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**SOCIAL DYNAMICS FOR SUSTAINABLE
FOOD SYSTEMS**

**ACTORS' ORIENTATIONS TOWARDS SUSTAINABILITY IN
PRIMARY PRODUCTION AND PUBLIC CONSUMPTION**

MINNA MIKKOLA



SOCIAL DYNAMICS FOR SUSTAINABLE FOOD SYSTEMS

ACTORS' ORIENTATIONS TOWARDS SUSTAINABILITY IN PRIMARY PRODUCTION AND PUBLIC CONSUMPTION

DOCTORAL DISSERTATION

MINNA MIKKOLA

Academic Dissertation to be presented, with the permission of the Faculty of Agriculture and Forestry of the University of Helsinki, for public examination in Auditorium XII of the Main Building of the University of Helsinki, on 8th April 2011, at 12 o'clock noon.

2011

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Publisher University of Helsinki
Ruralia Institute
www.helsinki.fi/ruralia

Kampusranta 9 C Lönnrotinkatu 7
60320 FI-SEINÄJOKI 50100 FI-MIKKELI

Series Publications 21

Cover Design Ceramic art 'Orientations' Minna Mikkola
Photograph and image processing Esko Mikkola

ISBN 978-952-10-6483-8
978-952-10-6484-5 (pdf)

ISSN 1796-0649
1796-0657 (pdf)

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ABSTRACT

The modern food system and sustainable development form a conceptual combination that suggests sustainability deficits in the ways we deal with food consumption and production - in terms of economic relations, environmental impacts and nutritional status of western population. This study explores actors' orientations towards sustainability by taking into account actors' embedded positions within structures of the food system, actors' economic relations and views about sustainability as well as their possibilities for progressive activities. The study looks particularly at social dynamics for sustainability within primary production and public consumption. If actors within these two worlds were to express converging orientations for sustainability, the system dynamics of the market would enable more sustainable growth in terms of production dictated by consumption.

The study is based on a constructivist research approach with qualitative text analyses. The data consisted of three text corpora, the 'local food corpus', the 'catering corpus' and the 'mixed corpus'. The local food actors were interviewed about their economic exchange relations. The caterers' interviews dealt with their professional identity for sustainability. Finally, the mixed corpus assembled a dialogue as a participatory research approach, which was applied in order to enable researcher and caterer learning about the use of organic milk in public catering. The data were analysed for theoretically conceptualised relations, expressing behavioural patterns in actors' everyday work as interpreted by the researcher. The findings were corroborated by the internal and external communities of food system actors. The interpretations have some validity, although they only present abstractions of everyday life and its rich, even opaque, fabric of meanings and aims.

The key findings included primary producers' social skilfulness, which enabled networking with other actors in very different paths of life, learning in order to promote one's trade, and trusting reflectively in partners in order to extend business. These activities expanded the supply chain in a spiral fashion by horizontal and vertical forward integration, until large retailers were met for negotiations on a more equal or 'other regarding' basis. This kind of chain level coordination, typically building around the core of social and partnership relations, was coined as a socially overlaid network. It supported market access of local farmers, rooted in their farms, who were able to draw on local capital and labour in promotion of competitive business; the growth was endogenous. These kinds of chains – one conventional and one organic – were different from the strategic chain, which was more profit based and while highly competitive, presented exogenous growth as it depended on imported capital and local employees. However, the strategic chain offered learning opportunities and support for the local economy.

The caterers exhibited more or less committed professional identity for sustainability within their reach. The facilitating and balanced approaches for professional identities dealt successfully with local and organic food in addition to domestic food, and also imported food. The co-operation with supply chains created innovative solutions and savings for the business parties to be shared. The rule-abiding approach for sustainability only made choices among organic supply chains without

extending into co-operation with actors. There were also more complicated and troubled identities as juggling, critical and delimited approaches for sustainability, with less productive efforts due to restrictions such as absence of organisational sustainability strategy, weak presence of local and organic suppliers, limited understanding about sustainability and no organisational resources to develop changes towards a sustainable food system. Learning in the workplace about food system reality in terms of supply chain co-operation may prove to be a change engine that leads to advanced network operations and a more sustainable food system.

The convergence between primary producers and caterers existed to an extent allowing suggestion that increased clarity about sustainable consumption and production by actors could be approached using advanced tools. The study looks for introduction of more profound environmental and socio-economic knowledge through participatory research with supply chain actors in order to promote more sustainable food systems.

