system boundaries makes clear the contents of the thesis. Referring to ESCM means from the soil to the kitchen, however, main discussions are about the purchasing process of local and long-distance supply. In addition, the other ESCM practices related to local and long-distance supply are also explained. This research tries to take a holistic view expecting to seek further sustainability by adding view of HSE and CSR to ESCM. However, to encompass the entire issue is too broad, therefore this research does not go into details in political, economic, and legal factors. In regards to ESCM, details of supplier selection, ICT, transportation, packaging, and waste management are not mentioned but some of them are partly described.
In order to gain better knowledge, focus has been on fruit and vegetables because of their importance of quality and the volumes sold in stores.

There are various definitions of local supply. A definition of local supply refers to “food that are grown and processed in purchasing area, be it a locale, a country or a region” (Morgan and Morley, 2003). There is a discussion that local supply is the products sourced domestically. CPRE suggests that local food should be “one where the main ingredient has been grown and target and processed within 30 miles of the store”(CPRE, 2003). However, supermarkets usually purchase food in regional level (The Working Group on Local Food, 2003). Therefore, this research suggest that local supply should be products which are grown in 300km from

stores and the rests should be the long-distance supply.

Suppliers in this research are defined as farmers and farmers' association for the first place in local supply, however, in long distance supply, it means more than farmers and farmers' associations due to the complicated chains.

In order to cover the objectives, the thesis is written in the following manner: In chapter two, method and material are described to show how and why the thesis is structured. Chapter three discusses the theoretical framework for this thesis. Starting from basic knowledge about ESCM, chapter three identifies the relation between HSE and CSR, and local and long-distance supply. Chapter four explains the case studies and their result. Two cases in Sweden and two cases in Japan are compared and discussed. Furthermore, overall discussion and suggestions are added. In the end, chapter 5 shortly summarizes the conclusion of this thesis.

Chapter 2: Method and Material

Firstly, research can take either quantitative or qualitative form. While quantitative research takes apart a phenomenon to examine a components parts, qualitative research can reveal how the all parts work together to form a whole (Patton, 1987). In other words, qualitative data is used to give depth and detail through direct quotation and careful description of program situations, events, people, interactions and observed behavior (Patton, 1987). In order to see how food retailers are dealing with CSR and HSE through ESCM, close observations are required. Therefore, this research is based on qualitative methods.

Secondly, qualitative research takes various forms. Major types of qualitative researches are the *basic* or *generic qualitative study, ethnography, phenomenology, grounded theory, and case study*. The *basic or generic qualitative study* outlines exemplification of the characteristics of qualitative research and includes description, interpretation and understanding. *Ethnography* focuses on society and culture, uncovers and describes beliefs, values, and attitudes that structure the behavior of a group. *Phenomenology* is concerned with the essence or basic structure of a phenomenon. *Grounded theory* is designed to inductively build a substantial theory regarding some aspect of practice. *Case study* is an intensive, holistic description and analysis of a single unit or bounded system. The five share the common characteristics, whereas they are distinguished from each other regarding disciplinary orientation (ethnography, phenomenology), function (grounded theory), or form (case study, basic or generic qualitative study). Among the options of types of qualitative researches, case study seems to be appropriate to this research because case study gives in-depth understanding of the situation and outcomes. (Symon and Cassell, 1998)

Four case studies were selected in this research, as it is difficult to compare cases if the number of cases is too big. Ragin (1987) discusses that it is manageable to compare two to four positive cases with the same number of negative cases to compare because it is not difficult to identify similarities among the cases. Therefore, this research describes two cases in Sweden and two cases in Japan.

The choice of the countries is based on the fact that both Sweden and Japan are developed countries with advanced retailing systems and have experienced a loss of consumer trust by food scares. However, there are still many differences of cultural background between Sweden and Japan. The differences are to be discussed in the background of the case studies.

The selected companies in each country are major food retailers and have good reputation of environmental practice. The companies are Coop Sweden, ICA in Sweden, Coop Tokyo and Seiyu in Japan. All of the companies publish sustainable reports.
Coop Forum was approved as the first environmentally conscience supply chain as all the hypermarkets satisfied the Swedish Society for Nature Conservation's criteria for Good Environmental Choice. Seiyu's environmental report was awarded as the best environmental report in 2002 by a famous newspaper publisher.

Toyo Keizai Inc. (Toyo Keizai, 2002). Coop Tokyo was awarded a "Green Consumer Encouragement Award in Tokyo Metropolis"(Coop Tokyo, 2003).

Thirdly, interviews were performed as a means of collecting information. There are three types of interviews, which are *highly structured/standardized, semi-structured, and unstructured/informed*. The *semi-structured interview* is between highly structured and unstructured. *Highly structured/standardized interview* is used to obtain the same information from each person interviewed. However, the *highly structured interview* restricts the pursuit of topics or issues that were anticipated due to the reliance on written questions. In the *semi-structured interview*, specific information from respondents as well as information which is flexible to the respondents can be collected. In addition, the *semi-structured interview* is effective when respondents have limited time. *Semi-structured interviews* also reduce bias that stems from having different interviews for different people, including the problems of gaining different amount of data depending on the persons interviewed. This research takes the semi-structured interview as a type of interview due to the effectiveness and limited time. (Patton, 1987)

In order to ask for interviews, emails were sent to environmental managers or the manager in the quality and environment department. Then a questionnaire was sent to the managers one-week in advance of interviews. The managers chose the proper interviewees based on the research questionnaire. Since the questionnaire cannot be modified once interviews have started, it is important to have a well-prepared questionnaire. My supervisor advised me on how to check, re-check and prepare the questionnaire properly.

In qualitative research and especially in case studies, there is a discussion about confusion between investigator's ideas and data (Ragin, 1987). Therefore, researchers should be sensitive to the biases and be aware of the possible confusion. This research tries to pay attention not to be biased as much as possible by observing the cases from various points of view.

In interviews, it is important to have critical views to some extent, because companies can give untrue information to pretend that they are "good". The behavior is called "greenwash", which means "disinformation disseminated by an organization so as to present an environmentally responsible public image"(Johannesburg Earth Summit, 2002). In response to an increasing consumer interests on social responsibility, some companies inform consumers that they are contributing to the society by improving environmental performance and social performance in public, even though they actually conceal their practices which could damage environment or exploit labor. It means that the companies pretend to be good in order not to damage their brand image. This research tries to be critical toward all the stories from managers in environmental sections therefore their practices are further examined by checking their stores. For example, a manager said that they promote KRAV labeled products in stores. Then a store was checked if they actually promote KRAV labeled products or not.

2.1 Interviews with Food Retailers in Sweden

COOP and ICA are major food retailers as they are described as two of the three large players in food retailing in Sweden. The three major players in food retailing in Sweden are ICA Ahold, Axfood and cooperative COOP (Euromonitor International, 2002). Interviewees in companies were managers in the environment and quality department and in environmental affairs. Questionnaires were sent out a week before the interview to allow the interviewees to prepare. The length of the interviews was about 1 to 2 hours. They were conducted in August, 2003. In addition, there was an additional interview with a storeowner of ICA as storeowners are allowed to choose suppliers and they can provide more detailed information than its headquarter, ICA Handlarnas AB.

2.2 Interviews with Food Retailers in Japan

Different from the situation in Sweden where there are a few major food retailers, in Japan major food retailers are general merchandizing stores (GMS) who also deal with clothing and housing goods. Seiyu and Coop are chosen among some of the big retailers in Japan who are advanced in environmental issues. Even though Seiyu and Coop are GMS, they have strength in food and the scales of stores are quite similar to those in Sweden.

Interviewees in companies were directors of produce departments in the food division and managers in the social environmental group and in environmental affairs. Questionnaires were sent out a week before the same as the case with the interviews in Sweden. The length of the interviews was about 2 hours. They were conducted in July, 2003.

2.3 Prior Research and Literature Review

Through this research project, few research reports are actually found in the fields of ESCM in food supply chain focusing on HSE and CSR. Most of the research discusses consumer trust, the greening of the supply chain, green purchasing, HSE and CSR, and local supply independently. These studies are shown briefly in the following sections.

2.3.1 ESCM / Green Supply Chain Management

Narashimhan and Carter (1998) define ESCM with a focus on the purchasing process. Later Zsidisin and Siferd (2001) give an enhanced definition of ESCM, which expands the focus on ESCM to include transportation efficiency, waste management, packaging and more from the input of raw materials to the recycling process.

Halberg et al. (2003) used LCA as a tool for environmental management in food production and examined environmental impacts from the soil to the kitchen. Fehr et al. (2002) also conducted a research about waste management in the food supply chain in Brazil, which intended to find out how much wastes could be reduced with the help of LCA. It shows that the rate of lost fruit and vegetables accounts for 16 % of the total quantity commercialized. The discussion here is the existence of wasted fruit and vegetables at the wholesale and retailer levels.

2.3.2 HSE and CSR

Firstly, HSE and CSR need consumer trust as a basic requirement. Consumer confidence in food retailers consists of various factors. However, the main focus is on quality and safety of the products. Nelson (1970, 1974) and Darby and Karni (1973) describe attributes which can distinguish food quality in consumer markets. One of the most important attributes is information provided to consumers. However, as Bagwell and Riordan (1986) considered an informed consumer model where consumers enter the market sequentially, some consumers will know the quality and some will not. Efforts to give equal information may increase efficiency. According to Dichter (1985) and Herbig at el. (1994), the corporate image can be promoted rapidly by technological breakthroughs and unexpected achievements or, conversely, destroyed by neglecting the needs and expectations of the various groups who interact with the firm.

With regard to CSR, a report from International Business Leaders Forum (2002) discusses CSR for the multinational food and beverage sector in terms of sustainable agriculture, ethical trade, and food safety, and nutrition, lifestyle and marketing. A survey by UK National Food Standards Agency found that 10% of respondents checked regularly for ethical information such as animal welfare and fair trade when purchasing food products (Nilsson et al, 2002).

2.3.3 Effects of Local and Long-distance Supply Chain

A report by the Foundation for Local Food Initiatives (FLAIR, 2000) discusses that the local food sector contributes to sustainable development across all aspects in both urban and rural areas, and enables the environmental, social and economic assets of a region to be restored. A research about environmental aspects of a local food supply system (Thomsson and Granstedt, 2001) was also conducted in Järna, Sweden. Its intention is to search effects on the environment and natural resource consumption, economic consequences, and documentation of the process (driving forces, motives and obstacles for consumers and other actors).

Morgan and Morley (2003) performed a research intending to find current conflicts in the food chain, especially referring to the barriers to localization and the role which public procurement might play in overcoming these barriers. The research shows the importance of the local supply and suggests the ways to increase local supply.

The “Campaign to Protect Rural England” (CPRE, 2002) discussed the important role of supermarkets in promoting demand for local food products as the supermarket dominates grocery sales in the UK. Therefore, CPRE suggests that supermarkets should set a clear definition for local foods and targets of sales of local food.

An additional research (Smith and Sparks, 2003) discusses that the modern consumers’ need for food in the store is actually good quality and a decent shelf life. This means that retailers have more chances for the products to be purchased and to satisfy consumer needs if the retailer can present products attractively and extend their shelf life.

2.4 Hypothesis

Earlier discussions identify that few research reports discuss ESCM considering HSE and CSR aspects. Therefore, this research takes a holistic approach to ESCM with HSE and CSR aspects integrating prior research information and the author's experience.

In short, the hypothesis in this research is that increasing focus on local and long-distance supply to pursue HSE and CSR in ESCM gives competitiveness to food retailers. Furthermore, more efforts on contributing HSE and CSR through ESCM add more value to companies.

The following discusses the details about the hypothesis. Figure 1 shows the changes overtime in focus on ESCM.