SUMMARY OF ORIGINAL PUBLICATIONS AND THE AUTHORS' CONTRIBUTION

- I Mikkola, M. & Seppänen, L. 2006. Farmers' new participation in food chains: making horizontal and vertical progress by networking. In: Langeveld, H. & Röling N. (Eds.). *Changing European farming systems for a better future. New visions for rural areas.* Wageningen, The Netherlands. Wageningen Academic Publishers: 267–271.
- II Mikkola, M. 2008. Coordinative structures and development of food supply chains. *British Food Journal* 110 (2): 189–205.
- III Mikkola, M. 2009. Shaping professional identity for sustainability. Evidence in Finnish public catering. *Appetite* 53 (1): 56–65.
- IV Mikkola, M. 2009. Catering for sustainability: building a dialogue on organic milk. *Agronomy Research* 7 (Special issue 2): 668–676.

Minna Mikkola has been responsible for developing the generic research frame, particular research questions, the planning and collection of the data, their qualitative analysis and writing the articles I, II, III and IV. Dr Laura Seppänen has contributed to the development of the generic research frame and article I by introducing the author to the basic concepts of economic sociology and by supporting the writing of article II with her critical comments. Articles are printed with permission from the publishers.

1. INTRODUCTION

1.1 SUSTAINABLE DEVELOPMENT AS A CHALLENGE TO MODERN FOOD SYSTEMS

SUSTAINABLE DEVELOPMENT AS A SPRINGBOARD FOR FOOD SYSTEM STUDIES

The scene for the discourse about the quest for sustainable development was set more than 20 years ago by the Brundlandt report (WCED, 1987), which addressed globally all human beings in the most generic terms, aiming at “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. While widespread criticism has been targeted at the concept of sustainable development, its exceptionally constructive features deserve to be considered more closely. First, the concept addresses the global audience rather than only the western one, including actors such as citizens, professionals, businesses, governmental organisations and non-governmental ones across all societal levels (Morgan & Sonnino, 2008; WCED, 1987). Second, the concept launches the famous tripod of interlinked and mutually supportive economic, ecological and socio-cultural developments, taking a broad view of generic living conditions, both current and future. Into this nexus, the concept offers a fresh and extended alternative to the modernisation approach, which focuses mainly on quantitative (economic) development without due attention being paid to other qualitative conditions of progress (Daly, 1996, in Morgan & Sonnino, 2008, p 1). Specifically, the concept is expected to boost economic life with innovative technological and socio-organisational solutions for more sustainable growth. Third, the concept addresses contex-

tual sustainability deficits of particular issues or dimensions to be tackled (Morgan & Sonnino, 2008, p 1–19). Fourth, the concept advocates normative rather than technically specific developments; the extreme variability of economic, technical, environmental and social processes in different parts of the world does not allow uniform prescriptions to be presented as guidelines for sustainability (Morgan & Sonnino, 2008, p 1–19). The variability in global as well as local conditions seems to lead to different developmental approaches towards sustainability; while “weak” sustainable development focuses on economic development and considers other dimensions of sustainability as depending insertions, “strong” sustainable development regards the ecological dimension as compelling and the other dimensions therefore as adaptable resources within the process of working towards sustainability (Jacobs, 1999).

Implementation of sustainable development becomes thus a matter of insertion of its normative concepts into contextual practices and projections (Morgan & Sonnino, 2008, p 1–19); therefore, sustainable development ‘hardly happens just by itself’, but rather, becomes constructed and negotiated by its ‘actor-promoters’. In short, Morgan and Sonnino (2008, p 1–19), as their point of departure, take sustainable development as a normative standard, whereby first, economic development becomes promoted through more equitable forms of exchange across space and time. Second, sustainable development inherently includes a “vision of interconnected and highly participatory communities”, stressing simultaneously “individual autonomy and involvement”, while resulting in “more environmentally responsible governments” (Morgan & Sonnino, 2008, p 4). Third, sustainable development is about “integrating environmental considerations into our economic development strategies” (Morgan & Sonnino, 2008, p 4).

The original ecological issue, at the core of the quest towards sustainable development, translates into the environmental one in terms of societal relations of consumption and production (Castells, 1997, p 110–113; Morgan & Sonnino, 2008, p 1–19). Therefore, the terms ecological and environmental are typically used interchangeably in texts dealing with sustainable development, and furthermore, other ‘positive’ terms such as ‘responsible’ or ‘green’ are often used as well for similar connotations (Morgan & Sonnino, 2008, p 92; CEC, 2004; ICLEI - Local Governments for Sustainability & Ecoinstitut Barcelona, 2008a,b). The ‘cornucopian’ character of the content of the concept of sustainable development also brings about documents of drastically variable extent and profoundness, in addition to particular disciplinary orientations or broader intertwined ones, making mastery of the concept empirically and theoretically challenging.