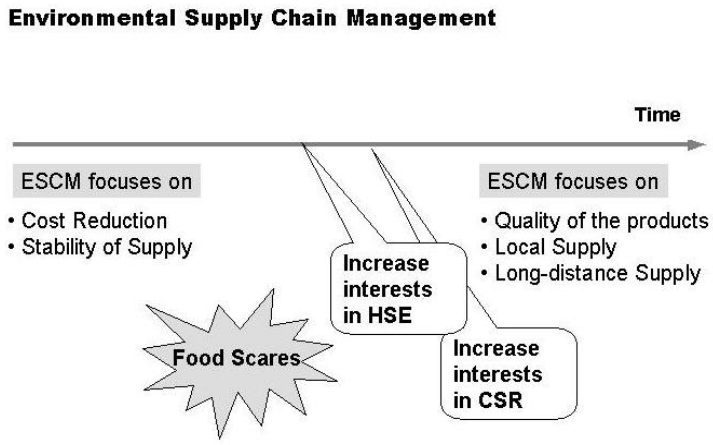

Figure 1 Changes in Focus in ESCM

Before food scares were caused, focus in ESCM was mostly on cost reduction and stability of supply. As food scares had large impacts on consumers, it resulted in increasing consumer interests in HSE and also CSR. So the focus in ESCM moves to quality of the products, local supply, long-distance supply and so on, which considers HSE and CSR.

The following Causal Loop Diagram (CLD, Figure 2) describes the hypothesis of this research in detail. A CLD is a way to show the relations among many factors. Arrows convey the effects in the indicated direction. Plus and minus signs identify the balance of the two factors connected by an arrow. For example, under the condition that the arrow goes from A to B and the sign of the arrow is plus, if A increases, B also increases. On the other hand, under the same condition but the sign is minus, if A increases, B decreases.

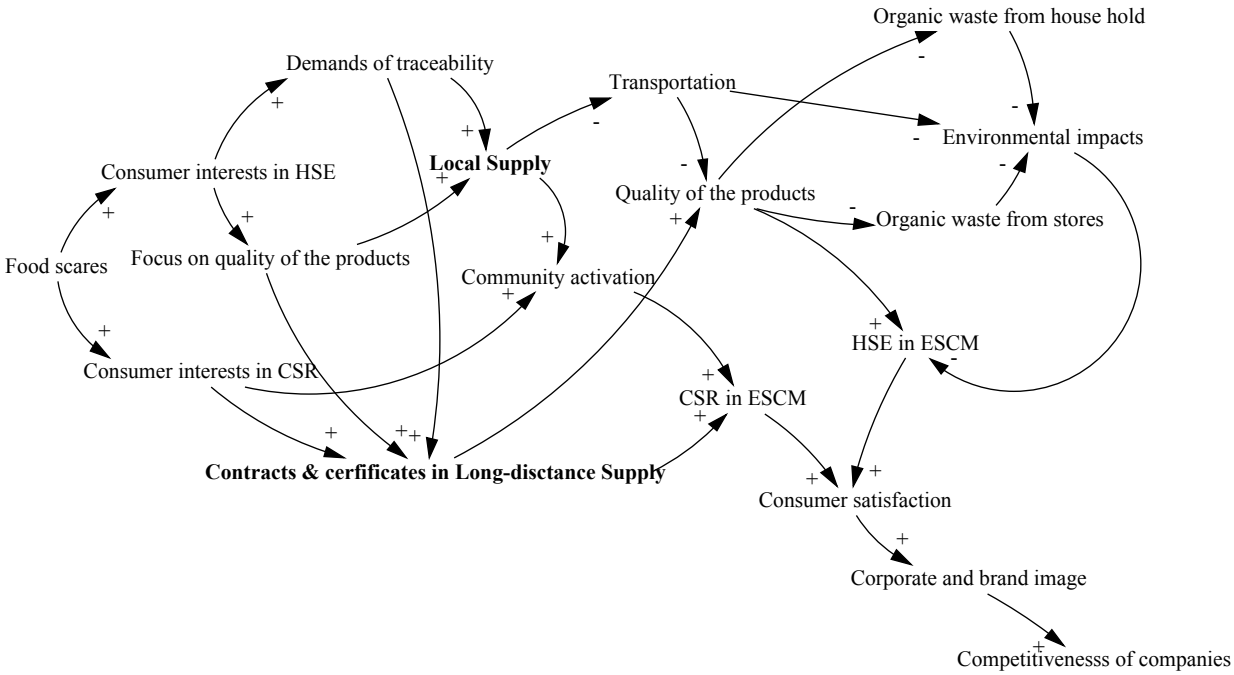

Figure 2 Causal Loop Diagram of ESCM

Firstly, starting from the left side, food scares resulted in growing consumer interests in HSE and CSR. Consumer interests in HSE increased demands of traceability and focus on quality of the products. Demands in traceability encouraged local supply, as local supply is one way to simplify the supply chain to seek traceability. Focus on quality of the products is another factor to increase local supply. If local supply is promoted and amount of local supply increases, transportation decreases. If the transportation is shortened, quality of the products could be improved and shelf life could be prolonged. If the quality of the products is improved, organic waste from stores and from households can be decreased as the shelf life of the products becomes longer. If the organic waste and transportation is cut down, environmental impacts are reduced which increases HSE in ESCM. An increase in local supply also motivates community, which adds further CSR factors to ESCM.

By contracting and giving certificates to suppliers, companies can respond to growing demands of traceability, and focus on quality of the products. If quality of the products improves, less organic waste could be generated as it is described in local supply. It will increase HSE in ESCM. Consumer interests in CSR could make more contracts and certificates in long-distance supply because better relations with suppliers regulate ethical problems such as child labor. It will increase CSR in ESCM.

If CSR and HSE in ESCM are improved, corporate and brand image could be improved. Improved corporate and brand image will add competitiveness to companies.

To make the CLD simple and view from other aspects, Figure 3 shows relations of the factors in ESCM briefly.

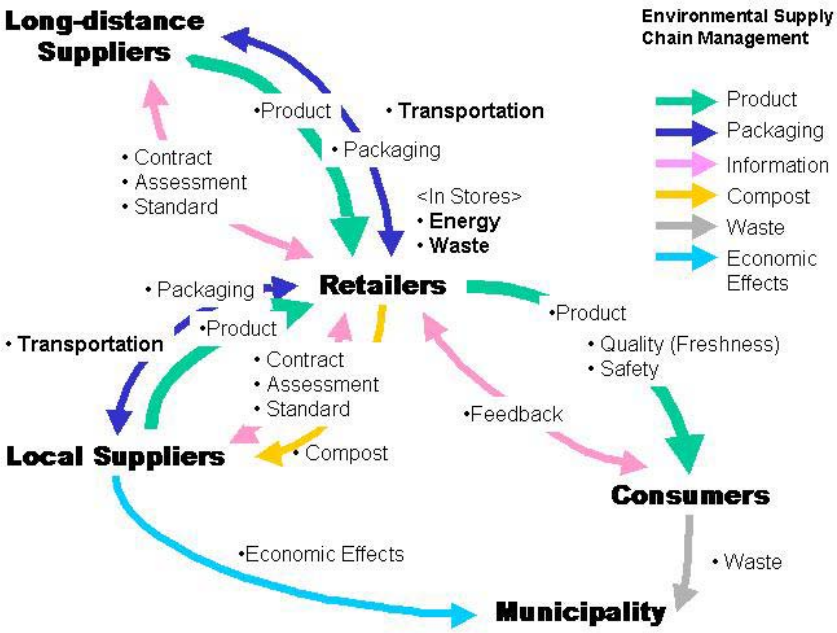

Figure 3 Causal Loop Diagram of Food Supply Chain

The products are delivered both from long-distance suppliers and local suppliers to retailers, and from retailers to consumers. Concerning the process, quality of the products and safety (traceability) are important. Transportation and packaging are also another other issues to be considered.

For suppliers to retailers to improve quality of the products and assure the safety of the products, information sharing is critical, which can take the form of contracts, assessment, and standard setting. Retailers also can share information with consumers as feedback to improve ESCM.

With regard to waste management, waste from the stores of food retailers and from consumers should be included in the system. In addition, economic effects of the growing local supply should be counted.

Chapter 3: Analytical Framework

This chapter presents the theoretical framework for analyzing ESCM, ESCM with LCA, HSE, CSR, local supply, and long-distance supply.

3.1 ESCM Theory

There are many approaches to improve ESCM and approaches can be differentiated by motivations. ESCM usually starts with selecting targets, goal setting and choosing approaches. The following part describes the basic process of ESCM and focuses on the purchasing process.

3.1.1 Motivations to promote ESCM

There are underlying motivations for companies to deal with ESCM. The motivations are closely related to the company's benefits and strategies. The following part explains a company's motivations to contribute to ESCM. According to a paper published by Green Business Network, and The National Environmental Education & Training Foundation (2001), the common motivations are showed in Table 1;

Primary Motivations	
Internal	**External**
Risk Management • Supply interruption • Long-term risk to human health and the environment • Competitive disadvantage	**Enhanced Brand Image** • Corporate culture of forecasting trends and moving proactively • Potential harm to public image due to environmental concerns
Regulatory Stance • Desire to go beyond compliance • Suppliers knowingly or unwittingly provide materials containing problematic substances • Suppliers non-compliance poses production risk	**International Purchasing Restrictions** • Eco-labeling and production takeback gaining momentum • May drive the creation of system for collection • Frequently focused on high-profile brands, transport, and disassembly or recycling
	Customer Pressure • Often appears in conjunction with a threat to brand image • Frequently focused on high-profile brands
Secondary Motivations	
Cost reduction as suppliers apply pollution prevention	**Increased Innovation** •Can result from supplier participation in new product development
Enhanced Quality	

Table 1 Motivations for undertaking ESCM

(Source: The National Environmental Education & Training Foundation, 2001)

Firstly motivations are divided into primary and secondary depending on intensity. Then motivations are categorized as internal and external. Internal motivations are likely to be proactive to overcome challenges. On the other hand, external motivations are mostly reactive in response to the potential for product liabilities, environmental degradations and so on (Green Business Network, and The National Environmental Education

& Training Foundation, 2001).

The motivations described above usually are strongly linked and powerful. Examples of common linkages are brand image in combination with customer pressure; international restriction with regulatory pressure and risk management and any of the secondary motivations joined with some other corporate strategic initiatives such as outsourcing and reduced time to market.

Based on the motivations, the most common goals of ESCM for companies are (Green Business Network and The National Environmental Education & Training Foundation, 2001):

- Optimizing environmental performance
- Securing a stable supply chain
- Reducing costs
- Improving quality
- Enhancing brand image

In other words, Supply Chain Management (SCM) deals with ensuring quality, continuity of supply, the control of costs, customer service, and increasing profits (Webster, 2001).

3.1.2 Approaches to ESCM

Once targets are set, companies need to choose approaches to achieve the targets. Common approaches in operational contexts are the following (Green Business Network and The National Environmental Education & Training Foundation, 2001):

- Information-gathering
- Mandates and standards
- Knowledge transfer
- Partnership

Relationships related to the goal of improving the environmental performance come from the interaction of an organization with the government, suppliers, customers, and competitors (Carter and Ellram, 1998). However, relations with suppliers are critical in that their interactions are intensive.

Information-gathering is to check suppliers' compliance status and to provide information for developing and refining ESCM. Mandates and standards are used as a way to screen and qualify suppliers. Knowledge transfer includes educating suppliers about issues of concerns to customers and direct technical assistance to suppliers or mentoring. A long-term commitment to work with suppliers builds their skills and knowledge. Partnership with companies in the supply chain encourages and supports integrated approaches to improving environmental performance.

Current research has showed an overarching need for clear and timely communication between customers and suppliers to effectively address environmental issues. The more collaborative the relations are, the more

possibility for success in environmental initiatives exits. It is also important to establish a proper channel of communication to ensure the right people are communicating within their own companies and between the customer and supplier companies (Business for Social Responsibility Education Fund, 2001).

In the supply chain, the most powerful company usually has an opportunity to strategically influence the supply chain's attitudes and actions toward the way in which environmental responsibility is upheld (Walton et al., 1998).

3.1.3 Purchasing Theory

It can be seen that the relationship with suppliers takes a critical role, therefore one of the most important factors for effective approaches in ESCM is Environmental Purchasing (EP). Environmental purchasing is obviously a subset of ESCM, however, it can hold a very large subset depending on an organizational structure and the importance of the purchasing function.