Research about how to promote and implement sustainable development needs to be approached analytically through an empirical and societally central phenomenon. Food, as a ubiquitous and essential commodity, presents itself as a “prism” for explorations of sustainable development (Morgan & Sonnino, 2008, p 5). All humans depend on food for life, and they can only eat so much, which sets the volume of production in relation to the consumption of the population, which is mainly mediated by the market in western countries (Atkins & Bowler, 2001; Tansey & Worsley, 1995). These authors assert that food as a commodity presents characteristics different from other industrial products, the demand for which seems insatiable, and the need for which may not be equally essential. Food fills a decisive role for the continuity of life of an individual as well as of a population; food bears on systemic influence within communities and societies, from local to global levels. Food as a societal phenomenon makes all the difference; it deserves a systemic treatment as a study of the sustainable food system, “squeezed into the fault line between environment and society” (Atkins & Bowler, 2001, p 13).

DEVELOPING MODERN FOOD SYSTEM

Within the modern western food system, this ‘squeeze’ seems to have slackened off long ago. Consumers have gained access to cheap food and enhanced nutrition whereas in previous, more traditional food systems, malnutrition (Atkins & Bowler, 2001; Morgan & Sonnino, 2008) and even hunger (Atkins & Bowler, 2001) were part of the “ancient agrarian cycle”, fluctuating as the unstable “feast or famine” pattern of agricultural output (Goodman & Redclift, 1991, p 96). Industrial agriculture has created food surpluses through economies of scale by increasing crop yields with fertilisers and pesticides, intensifying management through mechanisation, concentrating fewer but larger farms and specialising on a narrow range of crops (Atkins & Bowler, 2001). The modern food system took about 200 years to develop, through compatible and sequential interplay of science, technology, capital investment and industrial structures, developing both in rural and urban areas (Goodman & Redclift, 1991). These authors also stressed the crucial role of women as employees in the developing labour market, connected with corresponding changes in everyday cooking and eating behaviour. Particularly after World War II, the use of convenience foods in households and eating in out-of-home settings, such as fast-food restaurants, workplace canteens, public catering and restaurants became commonplace (Goodman & Redclift, 1991). The current ‘free choice’ of food, to suit any (negotiated) consumer preferences and convictions (Basset et al., 2008; Carrigan et al., 2006; Niva, 2007), enabled by most extensive retail selections, is the result of long and highly competitive development of the western food system (Atkins & Bowler, 2001; Goodman & Redclift, 1991; Lang, 2009; Tansey & Worsley, 1995).

However, in the middle of this amazing achievement, the simple (or unreflexive) modernity almost unnoticed turned into reflexive modernity (Beck, 1994a), revealing the “risk conflict” of modern society and the western way of living (Beck, 1994b, p 179); the trajectory of ‘Promethean growth’ became

contested through the growing issues of environmental impacts and social problems characteristic of a modern food system (Beck, 2000; Dryzek, 1997; Goodman & Redclift, 1991; Ritzer, 1993; Tukker et al., 2006). Under reflexive modernity, the critiques of the unsustainable features of the modern food system have been condensed in three main aspects (Lang, 2009). First, environmental impacts, featuring climate change and several additional environmental issues, including energy availability in the future, make it absolutely necessary to address the energy supply and the environmental impacts of food production (Stern Review, 2006; Tukker et al., 2006, 2009; Weidema et al., 2008). Second, identified connections between eating habits, poor quality nutrition and diet-related diseases suggest that the health of the western population is seriously threatened (Atkins & Bowler, 2001; Tansey & Worsley, 1995; Weidema et al., 2008; WHO/FAO, 2003), calling for immediate corrective actions. Third, remedy is required for the new problems of malnutrition, even hunger, which relate to access to and affordability of fresh and high quality food among part of the western population (Atkins & Bowler, 2001; Lang, 2009; Morgan & Sonnino, 2008).

Alternative modes of food production, offering foods categorised as organic, local and fairly traded, have been considered as an expression of and an option for change, as they imply positive connections with the production environment, nature and communities. To date, these product categories remain rather marginal when compared with the mainstream conventional and 'modern' ones (Atkins & Bowler, 2001; Beus & Dunlap, 1990; Tansey & Worsley, 1995; Wier & Calverley, 2002). Furthermore, ever stronger "refashioning" of nature by technologies used in the agricultural input and food industry at large has changed consumers' understanding of nature (Goodman & Redclift, 1991). It seems possible that consumers may simultaneously orientate towards organic and genetically modified (GM) food, which are not seen as mutually exclusive (Verdurme et al., 2002). However, organic food is often equated with improved human

health and environmentally friendly behaviour (Magnusson et al., 2003).