Carter and Carter (1998) and Narasimhan and Carter (1998) define environmental purchasing as "the set of purchasing policies held, actions taken, and relationships formed in response to concerns associated with the natural environment. These concerns relate to the acquisition of raw materials, including supplier selection, evaluation and development; suppliers' operations; in-bound distribution; packaging; recycling; reuse; resource reduction; and final disposal of the firm's products.
Supply chain activities which are important for environmental performance include marketing, customer relations, distribution, product design, order management, and manufacturing (Zsidisin and Siferd, 2001).

Purchasing fuctions as boundary spanning, which connects a firm with suppliers who provide the necessary goods and services for the purchasing firm's production or service process. Purchasing also covers quality issues. Therefore, environmental purchasing should start with the design phase and continue through final disposal of the product since firms must take a "holistic" perspective of their actions. (Zsidisin and Siferd, 2001).

A move towards more sustainable production and consumption systems will require purchasing policies that take into account the environmental impacts of production, packaging and transportation of food products (Hyde at el., 2001).

3.2 Health, Safety and Environment in ESCM

Health, Safety and Environment (HSE) has not been discussed much in ESCM contexts. However, HSE is related to quality and environmental issues, which have been focused on ESCM. ESCM is vital for companies to improve quality and environmental performance, and relations between actors in supply chain are factors for success in ESCM.

Jongen et al. (1998) discuss that quality assurance is of great importance to all companies and organizations

involved in the production, sales and handling of food. Food businesses are required to demonstrate their commitment to food quality and establish an appropriate product quality program. The focus on quality with environmental consciousness through product process design affects the impact on natural resources and the environment. Quality management is thus tied with environmental practice, and improvements in quality could drive out the waste in a system (Zsidisin and Siferd, 2001).

3.3 Corporate Social Responsibility in ESCM

Corporate Social Responsibility (CSR) is also a new concept in the ESCM context. There is an increasing awareness of internal and external social issues, and broader interpretations of the meaning of corporate stakeholders. Such awareness has put pressure on companies to reconsider their product design, human rights in the light of business ethics and environmental and social responsibility gradually (Dunphy at al., 2003). To observe CSR in more detail, it suggests that firms should avoid trading with organizations that exploit workers and do not pay minimum wages, or companies with unethical investment sources, and that compromise the health and safety of their workers (Wade, 2001).

For the food supply chain, CSR has considerable influence. Carter and Jennings (2002) suggests that Purchasing Social Responsibility (PSR) has a direct and positive impact on supplier performance. It also increases cooperation and trust indirectly. Therefore, the success in the area of CSR can be achieved through a holistic approach that looks across the entire value chain and through a wider commitment to promoting responsible business practices within the company (International Business Leaders Forum, 2002). Core CSR issues for retailers cover the supply chain, transport, and the direct social and environmental impacts of retailers' own operations (EACA, SustainAbility, and UNEP. 2003).

3.4 Balance of Local and Long-Distance Supply in ESCM

Life Cycle Assessment (LCA)[2] shows that local supply reduces CO_2 emissions compared to long-distance supply if it is handled well (Morgan and Morley, 2003). However, it is true that not all food is available locally and locally grown produce is only available on a seasonal basis. The concept of local food does not mean to restrict access to overseas products that cannot be grown domestically, but to buy local and organic food wherever it is possible (Soil Association, 2000). In addition, not every local supply result in reduction of CO_2 emission depending on how the products are grown such as in open land or in greenhouse.

There is another interesting finding of food supply chain, which is called 'food swap'. Food swap is 'an unnecessary exchange of the same products'. According to Morgan and Morley (2003), the UK imported 434,000 tons of apples including 202,000 tons which came from outside the EU in 1996, while over 60% of UK apple orchards have been lost since 1970. This also implies that by food swaps they externalize many costs of environmental degradations are externalized.

The balance of local and long-distance supply is a key to improving ESCM. Purchasing local supply when it

[2] one of the important tools to support ESCM, which reveals total input and output through every process to assess environmental impacts

is available contributes to the improvements in HSE and CSR factors, however it is sometimes beneficial to purchase from long-distance suppliers as well.

3.5 Local Supply in ESCM

Local supply seems to be a good alternative in ESCM to promote HSE and CSR. The following part explains local supply linkage with HSE and CSR, how to promote local supply, obstacles to promote local supply, and current trend in local supply.

3.5.1 Local Supply Link with HSE/CSR

Benefits from local supply are not only energy saving but also include social factors. Figure 4 describes the consequences and value of the use of local food.

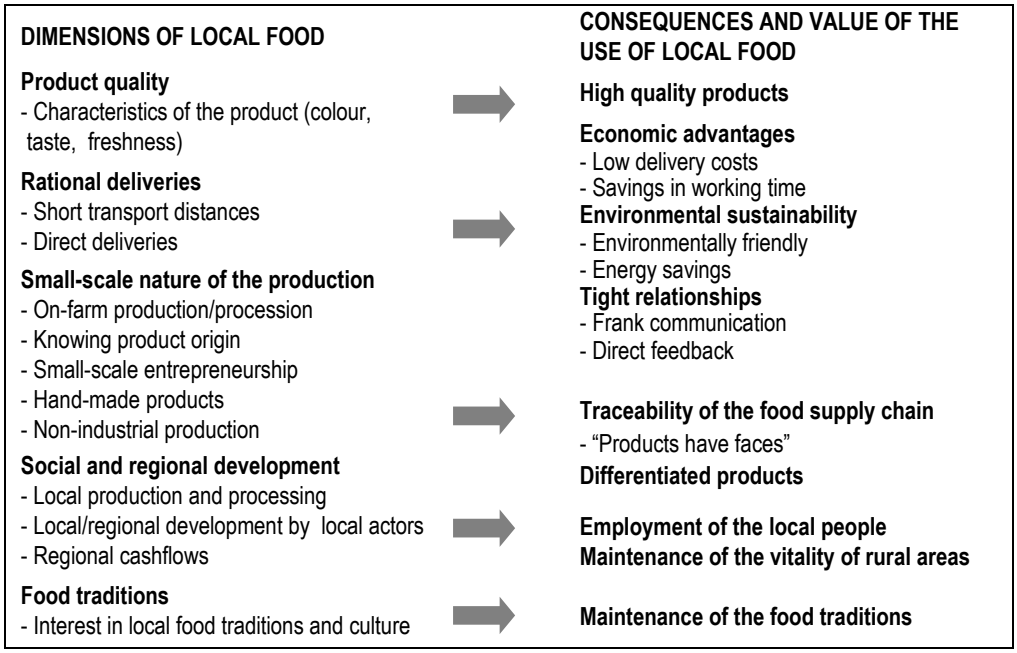

Figure 4 Dimensions, consequences, and value of the local food from the entrepreneurs' viewpoint (Source: Forsman and Paananen, 2001).

As Figure 4 shows, local supply has economic, environmental and social advantages. Environmental sustainability and encouragement of local community growth are closely related to CSR. High quality products also have close links with waste management as Zsidisin and Siferd (2001) discusses that quality management has strong ties with environmental practices by driving out the waste in a system (Forsman and Paananen, 2001). High quality and traceability of the food supply chain are related to HSE. In order to minimize wastes in a food supply chain, freshness and quality are of great value. In short, local produce offers a number of benefits including healthier diets, local markets for local producers, lower food miles, and a better understanding between producers and consumers and while also contributing to HSE and CSR (Morgan and Morley, 2003).

3.5.2 Promoting Local Supply

Local supply has been increasing in response to a growing focus on quality and environmental issues. However, the question of how local supply is promoted and how it can trigger local supply further still remains. One method that retailers can use to promote local supply is to encouraging local farmers and influence consumers.

Many of the supermarkets in the UK have 'local sourcing initiatives', which involves providing the training, and advice for small producers that helps them grow and develop their business (CPRE, 2002). Retailers also can cooperate with farmers to improve farmers' product prices by increasing the bargaining power of farmers or by introducing better quality or quality maintenance of food products. Regarding local purchasing, it is essential for retailers to share information with suppliers. By doing so, farmers and firms can create efficient and long-term relations with local customers (Forsman and Paananen, 2001).

Another approach in promoting local supply is to focus on downstream in the food supply chain by influencing customers. Retailers can earn trust and loyalty from consumers by providing reliable information of local products, e.g. by labeling (Morgan and Morley, 2003). Providing better quality also promotes more sales of local products.

3.5.3 Obstacles for Promoting Local Supply

Even though local supply is basically good for HSE and CSR, there are obstacles in promoting it. According to a study about promoting local food in the catering sector, there were identified four obstacles to overcome in the realization of local food system (Forsman and Paananen, 2001):

- Too small production volumes from local suppliers and inadequate resources to meet the demands of the catering business
- Too high price level
- Too much time consumed at the food service units in searching for new local products and creating new business relations
- The risk relating to reliability and regular deliveries concerning the new relationships

Another obstacle comes from consumer preferences. With increases of travelling overseas, the worldwide trend goes toward consumption of food outside the home (Jongen and Meulenborg, 1998). It also implies that customers require more varieties in food assortment, which can accelerate imports from long-distance.

In spite of the obstacles, the trend for local products has been gradually growing. The Environment, Food and Rural Affairs Select Committee of the Future UK Agriculture explains that the major supermarkets intended to increase their range of locally produced food according to their public (but unspecified) comment. (Morgan and Morley, 2003)

3.6 Long-distance Supply in ESCM

Long-distance supply is not avoidable as long as customer preferences go for exotic food. Depending on climate zone, long-distance supply will never be diminished from the market as seasonal changes exits. Therefore, food retailers could seek competitiveness by finding positive alternatives in long-distance supply to contribute to HSE and CSR.

3.6.1 Long-distance Supply linkage with HSE/CSR

One of the approaches to promote HSE and CSR in ESCM is fair trade. Oxfam[3] defines fair trade as 'giving poor people power through promoting sustainable development by improving market access for disadvantaged producers' (Anonymous, 2001). Fair trade is usually applied for products, which are imported from developing countries to developed countries by the "fair" prices which consider proper wages and other environmental and social costs. It is because in many cases developed countries exploit developing countries by importing extremely cheap products which do not include environmental and social costs from developing countries.

An example of promoting fair trade is the Ethical Trading Initiative (ETI). The Fairtrade Foundation sets up the ETI for fair trade, whose 'base code' includes labor relations, working conditions, working hours and discriminations. Some supermarkets which are members of ETI such as Asda, Tesco, Sainsburry, the Co-op and Somerfield in the UK are hoping to set up an initiative with Costa Rica banana growers, associated government departments and NGOs to audit the labor conditions of the growers intending to establish a standard of 'acceptable international level' of all produce. The supermarkets give assurance to consumers by showing labels, which also add value to the products. (Wade, 2001)

An important issue in fair trade is that also it contributes to improve quality of the product, which can also promote HSE. The increasingly well-informed customer is not only demanding ethical, fairly traded products, but fairly traded products with the quality and performance assured by verifications (Strong, 1996). Increasing cooperation with suppliers give opportunities to reduce negative impacts socially and environmentally.

3.6.2 Promoting Ethical Trading

A key issue in empowering fair trade is to guarantee labels, which functions as symbolic support, provide a distinctive sign of quality of the product (as a social construction), and act as a source of power for those who do the certifying (Renard, 2003).

Fair trade bananas are a good example of a success in labeling which has also increased their sales. The market for fair trade bananas has been expanding with global sales valued at 400 million dollars a year (Fair Trade Federation, 1999). As mentioned earlier, many supermarkets joined the Initiative to promote fair trade bananas. By efforts from many organizations, the European Fair Trade market is expanding by five percent

[3] a development, relief, and campaigning organization that works with others to find lasting solutions to fight against poverty and suffering around the world.

each year, with much more rapid growth in some areas (Murray and Raynolds, 2000).

3.6.3 Obstacles in Promoting Ethical Trading

Despite the expanding fair trade markets in Europe, there are obstacles in promoting ethical trading. One of the obstacles is the gap between demand and supply. Regarding banana in Europe, banana markets are huge therefore it could absorb roughly 25 times the volume of Fair Trade bananas currently available. The demand could be met either by finding many more smaller scale producers or to find ways to bring more large scale plantations into compliance with Fair Trade criteria, which are basically both difficult options. (Murray and Raynolds, 2000)

In addition, lack in well-developed refrigerated logistic system in transporting fruits from developing countries is a problem. Fair Trade banana shipment could be delayed and potentially affect their appearance and quality at the point of sales as bananas are perishable (Murray and Raynolds, 2000). This could further affect waste problems.