The modern food system operates through food chains (or networks, terms used in this work interchangeably), whereby businesses, limited as they are in their numbers as compared to consumers, build up the operative backbone of the food supply chain (Isosaari, 1999; Jongen & Meulenbergh, 1998). Furthermore, food supply chains are crucial as they represent the pole of production as the counterpart to the one of consumption, or of industry satisfying the needs of consumers on the market, which operates as the interface between the two poles. The previous domination of food supply chains by primary producers has changed into consumer dictation of production, mainly through demand (Atkins & Bowler, 2001; Jongen & Meulenbergh, 1998). In this development, retail has strengthened its position as the gatekeeper of market access for the food industry (Atkins & Bowler, 2001), which develops products according to the needs and wants of the consumers in the struggle for a competitive position in the saturated market (Jongen & Meulenbergh, 1998). The consumers are ever better educated, more demanding, less predictable, more health conscious and more environmentally aware, pushing for more differentiated product selection of a shorter life cycle (Basset et al., 2008; Carrigan et al., 2006; Jongen & Meulenbergh, 1998; Niva, 2007). These system dynamics, operating through actors in their respective positions within food chains, become an essential functional aspect of the food system (Malassis, 1973, 1975, 1986 in Atkins & Bowler, 2001, p 9) in terms of sustainability. Therefore, the system actors – businesses and consumers – become the crucial social arbiters of food system transformation by their behaviour, which signals their emerging orientations towards more or less sustainable food systems.

If the change towards sustainable food systems is to take place, it will have to grow within the modern food system, at first as an orientation and possibly as a major transformation in the future. This study is disposed to analyse the social dynamics for sustainable food systems. The study explores ac-

tors' orientations in their words and deeds towards sustainability in production and consumption as 'tuning' with or 'breaking' into the current modern food system. In the next subsection, perspectives on sustainable food systems are presented. They are portrayed in more detail as policies for sustainable food systems with the ensuing issues of production mode and product provenance on the one hand, and environmental science based developments, on the other. Furthermore, supply chain actors' reciprocal operational positions within the system are reviewed. In this study, two of these actors, the primary producers and the institutional consumers, are explored in depth in terms of their sustainability orientations. They are seen to represent the fundamental positions within the food system, and are therefore probed for their transformative potential for facilitating emerging patterns towards sustainable food systems.

1.2 PERSPECTIVES ON SUSTAINABLE FOOD SYSTEMS

POLICY PERSPECTIVES ON SUSTAINABLE FOOD SYSTEMS

Sustainable development has been recognised as an overarching goal of the European Union (CEC, 1997, 2004; COM, 2001; Decision No. 1600/2002/EC of the European Parliament and of the Council of 22 July laying down the Sixth Community Environment Action Programme). The Programme establishes environmental priorities for a Community response, focusing in particular on climate change, nature and biodiversity, environment and health and quality of life, and natural resources and wastes. Hereby a strategic integrated approach, incorporating new ways of working with the market, involving citizens, enterprises and other stakeholders, is needed in order to induce necessary changes in both production and public and private con-

sumption patterns. Furthermore, policy perspectives align with these aims by crystallising the term sustainable agriculture as the desired relationship between agriculture and environment (CEC, 1999; EC, 2005). Eventually, organic farming has also been recognised to deliver a combination of environmental, social and economic benefits, along with integrated production and traditional low-input farming (Atkins & Bowler, 2001; ICLEI - Local Governments for Sustainability & Ecoinstitut Barcelona, 2008a,b). The legal framework for organic production methods, including strict controls (Council Regulation (EEC) No. 2092/91 of June 1991; Council Regulation (EC) No. 834/2007 of 28 June 2007), is thus seen to represent public interest. The recent food strategy issued by HM Government (2010) emphasises a resilient, profitable and competitive regional food system active on the global market. Growing food sustainably means production of more food through better education, support for informed consumer choices for healthy and sustainable food and reduction of greenhouse gas emissions. Moreover, measures such as cutting food waste and digesting agricultural waste are to be developed. Furthermore, HM Government (2010) aims at definition of a sustainable diet to inform consumers for increased alignment.

Within these pro-sustainability developments, public procurement has been given a lead role due to its suggested purchasing power for sustainability (CEC, 2004), which should be deployed to make sustainable choices a norm (Defra, 2010). The public sector is seen to lead by example, report on-line its energy use and publish a carbon footprint of its supply chain, in order to reduce greenhouse gas emissions through partnerships with key suppliers (Defra, 2010). The Directive 2004/18/EC (European Commission, 2004) for public procurement allows the application of environmental award criteria as "economically most advantageous tender" rather than straightforward "lowest price". This legislation builds on Court of Justice case law, whereby the basic rule on environmental award criteria was laid down in Case C-513/99 (CEC, 2004). This "Helsinki Bus Case" is seen as an important