3.7 ESCM to Support Local and Long-distance Supply

Environmental purchasing contributes to reducing the environmental impact and adds more values to ESCM by considering HSE and CSR. However, purchasing is only one process in the food supply chain. Therefore, additional factors to improve ESCM are necessary to consider.

3.7.1 Transportation

Transportation is one of the key issues to reduce environmental impacts in the food supply chain drastically. Transportation efficiency is measured by the following key performance indicators (Logistic Research Centre, 2002).

- Vehicle fill
- Empty running
- Time Utilization
- Deviations from schedule
- Fuel consumption

Vehicle fill is measured by payload weight, pallet numbers and average pallet height. Empty running is the distance the vehicles ran empty. Time utilization consists of seven activities: running on the road, being loaded or unloaded, pre-loaded awaiting departure, awaiting loading or unloading, undergoing maintenance or repair, driver daily rest period and idle. Deviations from schedule are caused by various reasons. Fuel consumption includes both motive power and refrigeration equipment.

However, these indicators are used to measure and improve transportation efficiency based on the current system. Fundamental changes in the transportation system include relocating distribution center and outsourcing transportation. Both in local and long-distance supply, integrating and relocating distribution

centers enable lorry journeys and its contingent costs and energy to be reduced (Morgan and Morley, 2003). It means that integrating and reconsidering the transportation routes helps food retailers to reduce environmental impacts to a great extent.

3.7.2 Packaging

Packaging is usually defined as three layers, which are primary packaging, secondary packaging and tertiary/transportation packaging. Primary packaging is the one which has direct contact with the product. Secondary packaging is to handle the group of products, examples of which are cardboard, trays, plastic crates, containers, and plastic films. Tertiary/transportation packaging is to bundle a large number of products for transportation such as cardboards, containers, and pallets (Klooster, 2002).

For tertiary/transportation packaging, plastic pallets are often used in food supply chain as they are easy to clean. Multiple trip pallets are reusable ranging from anywhere between 50 to 100 trips (Hekkert, at el., 2000). Transportation packaging should take forms as either recyclable or reusable. However, it is true that reusable pallets weights more than recyclable pallets and reusable pallets require pool to be stored.

Packaging and waste are closely related. Optimized packaging objectives including waste reduction criteria must follow a process of extensive and open dialogue between supplier and supermarkets (Hyde et al., 2001).

3.7.3 Waste Management

Waste minimization can be achieved by both fundamental solutions such as to avoid or reduce the generation of waste and other solutions such as to handle waste by composting. To improve the quality of the product by prolonging the shelf life is one way to reduce waste. Another way to minimize biodegradable waste is to use waste as animal feedstocks/fodder and to apply composting technology. Both of the solutions return nutrients to soil and to the food chain, which creates a lifecycle through the food chain (Hyde et al., 2001).

A more efficient approach is to consider the waste management through the whole food supply chain. An example of reducing waste is to improve transportation. A research about shelf life identifies that shelf life has been notably extended due to improvement of temperature control. The shelf life of vegetables has doubled from 1987 and top fruit has extended it shelf life even more (Smith and Sparks, 2003).

3.7.4 Competitiveness

One of the biggest reasons why food retailers pursue HSE and CSR in ESCM comes from competitiveness. On the positive side, retailers can gain brand loyalty and reputation by appealing to consumers that they are active in HSE and CSR and the brand loyalty and good reputation give retailers certain competitiveness. On the negative side, any breaks in trust can impact the companies financially and result in loss of competitiveness (EACA, SustainAbility, and UNEP, 2003).

Chapter 4: Application, Results and Discussion

This chapter will give an overview of the four case studies in Sweden and Japan regarding local and long-distance supply in ESCM. In the later section, the cases in Sweden and in Japan are compared and further discussed in terms of differences and similarities.

4.1 Case Studies in Sweden

COOP and ICA were chosen as case studies as they are major food retailers in Sweden. In order to understand the case studies, background information will be given in the following sections.

4.1.1 Background

In order to understand the case studies, background information is necessary. The following information gives and overview about agriculture in Sweden, and a background of Swedish food retailing including eco-labeling.

4.1.1.1 Agriculture in Sweden

Agricultural fresh products in Sweden, which are vegetables, fruit, berries, ornamental plants and nursery plants, are grown both under glass and outdoors, mainly in southern Sweden. In 1999, more than 340 ha of greenhouses and 12,000 hectares (ha) of outdoor land are used for horticultural products. Due to the structural development in agriculture over the last few decades, there are small numbers of large-scale farmers with machinery and equipment. Most of the large farms are located on the southern plains. (Swedish Board of Agriculture, 2003)

4.1.1.2 Background of Swedish Food Retailing

The Swedish grocery market in 1999 accounted for 18.5 billion USD, which increased by 3.3% from 1998. The total number of food outlets including grocery stores, supermarkets, hypermarkets in Sweden are 6,400. Among them, the three largest Swedish grocery market chains are ICA, COOP (The Swedish Consumers' Cooperation) and Axfood. In 1999, the three largest players covered nearly 73% of the market volumes (UK Trade & Investment, 2003)

In Sweden, eco-labeling called "KRAV" is very popular. For the labeling to certify, KRAV inspections visit member companies and organizations at least once a year to ensure that they are complying with the regulations. For imported products, other bodies accredited to IFOAM approve them. Consumers can have trust in the credibility of ecological produce and guarantee of ecological products throughout the food chain from farmer to the kitchen. Until 1998, KRAV had certified 2,860 farmers and 127,000 ha, and 580 retail shops. Many food retailers offer fresh produce carrying the KRAV label. Some retailers have their own brands which are also eco-labeling. Ecological food is usually more expensive than equivalent

non-ecological products, but many people are likely to be ready to pay. As the competition increases, prices can fall. (Croall, 2003)

4.1.1.3 Purchasing Process in the Two Companies

The two companies, Coop Sweden and ICA have different organizational structures in the purchasing process. Whereas Coop Sweden has a consolidated purchasing process in their headquarter, ICA gives each storeowner the choice of suppliers to some extent. Storeowners in ICA have authorities to choose about 30% of total purchases. It is because ICA gives room for storeowners to have choices in store operations. This means that in Coop Sweden negotiation with suppliers take place at headquarters and purchase are made by a large bulk, while in ICA both the headquarters and storeowners are involved in the purchasing process. (Coop Sweden, 2003, August and ICA, 2003, August)

4.1.2 Local Supply in Sweden

The following sections illustrate changes in the trend of local supply, contracts with local farmers and influences on local farmers.

4.1.2.1 Trend of Local Supply

Interviews with both companies (Coop Sweden, 2003, August and ICA, 2003, August) suggest that the amount of local supply has not changed so much over the past few years. According to the interviews, it is due to geographical reason that farmers can grow vegetables and fruits only for a short time throughout a year. Coop Sweden actually reduced the amount of local supply because of the diminishing number of suppliers and to assure quality of the products. It can also be added that the purchasing process in Coop Sweden is integrated in headquarters so that it is difficult to change suppliers depending on location. According to the interview (ICA, 2003, August), ICA also did not increase local supply overall, however some ICA stores located in the southern region of Sweden called Skåne where most farmers are located, increased local supply to some extent. This geographical variation is because there is more local supply available in southern Sweden and storeowners in ICA have the right to choose suppliers to some degree. In addition, local supply is rather smaller in amount than long-distance supply in both companies in Sweden.

The important issue here is that in Sweden the trend of local supply is not taking enough perception, although organic products have surely become popular. Both companies expressed that sales of organic products were increasing by 20% a year in recent years. Therefore, they are increasing organic products. According to a report from COOP GROUP (2002), total sales of eco-labeled or organic foods in Sweden in 2002 were 36,300 tons (Figure 5). ICA supplies it's own brand for KRAV-labeled organic groceries called ICA Ekologiskt.

Figure 5 Vegetables with KRAV label

4.1.2.2 Supplier Relations to Encourage HSE in Local Supply

To contract with farmers or farmers organization is a way for retailers to assure quality of the products. There are only a few contracts with local farmers in both companies according to the interviews (Coop Sweden, 2003, August and ICA, 2003, August). In this case, the small amount of local supply gives a limitation on the number of contracts with local farmers in both companies. Both of the companies have contracted with local farmers in Skåne.

According to the same reason that the companies have relation with only small numbers of local farmers in Sweden, their influences on local farmers are not obvious. Coop Sweden gives no direct influences on local farmers to alter their production. However, they are actively looking for organic farmers. ICA affects local farmers indirectly by sharing information such as GMO, pesticide, and antibiotics use with LRF, the farmers' organization in Sweden. ICA discussed in their report (ICA, 2002) that ICA demands for fruit and vegetable growers to be certified in accordance with Eurep Gap, which is a European partnership that has developed agricultural standards for quality, controlled fertilizer use, the use of chemicals and the protection of people and the environment. ICA also supports integrated production (IP), a cultivation technique with limited use of fertilizer and pesticides

In addition, ICA (2002) discussed with the Swedish National Food Administration and the National Board of Agriculture and increased its pesticide inspection of fruit and vegetables. It is because authorities are responsible in checking pesticide, however, due to financial cutbacks, that they decreased their numbers of inspections.

4.1.2.3 Encouraging Consumers

In order to promote local supply, it is important to encourage consumers to buy local products. Because of the small amount of local supply, Coop Sweden does not have any opportunity to promote consumers to buy locally produced products. In ICA, especially in stores located in southern Sweden, advertisement of local products is used to promote the purchase of local supply. (Coop Sweden, 2003, August and ICA, 2003, August)

However, both companies encourage consumers to buy KRAV or ecological products. Coop Sweden discusses in their report (Coop Group, 2002) that they are active in providing information about organic and eco-labeled products to customers, decision-makers and organizations. Coop Sweden also has an orange sign, the Health Sign, in both stores and advertising to help consumers to choose health products.

ICA has a call center, ICA Customer Call Center to receive consumer feedback. Brochures of the dialogues with customers including in-house materials about issues such as food safety and food allergies are available at stores and can be ordered from ICA's website.

4.1.3 Long-Distance Supply in Sweden

This section is based on the questions about long-distance supply in the interviews, which are about how

they improve efficiency in long-distance supply, product quality after transportation, and CSR.

4.1.3.1 Improving Efficiency in Long-distance Supply

Coop Sweden has increased the amount of their imported products. However, they try to improve efficiency in transportation. For the dried products, rail transportation is chosen and for fresh products, road transportation is selected. (Coop Sweden, 2003, August)

ICA improves the whole transportation itself by changing warehouse systems. ICA also shares trucks with some stores to increase efficiency in transportation. Driver education courses are also applied in ICA for truck drivers to promote eco-driving[4]. ICA also works to rationalize transportation by seeking full capacity with double-decker lorries which reduce emission by 50%. Double-decker lorries replace long-distance transportation when rail transportation is not available or too expensive. (ICA, 2002 and 2003, August)

4.1.3.2 CSR in Long-distance Supply

Coop Sweden has close contacts with suppliers to see that the supplier practices are ethical enough. Coop Sweden also has contracts with some suppliers (Coop Sweden, 2003, August). An example of this contract involves bananas, where suppliers are required to comply with SA8000. In addition, the Coop Group (2002) discusses that they have direct contact with the local markets through its own staff, who guarantee that an ethical policy is followed. It means to provide goods which have been produced under good conditions to consumers.

ICA visits suppliers to assure the local working conditions through SA8000 accreditation. Especially in countries where the risk of poor working conditions exist, ICA is more careful about local working conditions. (ICA, 2002)

According to report by Coop Group (Coop Group, 2002), Coop Sweden has three of its own brands. All grocery products in their brands are KRAV labeled, except certain charcuterie products and some products such as coffee, tea, chocolate cake and cocoa, which are also “Fair Trade” products.

ICA also deals with Fair Trade such as coffee, tea, cocoa and bananas. Furthermore, ICA has private labeled coffee that complies with the ‘Utz Kapeh’ code of conduct, which demands minimum salary, rules on working hours, health and safety measures among employees and a ban on a forced labor and child labor (ICA, 2002).