milestone for green and sustainable procurement by Morgan and Morley (2002, in Morgan & Sonni-
no, 2008, p 34–35). The Court of Justice ruled that environmental award criteria need to be linked to the subject matter of the contract, to be specific and objectively quantified, advertised previously and to be applied without discrimination (CEC, 2004). Thus the Commission has encouraged green public procurement whereby technical specifications as award criteria may be used for environmental and sustainability aims (CEC, 2004). Particularly scientifically sound approaches such as life cycle costing regarding environmental impacts and innovative activities are encouraged by public procurement (CEC, 2004). However, in terms of food, it is suggested that the green potential is tapped by serving organic food (CEC, 2004), recurrently prescribed by Green Public Procurement (GPP) criteria (ICLEI – Local Governments for Sustainability & Ecoinstitut Barcelona, 2008a,b) for the catering industry. The Core criteria for food in the GPP Training Toolkit include the organic foods and the comprehensive criteria additionally extend to foods from integrated production and consider animal welfare. In a similar vein, Nordic Ecolabelling offers a multi-criteria labelling scheme for meal production for caterers and restaurateurs (Nordic Ecolabelling of Restaurants, 2009; Swan Labelling of Restaurants, 2006). The scheme addresses the use of organic and local food, fairly traded products as well as daily vegetable meals, while it leans on life cycle assessment based criteria in the choice of products and services such as cleaning chemicals and transport.

The Finnish proposal for sustainable consumption and production is in favour of local and organic food (Getting more from less, 2005). Organic farming was proposed to occupy 10% of agricultural area in 2010 and 25% in 2025, while catering was expected to increase its use of organic and local food by 10–15% annually, with emphasis on vegetables (Getting more from less, 2005). Rather similar objectives were presented by the Ministry of the Environment (2009); public catering in Government kitchens should offer organic, vegetable-

based or seasonal food at least once a week by 2010 and twice a week by 2015. A previous proposal (Ympäristöministeriö, 2008) considered that the use of organic food would bear on savings in energy consumption and increase in biodiversity, as well as possibly have positive health impacts. Furthermore, increase of social cohesion was suggested to be increased by purchases of local food. This proposal (Ympäristöministeriö, 2008) referred to some European countries obliging public catering to use local and organic food. However, the proposal held that studies across the world offered ambiguous evidence in terms of the health and biodiversity impacts of conventional vis-à-vis organic food. Eventually, the Ministry of Agriculture and Forestry has been funding the promotion of local and organic food to catering organisations through a semi-official labelling scheme. However, national guidelines for statutory free school meals regarding a large part of public catering refer only briefly to local food rather than organic food as a path to sustainable development, while denoting that local food is no criterion for public procurement (Lintukangas et al., 2007). From the perspective of a Finnish national strategy group, the policies for sustainable choices include consumer information such as environmental labelling of ecological footprints and life cycle assessment data, in addition to consumption of foods such as local, organic or fairly traded (Suomen kestävän kehityksen toimikunnan asettama strategiaryhmä, 2006). The recent Finnish food strategy (Huomisen ruoka – Esitys kansalliseksi ruokastrategiaksi, 2010) emphasises the food sector's competitiveness and innovativeness, including biotechnology, which benefit food security, safety and quality in terms of domestic consumer demand and trade. This strategy stresses in broad terms the prevention of climate change and promotion of nutrient recycling in addition to developing business and consumer competences in producing and consuming more sustainable food.

These policy perspectives, from EU to national level, approach food system transformation towards sustainability by stressing the system actors' increased competence to bring about the change.

The main policies for change are broadly seen to be implemented through focus on provenance and production mode of food, on the one hand, and on variously constructed environmental information, on the other.

PERSPECTIVES OF PROVENANCE AND PRODUCTION MODE ON SUSTAINABLE FOOD SYSTEMS

Citizen-consumers' (Spaargaren, 1997) perspectives on local and organic food (and should the two go together, on local organic food), as interpreted and advocated academically, often emphasise their quality as epitomes of sustainable food systems. Local food, although more or less opaque as a concept, is thus seen to represent environmental concerns, local livelihoods and economies embedded in place (Seyfang, 2006; Weatherell et al., 2003), as well as citizens' local involvement and good social relations (Feenstra, 1997, p 28, in Morgan & Sonnino, 2008, p 1–19). Within the globalised food system, re-localisation efforts “celebrate” ‘the local’ vis-à-vis ‘the global’ (Morgan & Sonnino, 2008, p 1–19), whereby the local is understood as “radical and subversive” in contrast to the global, which is “hegemonic and oppressive” (Born & Purcell, 2006, p 200, in Morgan & Sonnino, 2008, p 1–19). The re-localisation movement has advocated a “proximate system” of “locally grown food, regional trading associations, locally owned processing, local currency, and local control over politics and regulation” (Kloppenburger et al., 2000). Learning to re-localise has been identified as a challenge among food system actors such as farmers and consumers (Morgan & Murdoch, 2000; Seppänen, 2004; Seppänen et al., 2006). The concept of “foodshed” by Kloppenburger et al. (1996), as well as the “terroir” of Barham (2003, in Morgan & Sonnino, 2008, p 1–19) refer to bio-regionalist connotations of satisfaction at ‘belongingness’, conveying the identification with and livelihoods due to the regional natural environment and its resources (McGinnis, 1999). Furthermore, food transport with its negative implications for energy consumption, pollution and additional cost, is suggested to be cut by more re-localised food systems