4.1.4 ESCM to Support Local and Long-distance Supply in Sweden

There are many approaches to reduce environmental impacts and promote HSE and CSR besides the activities mentioned so far. These approaches include transportation, packaging, competitiveness and described in the proceeding sections.

[4] an economically and ecologically sound driving style, is a cheap method to save fuel and money whilst contributing to road safety.

4.1.4.1 Transportation

For improving the transportation efficiency, other transportation means were considered as alternatives. In both companies, rail transportation is regarded as the best option, however both companies (Coop Sweden, 2003, August and ICA, 2003, August) said that there are many obstacles to increase rail transportation. These obstacles include the quality issues in vegetables such as their perishability and fragility, as well as obstacles of scheduling. Another effort in pursing transportation efficiency is to change trucks to these which run with biofuels. ICA describes in its report that "40% of ICA's own lorries run on bio-diesel (environmental Class 1 diesel with 2% RME)" (ICA, 2002).

Making fundamental change in the logistic system is another way to improve transportation efficiency. Relocating distribution center to integrate and shorten distribution definitely reduce environmental impacts from transportation. Coop Sweden describes that changed deliveries to improve transportation efficiency reduced 1,200,000 km/year in 2002 and saved economic and environmental costs. (Coop Group, 2002)

In both Coop and ICA, ruined products during the transportation are only less than 1% of the total amount. An application of an advanced chilled system and well-organized logistic system prevent products from being ruined. (Coop Sweden, 2003, August and ICA, 2003, August)

4.1.4.2 Packaging

According to the interview (Coop Sweden, 2003), Coop Sweden tries not to use unnecessary packaging. Therefore they use containers and pallets for transportation and in stores many vegetables are displayed as they are. The report by Coop (2002) also discusses that its employees conduct a continual dialog with suppliers about products and packaging in order to improve environmental performance.

ICA's report (2002) says that they cooperate with suppliers to reduce the amount of packaging. An example is that ICA encourages the use of reusable crates instead of unnecessary transport packaging. ICA reduces consumer packaging and many of the vegetables and fruit are not packaged (Figure 6).

Figure 6 Fruit in an ICA store

4.1.4.3 Waste Management

Coop identifies in its report (Coop Group, 2002) that the proportion of organic waste from Coop Forum is five percent. Coop Forum is one form of Coop's retailing, which is Sweden's largest chain of hypermarkets. An interview with ICA store reveals that they use composts for organic wastes generated from the store.

4.1.4.4 Competitiveness through ESCM

Both Coop Sweden (2003, August) and ICA (2003, August) described from the interviews that to add HSE

and CSR factors to ESCM gave the companies a competitive edge. Moreover, both of the companies clearly confirmed the importance in dealing with HSE and CSR. In Coop's report (2002), they say that, "The environment, ethics, health and product safety project will develop joint guidelines when purchasing products and services. The aim is to maintain a leading position in this field." On the other hand, ICA's report (2002) has dedicated an entire subsection of the report to the issues, entitled "Quality-Environment-Health-Ethics and Society".

4.2 Case Studies in Japan

Two case studies with Coop Tokyo and Seiyu are to be illustrated. In the beginning, backgrounds of the cases are described and then results about local and long-distance supply from interviews are explained.

4.2.1 Background

Background information is necessary to understand case studies. The following section gives an overview of agriculture in Japan, a background of Japanese food retailing, and the purchasing process of the two companies.

4.2.1.1 Agriculture in Japan

Total farmland in Japan account for 4,790,000 ha. Rice farming is the major type of farming in Japan and 54.4% of the farmland is used to grow rice. The other 2,170,000 ha is used for produce production. Average farmland per farmer is about 1.2 ha except Hokkaido, where there are many large-scale farmers. The major farmers are rather small-scale. In addition, most of the farmers are part-time farmers due to the small income from farming (MAFF, 2002). There is a labor shortage in farming communities and the average age of the farmers are high in Japanese agriculture.

However, the share for imports of vegetables and fruit actually has been small in Japan. It remained near 5% in 1997 after the peak at 6.3% in 1995 (JETRO, 1999).

4.2.1.2 Background of Japanese Food Retailing

There are many forms for retailing. Major retailers in Japan take forms as General Merchandizing Stores (GMS), which sell clothing, food and housing goods (Infomapping, 2003). The major GMS are Ito Yokado, Aeon Group, and Daiei. The average floor space of GM stores is larger than 1,500 m^2. The numbers of chain companies in retailing with sales of more than 6 billion yen (approximately 50 million dollars) is more than 1,000 (NSK Network, 2003). So the retailing markets are very competitive in Japan.

4.2.1.3 Purchasing Process in the Two Companies

Both in Coop Tokyo and Seiyu, products assortment is different from stores to stores. They both try to supply from local farmers nearby. In Japanese food retailers, there are many cases in which regional managers select suppliers and consider possibilities of utilizing local supply.

4.2.2 Local Supply in Japan

The following section discusses changes in the amount of local supply, contracts with local farmers and influences on local farmers.

4.2.2.1 Trend of Local Supply

Both Coop Tokyo (2003, July) and Seiyu (2003, July) replied that they increased local supply compared to a few years ago. Coop Tokyo actually started to gradually increase local supply about 30 years ago. Seiyu also began to focus in local supply about 35 years ago.

Seiyu describes that most stores contain 10% to 20% of local supply out of the total fruits and vegetables supply. Seiyu implied that the reason why food retailers choose local supply is that the cost of transporting is much less expensive in local supply than long-distance supply. Seiyu discussed that transportation costs account for 35% of the price of products in the case of vegetables. In addition, Seiyu has its private brands for fruit and vegetables called "shoku no sachi (riches from the soil)", which focus on producers, place of production, ways of production, transportation, and quality standard. (2003, July)

In both companies, the portion of local supply at stores is different depending on the location of the stores in relation to the location of local farmers. Nonetheless, they have been increasing local supply for the past few decades. (Coop Tokyo, 2003, July and Seiyu, 2003, July)

4.2.2.2 Supplier Relations to Encourage HSE in Local Supply

The two companies mainly have contracts with producers' associations and have some contracts with individual farmers. There are cases that even though they have contracts with producers associations, transportation is coming directly from farmers to stores. (Coop Tokyo, 2003, July and Seiyu, 2003, July)

Coop Tokyo has supported farmers to reduce the use of pesticides and also has helped them to experiments in rotating system. On the other hand, Seiyu encourages farmers to differentiate supply system, in which farmers pick up vegetables in the morning and vegetables are transported directly from farmers to stores in the morning. It assures traceablity, freshness as well as quality of the products. Seiyu also has a simplified standard for vegetables and fruits. With simplifying the standard, farmers can save time and labor force in harvesting and sorting. It also improves productivity of farmers, which also results in reduced organic wastes. Seiyu referred that contracting with farmers contributes to stabilizing farmers' income, which can result in solving the labor shortage in the farming community. (Coop Tokyo, 2003, July and Seiyu, 2003, July)

4.2.2.3 Encouraging Consumers

In Japan, there is a growing interest in local supply among consumers. Therefore many food retailers arrange display of local products. Coop Tokyo has a special display for local products, which are transported from farmers to stores directly every morning (Figure 7). In the advertising display, consumers can see the pictures of farmers who grow the products, which might enhance credibility of consumers.

Figure 7 Coop Tokyo: "Every day direct from farmers to stores (Maiasa Chokusou)"

Coop Tokyo also opens workshops about food for consumers to share knowledge about food. In addition, Coop Tokyo's website (Figure 8) provides information about pesticide inspection, other tests of products, and claims from customers. Coop Tokyo gives information about food to consumers in magazines they are publishing every month. (Coop Tokyo, 2003)

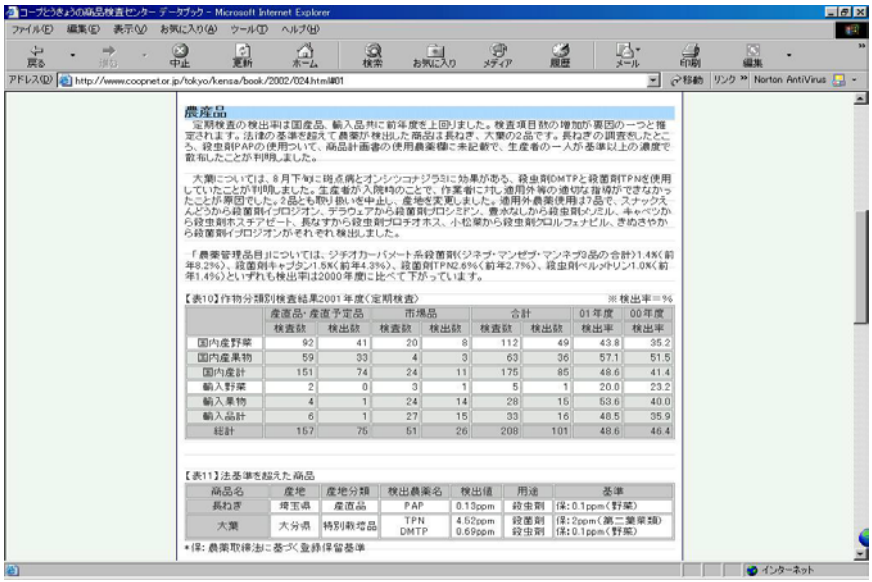

Figure 8 Coop Tokyo: Information about pesticides inspections in the Internet

Seiyu adds value through advertising displays, specifying that the products are locally produced with maps and pictures with farmers (Figure 9). Detailed information about producers of the vegetables increased the store credibility and enables consumers to have confidence in the store and encourages them to buy local products. Locally produced vegetables and fruits are on display with minimum packaging or without packaging at all intending to show that the fruit and vegetables are fresh. Seiyu also advertises details of the products in sales advertisements and in magazines not only describing the prices of the products but also referring to how the products are grown and how the products are transported to the stores. (Seiyu, 2003, July)

Figure 9 Seiyu: Detailed information about local supply (maps and pictures of farmers), introduced as "transporting from the nearest production area, just after harvested, and they are very fresh!"

Furthermore, Seiyu has its environmental standards to give environmental information to customers. Seiyu Environmental Products Standards consist of checklists in the production process, transportation, sales, use, and disposal. (Seiyu, 2003)

Seiyu has boxes for opinions from customers in stores and also receives emails and faxes about freshness and safety of the products and so on. Seiyu also holds workshops for consumers to share information about environmental issues with them. (Seiyu, 2003)

4.2.3 Long-Distance Supply in Japan

This section demonstrates how the retailers in Japan improve efficiency in long-distance supply, product quality after transportation, and CSR.

4.2.3.1 Improving Efficiency in Long-distance Supply

The two companies use containers to transport vegetables and fruits from long-distance by large bulk by rail transportation, which improves transportation efficiency. In addition, Coop Tokyo shares trucks with other food retailers to transport products. It contributes to increased load capacity. (Coop Tokyo, 2003, July and Seiyu, 2003, July)

In Seiyu, long-distance supply, which is imported from overseas, is only 5% of the total products in fruit and vegetables in Seiyu (Seiyu, 2003, July).

4.2.3.2 Quality through Transportation

The ratio of ruined vegetables and fruit during transportation is nearly 0% in both companies. Technology improvements in logistics help companies to reduce loss through transportation, which results in reducing wastes and cutting costs. (Coop Tokyo, 2003, July and Seiyu, 2003, July)

4.2.3.3 CSR in Long-distance Supply

Both Coop Tokyo and Seiyu have contracted with plantations overseas to assure the quality, to reduce pesticides and to check ethical issues. Coop Tokyo has close relations with suppliers of grapefruit, bananas, and so on. Coop Tokyo actually supported banana suppliers to improve bananas varieties. For the large-scale plantation, Coop Tokyo sends persons to assess quality and ethical issues at one point during the year. (Coop Tokyo, 2003, July and Seiyu, 2003, July)

Seiyu sells bananas coming from contracted plantations overseas with specified labeling that the bananas were grown in contracted plantations with natural fertilizer (Figure 10). Seiyu said that close communication with both suppliers and customers were critical. (Seiyu, 2003, July)

Figure 10 Labeling of Bananas, Banana which was grown with less pesticides in

contracted plantation.