(Morgan & Sonnino, 2008, p 1–19; Poikolainen, 2004). In short, as a concept, local food advocates decentralisation, understood as a pillar of sustainable development; food in sustainable societies is to a significant extent local rather than global (Morgan & Sonnino, 2008).

From the beginning, organic farming basically represented an alternative agricultural paradigm by its principles and practices, such as decentralised, community-based and holistic production methods (Atkins & Bowler, 2001; Beus & Dunlap, 1990; Mononen, 2008; Seppänen, 2004; Seppänen et al., 2006). Organic farming seemed to cause fewer environmental impacts in terms of nutrient runoff than the conventional one, and as more labour intensive business it maintained agricultural employment while providing organic farms in general with economic returns comparable with those of conventional farms, including during the state-assisted conversion period with certification schemes (Atkins & Bowler, 2001). Obviously, organic food has been considered as an alternative to industrialised food (Magnusson et al., 2003; Lorek, 2009; Morgan & Sonnino, 2008, p 1–19; Post et al., 2008) and interpreted by consumers as being authentic, healthy and environmentally friendly, without pesticides and fertilisers (Hill & Lynchehaun, 2002; Magnusson et al., 2003; Seyfang, 2006). The market potential for organic food has been suggested to be marked, even huge, when the supply chains mature and supply and demand match up to one another (Wier & Calverley, 2002).

There are also critical perspectives to local and organic food, which are claimed to dilute the ‘original ideals’, as the conventional sector ‘subsumes the alternative’ (Morgan & Sonnino, 2008, p 1–19). Through the large-scale farming industry, conventionalisation has, at least locally and regionally, entered into organic industry (Guthman, 2004). Organic consumption has created an upmarket image, which, however, may not serve to satisfy European consumption generally due to the price premium of organic food (Goodman, 2004). Additionally, it has not been in all cases feasible for consumers to understand the relations between organic quality, quantity and price (Barnes et al., 2009; Klöckner

& Ohms, 2009). Eventually, it has been claimed that the labelling schemes initially supporting local food rely on marketing of international supply chains (Watts et al., 2005, p 30, in Morgan & Sonnino, 2008, p 1–19). Furthermore, the local food movement has been evaluated negatively to pursue “defensive localisation” strategies with less regard for wider societal interests (Campbell, 2004, p 34, in Morgan & Sonnino, 2008, p 1–19), and to represent patriotism and “elitist and reactionary” modes of thinking and acting (Hinrichs, 2003). It has also been claimed that economic gains of local production due to local consumption may exacerbate local social injustices (Born & Purcell, 2006, p 202, in Morgan & Sonnino, 2008, p 11) by excluding some local producers and consumers (Hinrichs, 2000). Furthermore, parochialism, lack of diversity and action for change have been identified in decentralised societies, counteracting inherently national and international intervention in environmental problems such as climate change (Carter, 2007, p 58–60, in Morgan & Sonnino, 2008, p 1–19). Organic farming has so far remained a rather limited form of food production and consumption in Europe (Atkins & Bowler, 2001), where its share of the total agricultural land area tends to be 1–2 % at the low end to 15–16 % at the high end among European countries (Rohner-Thielen, 2010).

ENVIRONMENTAL-TECHNICAL PERSPECTIVES ON SUSTAINABLE FOOD SYSTEMS

A strictly environmental perspective on sustainable food systems has been made by conceptualising food (supply) chain processes through various modifications of the methodology of life cycle assessment. Typically, these assessments focus on subsequent stages of production and consumption and record the material and energy flows attached to respective stages of supply chains. The flows are then characterised, normalised, weighed and interpreted according to their perceived environmental damage using standardised procedures of the International Organization for Standardization (ISO, 2010; Kurppa et al., 2010; Usva et al., 2009).