4.2.4 ESCM to Support Local and Long-distance Supply

Not only considering the balance between local and long-distance supply, but also taking into account the whole supply chain as a circle is important. Here transportation, composting, and competitiveness through ESCM will be discussed.

4.2.4.1 Transportation

Several approaches to improve transportation efficiency are taken by each company. Firstly, Coop Tokyo tries to increase load capacity by outsourcing logistic systems, which enable them to share trucks with other companies. Another approach to increase transportation efficiency is to change fuel from non-renewable to renewable energy. Coop Tokyo uses vegetable waste oils generated from stores for Vegetable Diesel Fuel (VDF) in transportation. Figure 11 shows how waste vegetables oil is recycled. In 2002, the average generation of VDF is 5,258 litters per month. (Coop Tokyo, 2003)

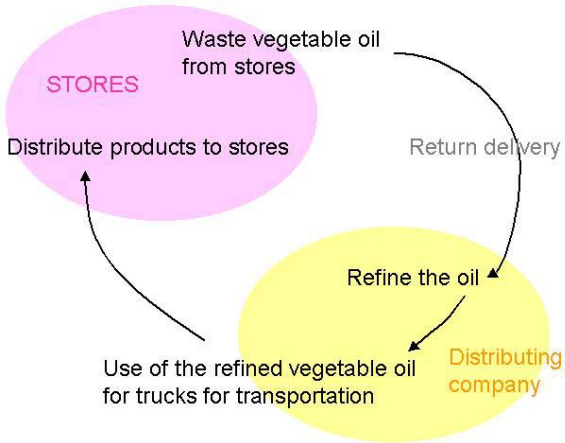

Figure 11 Recycling VDF in Coop Tokyo

Seiyu relocated its distribution centers and reduced lorry journey to a great extent. According to its sustainability report, lorry journeys have reduced from 7,516,000 km to 6,661,000 km from 2001 to 2002. They also set middle-sized distribution centers, which are located only in 30 km away from stores, which also improves transportation efficiency. (Seiyu, 2003)

4.2.4.2 Waste Management

According to The Ministry of Agriculture, Forestry and Fisheries in Japan, Food loss from food retailers is said to account for 6 million tons a year. However, only 1% of the organic waste was recycled from supermarkets and other food industry. The cost for incinerating organic waste from food retailing is estimated to 60 billion yen a year (MAFF, 2002). So it is important for food retailers to deal with waste

management of organic waste.

Organic wastes generated from Coop Tokyo stores accounted for 2,323.2 tons in 2002. Input to composting in stores was 30.4 tons. In Coop Tokyo, organic wastes from stores are either composted at stores or delivered to composting companies. Then the compost is used in farms, where vegetables are grown. Then vegetables grown by the compost are sold in Coop Tokyo stores. It makes a bridge between stores and farmers. (Figure 12) (Coop Tokyo, 2003 and 2003, July)

Seiyu also deals with waste management cooperating with composting companies. 55 stores already started composting organic wastes generated from stores in 2002. According to Seiyu's sustainability report, Seiyu also organizes systems for "loss prevention", which confirms safety, quality and compliance. In waste management, Seiyu set targets as "zero emission" from stores until 2010.(Seiyu, 2003)

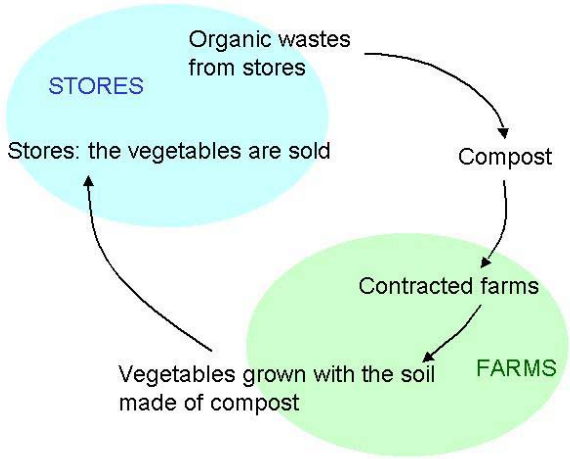

Figure 12 Recycling organic wastes generated from stores

4.2.4.3 Competitiveness through ESCM

Both the two companies agreed that ESCM focusing on both local and long-distance supply enables them to seek competitiveness. They both recognized the importance of HSE and CSR. Seiyu describes about social and ethical issues in its sustainability reports.

4.3 Comparing Practices of Food Retailers in Sweden and Japan

This section compares the practices of food retailers in Sweden and in Japan and discusses the differences about them. The different backgrounds of both counties are treated carefully in the discussion.

4.3.1 Local Supply

There are obviously two different directions between Coop Sweden and ICA in Sweden, and Coop Tokyo and Seiyu. The retailers in Sweden are going towards organic products such as KRAV and the retailers in Japan towards local supply.

4.3.1.1 Trend in Local Supply

The food retailers in Sweden and the food retailers in Japan seem to go towards different directions, one is for organic products and the other is for local supply. Coop Sweden and ICA in Sweden try to increase supply of organic products, whereas Coop Tokyo and Seiyu try to increase local supply. It is difficult to tell

which is better as there are many differences. Especially in Sweden, the short period of vegetable and fruit production may be a reason that both companies are not so active in increasing local supply. On the other hand, for retailers in Japan, it might be difficult to increase organic products, as the Japanese organic food market has not developed enough.

However, it might be possible for food retailers in Sweden to promote local supply more in southern Sweden. An article (Morgan and Morley, 2003) describes that in the Dalarna region of Sweden, four municipalities have developed an innovative procurement system to support local and regional business, which gives both economic and environmental benefit as well. The system integrates transportation systems and utilizes distribution center as a hub. It results in more efficient transportation systems which has reduced total cost of food procurement by 7% and cut lorry journeys by 50%. At the same time, there should be possibilities for food retailers in Japan to increase their supply of organic products. The Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF, 2000) reported that there are 4,396 certified organic farmers in Japan in September, 2003. The ecological farmers who are certified by MAFF are also increasing rapidly. There is a growing trend of organic products in Japan (Cumming, 2003). Estimated organic products have increased in sales from $1.5 billion in 1995 to between $3.7 billion and $4.5 billion in 2000.

4.3.1.2 Supplier Relations to Encourage HSE in Local Supply

Comparing the two companies in Sweden with the two companies in Japan, the methods they used to influence suppliers are different. While Coop Sweden searches for organic suppliers and ICA asks for certificate for safety and quality of the products to growers, Coop Tokyo and Seiyu have contracts with farmers' associations and farmers and provide them with information.

It seems that the two companies in Japan have closer relationships with local suppliers compared to the two companies in Sweden because the two retailers in Japan purchase more local products than the two companies in Sweden. On the other hand, the two companies in Sweden might have closer relationships with organic farmers.

4.3.1.3 Encouraging Consumers

The same reasoning as is mentioned in the former section could be applied for Coop Sweden and ICA to be less active in promoting consumers to buy locally produced products. However, Coop Sweden and ICA are positive in encouraging customers to buy KRAV and ecological products by displaying especially for these products in stores as well as in advertisements.

Coop Tokyo and Seiyu arrange a small lot to display the local products, including pictures of farmers and maps in stores. They also promote local supply by advertisements describing the details of the products. The efficient displays and advertisements fit to an increasing interest in HSE among consumers. The companies try to sell more local products by engaging in promotions.

It is interesting that in both cases in Sweden and in Japan, stores have special display either for KRAV

products or local supply. It is possible that an integration of these techniques maybe beneficial. For example, by showing farmers' photos of KRAV products in stores in Sweden, stores in Sweden could possibly increase sales of KRAV products. Retailers in Japan also can promote organic or ecological labeling to promote organic products.

4.3.2 Long-Distance Supply

The four companies interviewed are all dealing with CSR in long-distance supply. The similarities and differences in long distance supply in Sweden and in Japan are compared and discussed in the following section.

4.3.2.1 Improving Efficiency in Long-distance Supply

The four interviewed companies are generally interested in increasing rail transportation. Furthermore, the companies try to improve transportation efficiency by increasing capacity, adopting truck run with biofuel and so on. In addition, the overall improvement is done by relocating distribution center to re-estimate routes to reduce lorry journeys.

These efforts not only reduce environmental impacts but also contribute to cut costs in transportation. Efficient transportation also could maintain quality of the products in stores.

4.3.2.2 Quality through Transportation

The four cases reveal that loss of the products during transportation is less than one percent. It is assumed that technological improvement in transportation such as advanced chilled systems and shorten lorry journeys have contributed to reduce damaged products by transportation. However, to be critical, the definition of the loss during transportation could eliminate such cases that products arrived at stores with damages as the quality of the products was not good even before transporting.

4.3.2.3 CSR in Long-distance Supply

Both in Sweden and in Japan, the interviewed food retailers were concerned with CSR in long-distance supply. However, they are different in how they check suppliers about compliance and ethics. Coop Sweden and ICA in Sweden set standards with suppliers and make documentation and checklists. The standard is based on the international ethical standard, SA8000. For the large suppliers, assessment in local level takes place a few times a year.

This varies from the retailers in Japan, where Coop Tokyo and Seiyu have close relations with suppliers overseas and influence them by sharing information or making contracts with them. They try to influence suppliers on ethical issues as well as on improvement of products.

4.3.3 ESCM to Support Local and Long-distance Supply

There are both similarities and differences in the cases in Sweden and in Japan concerning ESCM to support local and long-distance supply. The details are discussed in the proceeding sections.

4.3.3.1 Transportation

There was a focus on transport efficiency in the four cases in Sweden and in Japan. The approach taken by the companies was to increase load capacity by optimizing the logistic system, to reconsider the transporting routes, to use alternative transportation which is less environmental harmful, to use biofuel for trucks and so on. Relocation of distribution centers and outsourcing transportation are examples of fundamental reforming of transportation of the companies in these cases. Every retailer in the cases is active in pursuing transportation efficiency. The common issue is that the four retailers set an objective to increase modes of transportation which are fueled by biofuels.

4.3.3.2 Waste Management

Waste management concerning organic wastes is closely related to the quality of the products. The four companies seem to recognize the importance of quality issues and try to improve the quality of the products. Figure 13 represents input and output in the food supply chain. Attributes of products are also added to the figure. If the quality of the products is good enough at the point of sales, organic wastes might be reduced as the quality of the products affect shelf life or even quality after sales. To improve quality helps to reduce waste generation and quality of the products is affected by local or long-distance supply. The companies focus on the quality of the products in order to reduce wastes.

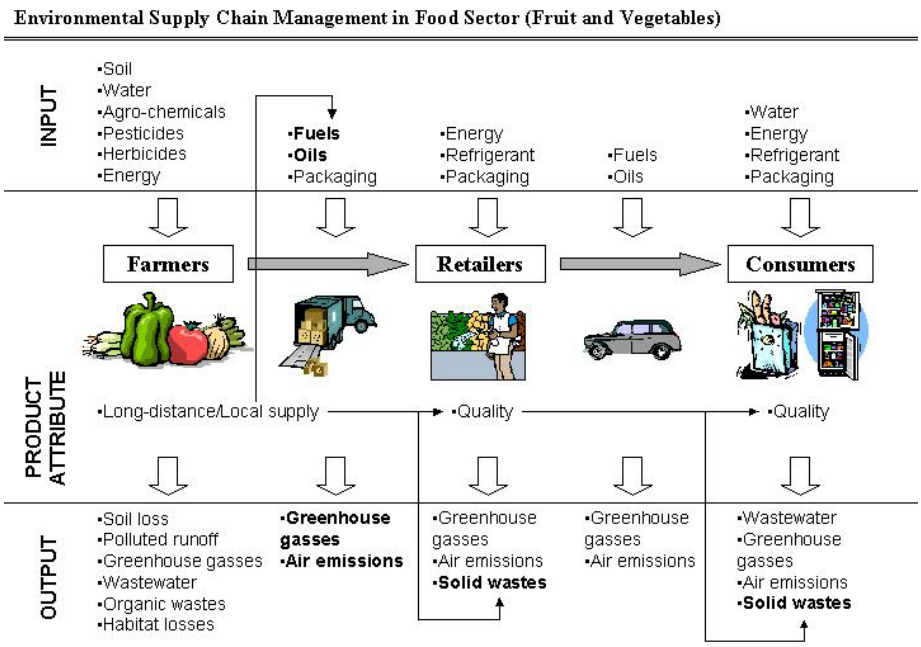

Figure 13 Life Cycle Assessment of Food Supply Chain concerning Waste Management (Input)

Regarding the output, how to handle organic waste is critical. Figure 14 demonstrates input and output in the food supply chain in terms of recycling wastes.