Tukker et al. (2006) list environmental impact categories such as abiotic depletion, acidification, ecotoxicity, global warming, eutrophication, human toxicity, ozone layer depletion and photochemical oxidation. The European food system has been shown to contribute from one fifth to a half of various environmental impacts due to European consumption, from farm to fork (Tukker et al., 2006). This very generic, top-down information, based on (American) common industrial process standards, provides the ‘big picture’ for the environmental impacts of food in Europe (Tukker et al., 2006), and furthermore, confirms that meat and dairy products are the most environmentally damaging food items (Weidema et al., 2008). However, the ‘big picture’ does not specify where the betterment should be targeted at the supply chain level, since there are several alternative combinations of materials, technologies and energy sources, including various wastes and recycling, which introduce idiosyncrasy to each (developing) supply chain (Usva et al., 2009). Life cycle assessment may be chain or company specific, often confidential bottom-up information, used to upgrade company environmental performance (Carlsson-Kanyama, 1998; Katajajuuri et al., 2003; Nissinen et al., 2007; Virtanen et al., 2009). Furthermore, savings are understood to depend heavily on environmental behaviour of individual businesses and households (Tukker et al., 2009).

Global warming has recently gained extremely wide attention due to its causes and consequences, particularly in terms of current economic activities and long-term developments (Stern Review, 2006). Thus systems for producing comparable and reliable real-time carbon footprint data for products become increasingly important in the design of food systems (Usva et al., 2009). Certified Carbon Footprint assessments enable producers to analyse their own processes or those at the chain level in order to identify rewarding stages for greenhouse gas emission reduction (Usva et al., 2009). In order to support consumers in steering their consumption into a ‘lower-carbon’ food system, consumer information about the environment and carbon footprints of products is suggested as a means to

this end (Defra, 2010; HM Government, 2010; Huomisen ruoka – Esitys kansalliseksi ruokastrategiaksi, 2010; Usva et al., 2009). Regarding consumer education, school meals offer a showcase for learning about sustainable choices as the greenhouse gas emission data for food may also be applied to meals and their components (Kurppa et al., 2009, 2010).

Currently, consumer choice of individual food items is tentatively supported by various carbon calculators such as “personal” or “bonus” versions or by environmental labels such as Type I labels or “exact” carbon footprint labels (Usva et al., 2009). However, the 25 carbon calculators analysed by Amani et al. (2010), available to consumers on the Internet, covered supply chains to various extents and furthermore, exhibited very different methodologies for carbon calculations. This kind of vagueness seems to render these carbon calculators inappropriate as a basis for making consumption decisions. Rather, reliability, transparency and accuracy of calculations on a uniform basis are necessary when using greenhouse gas emission data for public information (Usva et al., 2009). In order to develop certified carbon footprints of products, the system should be based on shared general principles, agreed rules for calculation, a database for the modular information regarding individual process activities, as well as transparent validation and verification; the system could be initiated through demonstration projects by voluntary partners (Usva et al., 2009). This kind of information may induce changes in consumption patterns on a more reliable and commensurable basis. The modular information in particular would enable the users to evaluate their situation in relation to the chain level and consider redesign of the supply chains towards reduced carbon footprints, and perhaps module by module towards increased sustainability.

1.3 ACTORS AND THEIR POSITIONS WITHIN FOOD SUPPLY CHAINS

PRIMARY PRODUCERS

Farming sector industrialisation has proceeded along three broad “paths of farm business development”: large scale, specialised industrial farm units, small-scale pluriactive family farms and medium sized, traditional farms under pressure to align with farms of one of the two previous categories (Bowler et al., 1996, in Atkins & Bowler, 2001, p 56–73). The post-productivist and ecological farming systems have grown slowly, and evidence of this further transformation of the farm sector is widely documented within European agriculture (Atkins & Bowler, 2001, p 56–73). The area currently under organic farming accounted for 4.1% of the Total Utilised Agricultural Area in the EU-27 in 2007 (Rohner-Thielen, 2010). In Finland, the development follows broadly similar patterns in that the number of farms decreases but their area grows (Information Centre of the Ministry of Agriculture and Forestry, 2009) while only about 7% of total Finnish agricultural area is under organic farming (Information Centre of the Ministry of Agriculture and Forestry, 2009; Rahtola, 2010; Rohner-Thielen, 2010). As in the UK in 2005 (Padel & Foster, 2005), the organic market share in Finland operated at a rather low level of about 1% of total food market in 2009 (Rahtola, 2010).