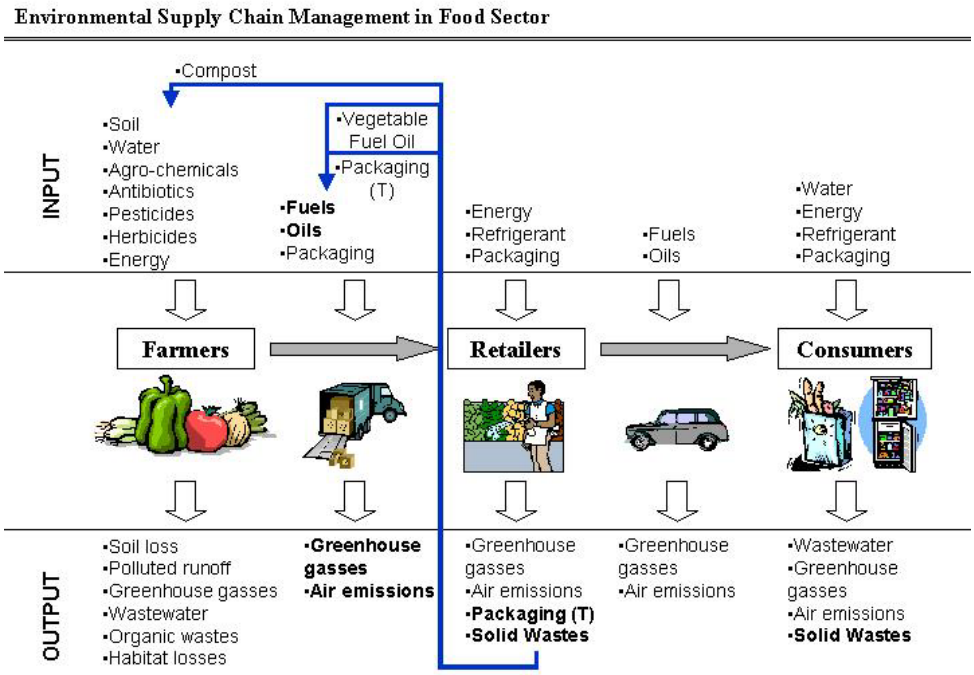

Figure 14 Life Cycle Assessment of Food Supply Chain concerning Waste Management (Output)

All retailers in Sweden and in Japan care about organic wastes. Organic wastes generated from stores are delivered to composting companies. In the case of Coop Tokyo, the compost is transported to the contracted farms.

4.3.3.4 Competitiveness through ESCM focusing on HSE and CSR

All four retailers noted that pursuing ESCM including HSE and CSR factors results in competitiveness. They mentioned that to promote ESCM might not even mean to seek competitiveness but to maintain its position in the market. It implies that by promoting HSE and CSR, companies can gain good brand images. Actually the companies refer to the importance of HSE and CSR in their reports. So it is sure that HSE and CSR are critical issues for food retailers and HSE and CSR will become more and more important in the near future.

4.4 Overall Discussions and Suggestions

Considering the results and comparisons from the cases, overall discussions are presented. In the following section, the important aspects are picked up from the case studies.

Benefits from implementing HSE/CSR in ESCM are shown in Table 2. However, it is true that the relations between HSE/CSR and local/long-distance supply are not perfectly clear in these case studies. This is because the case studies reveal only current situation and activities to promote local and long-distance supplies and supporting factors in ESCM. Therefore, detailed analysis of benefits from promoting local and long-distance supply is not described and it could be a future research topic.

Tool	Benefit
Safety	▪ Quality increasing ▪ Compliance ▪ Safety Performance ▪ Reliability ▪ Business Risk Management ▪ Supplier Performance Ensuring
Health	▪ Cost Saving ▪ Improved Working Environment ▪ Employee Efficiency ▪ Increased Performance
Environment	▪ Security of Supply ▪ Shorter Delivery Time ▪ Cost Savings ▪ Environmental Friendly ▪ Waste Reduction ▪ Resource Efficiency ▪ Market Opportunities ▪ Compliance with Legislation ▪ Technological Innovation
Social Responsibility	▪ Trust ▪ Cooperation ▪ Commitment ▪ Communication ▪ Competitiveness ▪ Brand Recognition

Table 2 Benefits from implementing HSE and CSR (Source: FLAIR, 2000 and Haider, 2002)

But still many articles and studies point out that local supply helps promote HSE and encourage communities to promote CSR. Ecological products such as KRAV labeled products also should elevate HSE and CSR. Implementation of HSE/CSR in long-distance supply also gives companies benefits.

In short, to increase local supply could be a way to implement HSE and CSR and in long-distance supply, there are ways to promote HSE and CSR, which are fair trade and ecological products. These kinds of activities also can enhance company's brand image and reputation. It finally leads to company's competitiveness.

4.4.1 Closing the Loop

A further suggestion in enhancing ESCM concerns reconnecting the food chain in local supply because in many cases two ends of the food chain remain divorced and should be reconnected (Morgan and Morley, 2003). Figure 15 shows the concept of closing the loop in the food supply to connect from farmers to consumers considering the material flow and the information flow.

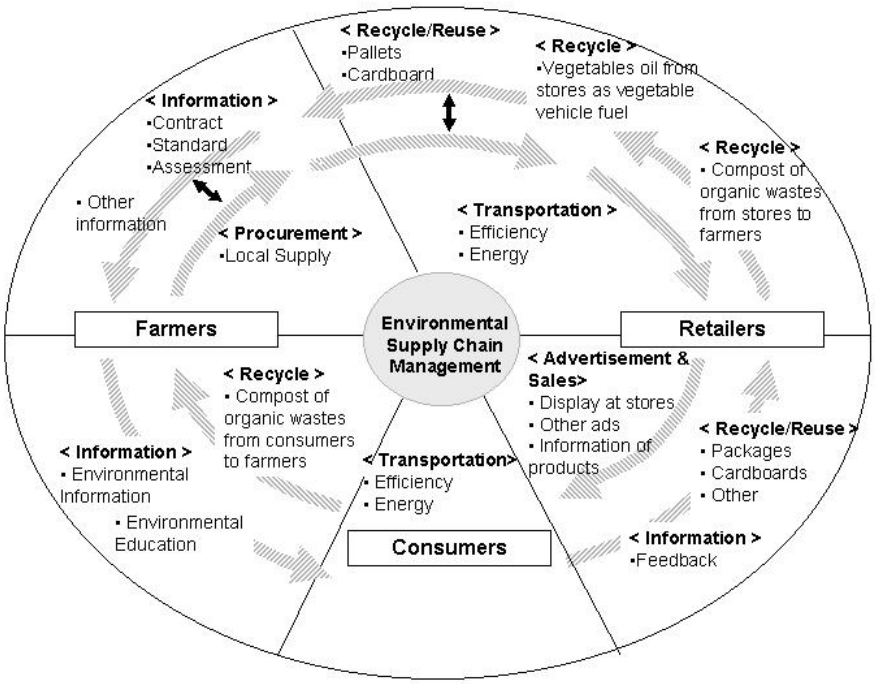

Figure 15 Closing the Loop

If local supply will be accelerated further to create a connection from consumers and farmers, there will be more trust and less resources use in the food supply chain. For example, organic wastes from consumers can be recycled and delivered to farmers through municipalities. Farmers can share their knowledge by giving information about environment to the public.

4.4.2 Communication with Consumers

As described in the loop, ESCM actually includes the consumer as an actor in the food supply chain. Thus, involvement of consumers in the food supply chain could truly be a key to promote further HSE and CSR in ESCM. There is a discussion that food retailers should help consumers to seek sustainable consumption. Peattie (1992) discusses that retailers through ESCM need to recognize the fact that consumers may be trying to resolve conflicting desires to conserve and to consume. Retailers can thus respond to this challenge by pursuing sustainable ways for consumers to deal with such conflicts through sustainable consumption.

According to the interviews, the four companies communicate with customers to promote HSE and CSR. Examples of ways to communicate with consumers are by providing displays in stores, through advertisements, setting up customer centers and so on.

However, vegetables and fruits might be promoted more. A research about advertisement discusses that:

> *The food-related costs of ill health tend to be seen as the outcome of individual food choices that fall in the realm of personal preferences. In spite of that, a research shows that just 0.9% of the UK food advertising budget in 2000 was spent in fresh fruit and vegetables, while 28% went on advertising cereals, cakes, biscuits, crisps and snacks and, even more extraordinary (Sustain, 2001).*

Advertisements are actually an important issue in promoting sustainability in retailing. Longhurst (2003) claims that advertisers should establish commitments with corporate advertising platforms. These commitment should include making sustainable claims in justified product promotions and exploring cause-related marketing further. Through this research, an increasing interest in advertisements on fresh fruits and vegetables has been identified. Therefore, advertisements on fresh fruits and vegetables could arise consumer interests towards HSE and CSR further.

Proper advertisements promoting HSE and CSR to consumers can create a high approval for the brands and reputations of the companies, which also create the opportunities for companies to put pressure on their suppliers to operate in a more sustainable way (EACA, SustainAbility, and UNEP, 2003). Thus proper advertisement can ultimately lead to an increase in the sustainability of the supply chain as a whole.

Chapter 5: Conclusion

The four case studies show that there are mainly two big differences in promoting local and long-distance supply with HSE and CSR factors in ESCM. First, Coop Sweden and ICA in Sweden promote organic products, while Coop Tokyo and Seiyu in Japan promote local supply. The other difference concerns the type of relationship in long-distance supply. The companies in Sweden set standard and check suppliers' activities by checklists and use documentation. On the other hand, the companies in Japan have close contacts with suppliers to influence them. Another conclusion from the interviews is that all companies are active in pursuing transportation efficiency and reducing packaging. In addition, all the companies believe that seeking HSE and CSR in ESCM will give them competitiveness.
In short, the findings suggest that there should be several ways to pursue HSE and CSR in ESCM besides merely trying to increase the portion of local supply. By pursuing HSE and CSR, companies can gain benefits such as cost reduction, and enhanced brand name and reputation. Furthermore, it also gives companies competitiveness.

However, there are some issues to be pointed out. Even though local supply might not always be the best choice depending on the condition, it still takes an important role in contributing HSE and CSR to a great extent. If local supply makes it possible to reconnect farmers to consumers, it can help local communities and the natural environment. Another issue is that food retailers can motivate consumers toward sustainable consumption further by proper advertisements. As there is an increasing interest in HSE and CSR among consumers, food retailers have opportunities to guide consumers toward sustainable consumption by promoting products which incorporate HSE and CSR.

In this research, the relationship between local and long-distance supply and, HSE and CSR was not completely revealed through case studies. Therefore, further research topic could include a study about the relationship between HSE/CSR and LCA or further about the promotion of sustainable consumption including advertisements for consumers.

References

- Anonymous. (2001). Buy Fair Means. *Geographical Magazine*.73:75-78.
- Bagwell, K. and Riordan. M. (1986). Equilibrium Price Dynamics for an Experience Good. Discussion Paper 705, CMSEMS, Northwestern University, Chicago, US.
- Boehlje, M., Akridge. J., and Downery. D. (1995). Restructuring Agribusiness for the 21st century. *Agribusiness*. 11:493-501.
- Bran, N. and Shelleman, F. (1999). Green Purchasing of Agri-Food: Background paper for the EPE Hearing of Green Purchasing of Agri-Food. Swedish Environmental Ministry, Stockholm, Sweden. [Accessed on Nov 5, 2003], http://www.internat.naturvardsverket.se/index.php3?main=/documents/current/conferen/agrifood/agrifdoc/epe2repe.htm
- BSE Inquiry. (2003). [Accessed on Nov 5, 2003]. http://www.bse.org.uk/
- Business for Social Responsibility Education Fund. (2001). Suppliers' Perspectives on Greening the Supply Chain. Business for Social Responsibility Education Fund, San Francisco, CA, US.
- Campaign Project for Rural England (CPRE). (2002). Down Your Way Local. CPRE, London, UK.
- Carter, C. and Carter, J. (1998). Environmental management: Should industry adopt ISO 14001? *Business Horizon*. 41:57-64.
- Carter, C. and Ellram, L. (1998). Reverse logistics: a review of the literature and framework for future investigation. *Journal of Business Logistics*. 19:85-102.
- Carter, C.R. and Jennings, M.M. (2002). Social responsibility and supply chain relationships. Transportation Research Part E: *Logistics and Transportation Review*. 38: 37-52.
- Caswell, J.A. and Mojduszka, E.M. (1996). Using Informational Labelling to Influence the Market for Quality in Food Products. *American Journal of Agricultural Economics*. 74:1202-1207.
- Coop Tokyo. (2003). [Accessed on Nov 6, 2003]. http://www.coopnet.or.jp/tokyo/kankyo/2003/14.html
- Croall, S. (2003). A new Swedish model: safe, clean food. Sweden.se. [Accessed on Nov 6, 2003]. http://www.sweden.se/templates/Article____2287.asp
- Cumming, C.H. (2003). Japanese Consumers Hungry for Organic Food. The New Farm. [Accessed on Nov 6, 2003]. http://www.newfarm.org/international/features/0803/jp_org_retail.shtml
- Darby, M.R. and E. Karni. (1973). Free Competition and the Optimal Amount of Fraud. *Journal of Law and Economics*. 16:67-88.
- Dicher, E. (1985). What's in an image? Journal of Consumer Marketing. 2:75-81.
- Dunphy, D., Griffiths, A., and Benn, S. (2003). *Organizational Change for Corporate Sustainability*: A guide for leaders and change agents of the future. Routlegde, London, UK.
- EACA, SustainAbility, and UNEP. (2003). SustainAbility. UNEP. Paris, France.
- Euromonitor International. (2002). [Accessed on Nov 6, 2003]. http://www.euromonitor.com/Retail_Trade_International_-_Sweden
- Fehr, M., Calçado, M.D.R., and Romão, D.C. (2002). The basis of a policy for minimizing and recycling food waste. *Environmental Science & Policy*. 5: 247-253.

- Forsman, S. and Paananen, J. (2001). Local food supply chain: A case of rural food processing firms and catering business in Finland. MTT Agrifood Research Finland, Economic Research, Jokioinen, Finland.
- FLAIR. (2000). Local Food and Sustainable Development. FRAIR conference report. Bristol, UK.
- Green Business Network and The National Environmental Education & Training Foundation. (2001). Going Green… Upstream: The Promise of Supplier Environmental Management. The National Environmental Education & Training Foundation. Washington, US.
- Hagelaar, G., Van Der Vorst, J. (2001). Environmental Supply Chain Management: using Life Cycle Assessment to structure supply chains. IAMA 2001. Sydney, Australia.
- Haider, S. (2002). How Multinational Corporation can promote sustainability with CSR and SHE in Purchasing. Lund University, Lund, Sweden.
- Halberg, N., Weidema, B., Larsen, I., Dalgaard, R., Nielsen, P. H., and Nielsen, A. (2003). Life Cycle Based Environmental Management and Product Declarations for Food. Danish Institute of Agricultural Sciences, Danish Research Institute of Food Economics, Tjele, Denmark.
- Hekkert, M.P., Joosten, L.A.J., and Worrell, E. (2000). Reduction of CO_2 emissions by improved management of material and product use: the case of transport packaging. *Resources Conservations & Recycling*. 30:1-27.
- Herbig, P., Milewicz, J., and Golden, J. (1994). A model of reputation building and destruction. *Journal of Business Research*. 31:23-31.
- Hyde, K., Smith, A., Smith, M., and Henningsson, S. (2001). The challenge of waste minimization in the food and drink industry: a demonstration project in East Anglia, UK. *Journal of Cleaner Production*. 9:57-64.
- Infomapping. (2003). 商業統計の業種・業態の解説 (in Japanese). [Accessed on Nov 6, 2003]. http://www.info-mapping.com/data2.asp
- International Business Leaders Forum. (2002). Food for thought: Corporate social responsibility for food and beverage manufactures. International Business Leaders Forum, Wales, UK.
- JETRO. (1999). Japanese Market Report- Regulations & Practices: Fresh Vegetables. JETRO.31 (AG-70).
- Johannesburg Earth Summit. (2002). [Accessed on Nov 6, 2003]. http://www.earthsummit.biz/greenwash.html
- Jongen, W. M. F. and Meulenborg, M.T.G. (1998). *Innovation of food production systems*: product quality and consumer acceptance. Purdue University Press, Ohio, US.
- Klooster, R. (2002). *Packaging Design*: a methodical development and simulation of the design process. Druk Tan Heck, Delft, the Netherlands.
- Logistic Research Centre. (2002). Key Performance Indicators for the Food Supply Chain. Heriott-Watt University, Edinburgh, UK.
- Longhurst, M. (2003). Advertising and Sustainability: a new paradigm. UNEP. Paris, France.
- Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan. (2002). [Accessed on Nov 6, 2003]. http://www.maff.go.jp/hitokuti/top.htm
- Ministry of Agriculture, Sweden. (1997). Food and the Environment: Swedish strategy for the future of EU agriculture. Report from the Committee for reforming the Common Agricultural Policy Stockholm, 1997:151.
- Morgan, K., Morley, A. (2003). Relocalising the Food Chain: The Role of Creative Public Procurement, The Regeneration Institute, Cardiff University, UK.

- Murray, D.L. and Raynolds, L.T. (2000). Alternative trade in bananas: Obstacles and opportunities for progressive social change in the global economy. *Agriculture and Human Values*. 17:65-74.
- Narasimhan, R. and Carter, J. (1998). Environmental Supply Chain Management. Center for Advanced Purchasing Studies, Tempe, AZ, US.
- Nelson, P. (1974). Advertising as Information. *Journal of Political Economy*. 81:729-54.
- Nelson, P. (1970). Information and Consumer Behavior. *Journal of Political Economy*. 78:311-29.
- Nilsson, H., Tunçer, B., and Thidell, Å. (2002). The use of eco-labeling like initiatives on food products to promote quality assurance-is there enough credibility? International Institute of Industrial Environmental Economics (IIIEE). Lund University, Lund, Sweden.
- NSK Network. (2003). 国内流通業界の衰退と IT 高度武装ウォールマートの日本進出 (in Japanese). [Accessed on Nov 6, 2003]. http://nsk-network.co.jp/030119.htm
- Patton, M.Q. (1987). *How to Use Qualitative Methods in Evaluation*. SAGE Publications, Inc, London, UK.
- Peattie, K. (1992). *Green Marketing*. Pitman Publishing, London, UK.
- Ragin, C. C. (1987). The Comparative Method: Moving beyond qualitative and quantitative strategies. University of California Press, Ltd., London, UK.
- Renard, M. (2003). Fair Trade: quality, market and conventions. *Journal of Rural Studies*. 19:87-96.
- Roberts, P. (1995). *Environmentally Sustainable Business*: A local and regional perspective. Paul Chapman Publishing Ltd, London, UK.
- Smith, D. and Sparks, L. (2003). Temperature Controlled Supply Chain. In Bourlakis, M.A. and Weightman, P.W.H. eds, *Food Supply Chain Management*. Blackwell Publishing, Oxford, UK. Chapter 13.
- Soil Association. (2000). Local Food routes: A Summery Report of Food Futures, Soil Association, Bristol, UK.
- Strong, C. (1996). Feature contributing to the growth of ethical consumerism – a preliminary investigation. *Marketing Intelligence & Planning*. 14:5-13.
- Sustain. (2001). TV Dinner: What's Being Served Up by the Advertisers? Sustain, London, UK.
- Swedish Board of Agriculture. (2003). [Accessed on Nov 6, 2003]. http://www.sjv.se/net/SJV/Home/Facts+about+Swedish+Agriculture
- Swedish Environmental Ministry. (2000). Greener Food Supply Chain? [Accessed on Nov 6, 2004]. http://www.internat.naturvardsverket.se/index.php3?main=/documents/press/2000/p000217.htm
- Symon, G., Cassell, C. (1998). *Qualitative Methods and Analysis in Organizational Research*: A practical guide. SAGE Publications, Inc, London, UK.
- Technifor. (2003). [Accessed on Nov 6, 2003]. http://www.technifor.com/htm/Tracea/def.htm
- The Working Group on Local Food. (2003). Local Food: A snap shot of a sector. The Working Group on Local Food. [Accessed on Nov 6, 2003]. http://www.foodstandards.gov.uk/foodindustry/farmingfood/local
- Thomsson, O. and Granstedt, A. (2001). Environmental aspects of a local food supply system – report from an ongoing project in Järna. Biodynamic Research Institute, Järna, Sweden.
- Toyo Keizai. (2002). Green Reporting Awards. [Accessed on Nov 6, 2003]. http://info.toyokeizai.co.jp/award/kankyo/k_05/kankyo2.html
- UK Trade & Investment. (2003). [Accessed on Nov 6, 2003]. http://www.tradepartners.gov.uk/food/sweden/profile/overview.shtml

- Umazawa, S. (2000). Sustainable Agro Food Marketing:持続可能なアグロ・フード・マーケティング(in Japanese). *日本経済学会年報*.22:155-163.
- UNEP and McCann-Ericsson (2002). Can Sustainability Sell? UNEP, Paris, France.
- Wade, J.A. (2001). Stakeholders, ethics and social responsibility in the food supply chain. In Eastham, J.F., Sharples, L., and Ball, S.D., eds., *Food Supply Chain Management*: Issue for the hospitality and retail sectors. Butterworth-Heinemann, Woburn, MA, US.
- Walton, S., Handfield, R., and Melnyk, S. (1998). The green supply chain: integrating suppliers into environmental management processes. *International Journal of Purchasing and Materials Management*. 34:2-11.
- Webster, K. (2001). The scope and structure of the food supply chain. In Eastham, J.F., Sharples, L., and Ball, S.D., eds., *Food Supply Chain Management*: Issue for the hospitality and retail sectors. Butterworth-Heinemann, Woburn, MA, US.
- Zsidisin, G. A. (2003). Managerial Perception of Supply Risk. *Journal of Supply Chain Management*. 39:14-25.
- Zsidisin, G. A. and Siferd, S. P. (2001). Environmental Purchasing: a framework for theory development. *European Journal of Purchasing and Supply Management*. 7:61-73.

Environmental/Sustainability Reports

Japan

- Coop Tokyo. (2003). Co-op Tokyo Environmental Report 2003. Coop Tokyo, Tokyo, Japan.
- Seiyu. (2003). Seiyu Sustainability Report 2003. Seiyu, Tokyo, Japan.

Sweden

- Coop Norden. (2002). Coop Norden's Annual Report. Coop Norden, Gothenburg, Sweden.
- ICA. (2003). Report: Quality-Environment-Health-Ethics and Society. ICA, Stockholm, Sweden.

Interviews

Japan

- Coop Tokyo. (2003, July). Personal Interviews to Mr. Fukazawa, the Manager in Agriculture Products Department in CoopNet; Mr. Takahashi, the chief in Business Administration Department in Coop Tokyo; Ms. Ohshima in the Environmental Department in Coop Tokyo.
- Seiyu. (2003, July). Personal interviews to Mr. Kaneko, the Director in Produce Department in Seiyu and Mr. Ohno, the Manager in Corporate Affairs in Seiyu.

Sweden

- Coop Norden. (2003, August). Personal Interview to Mr. Natt och Dag, the Environmental Manager in Coop Sverige.
- ICA. (2003, August). Personal Interviews to Mr. Warén, the Manager in Quality and Environment Department in ICA Handlarnas AB; Ms. Lindvall in Environmental Affairs in ICA Handlarnas AB; Mr. Ovegård in Quality Manager for Stores in ICA Handlarnas AB; Mr. Holtz, the storeowner in ICA Malmborg Clemenstorget.