From the farmers’ point of view, sustainable food systems seem to start with market access rather than policy goals or environmental-technical discussions of sustainability features regarding various categories of food. The concentrating retail industry operates under heavy competition for customers whereby the farmers depend on successive supply chain actors and finally on the market access offered by retailers (Atkins & Bowler, 2001). Their strengthened position in Northern Europe (Duffy et al., 2003; Hollingsworth, 2004) allows them to control supply chains, which have no other comparable access to markets (Henchion &

McIntyre, 2005; Jones et al., 2004). Furthermore, overproduction on the vegetable market, due to imports from southern producers, supports the competitive position of retailers (Wilson, 1996), who also make use of global buyer alliances to increase their supply at competitive prices (Hollingsworth, 2004). In order to develop their business-to-business trade within this competition, the primary producers seem to turn to voluntary on-farm industrial standards such as the Global Good Agricultural Practices (GlobalG.A.P.) (Garbutt, 2005; GlobalG.A.P., 2010). These developments concern Finnish farmers as well, as they start to join the users of the standard (Sorsa, 2010).

Consequently, the farmers' relationship to retailers has been understood to be "critical" (Hollingsworth, 2004), a "fight" over control on the vegetable supply chain (Wilson, 1996) and furthermore, the farmers' position has been considered to be "weak" (Henchion & McIntyre, 2005) and "adversarial" (Stevenson, 2005). The 'proof' of the difficulty of this position is reflected in farmers' interest in forward integration, while the processors exhibit less interest in backward integration (Henchion & McIntyre, 2005). Furthermore, the farmers' position intertwines with that of their supply chain, which competes against other chains for access to retail markets (Wilson, 1996). According to Henchion and McIntyre (2005), the primary producers tend to make pre-agreed contracts with processors and network with other primary producers to co-operate in order to strengthen their position. In similar ways, Oregon beef supply chains are claimed to stay economically viable and deliver social and environmental benefits to farmers as well as consumers integrated with a growing local retail chain (Stevenson, 2005).

PROCESSORS AND MANUFACTURERS

Processors of agricultural raw materials were early industrial actors that created the market for mass products such as flour, sugar, milk and cooking oil; they enabled the food manufacturers to combine these and other industrial products such as chemi-

cal additives to provide fabricated foods by product fractionating (Goodman, 1991, in Atkins & Bowler, 2001, p 74–88). The processors and manufacturers have been able to increase their share of value addition in comparison with farmers, as their activities have shaped the convenience, range, shelf-life and in general the ease of handling food (Atkins & Bowler, 2001, p 74–88), to the satisfaction of consumers (Carrigan et al., 2006).

The range of food may also be examined from the perspective of its "natural" vis-à-vis "industrial" character (Atkins & Bowler, 2001, p 74–88). At the natural end there are the fresh and often perishable foods such as potatoes, cabbages, carrots, onions and lettuces (Wilson, 1996), and butchered meats (McEachern & Seaman, 2005). These products in general also appear in processed forms such as milk (Fearne & Bates, 2003), organic milk (Franks, 2003), frozen vegetables, packaged animal meats or pre-packed beverages (Atkins & Bowler, 2001, p 74–88). At the industrial end there are foods such as reformed meats, meat substitutes based on soya and "fruit" drinks with artificially introduced chemicals (Atkins & Bowler, 2001, p 74–88). In the middle of this continuum there are the majority of processed and manufactured food products, such as dairy products, including yoghurts and ice-creams, which are often a result of product differentiation attempting to align with consumers' changing needs and wants (Fearne & Bates, 2003). While processors and manufacturers aim to develop economically viable brands, they tend to increase their scientific and biotechnological efforts to produce foods with features blurring the boundary between nutritional and medical content of food, such as in the case of hyper-immune milk (Atkins & Bowler, 2001, p 74–88).

The increasingly heavy technological development of processors and manufacturers has concentrated the operations and reduced the number of actors within the food industry at the national and international level (Atkins & Bowler, 2001, p 74–88). This development has resulted in exclusion of many smallish agricultural producers in favour of larger ones, and furthermore, the primary producers have become imposed upon by "tight price

margins” as well as production methods defined for them (Atkins & Bowler, 2001, p 74–88). Thus the relative power of the position held by processors and manufacturers has increased vis-à-vis that of agricultural producers. Furthermore, downstream in the supply chain, the relative power of processors and manufacturers becomes limited by retail chains, which exploit the R&D activities of the food industry by introducing their “own brand” label products (Atkins & Bowler, 2001, p 74–88; Vihma, 2005). The relative power held by processors and manufacturers in the market seems to depend on the strength of their “producer brand” label products (Atkins & Bowler, 2001, p 74–88). However, in Finland there seems to be growing understanding by the players in the food supply chain of the need to co-operate with one another in order to increase the efficiency of the sector as a whole. This endeavour may obviously not proceed in a straightforward smooth manner due to the frictions within the relationships, as industry and retail have “long struggled against one another” (Vihma, 2005).

RETAILERS

Starting from ubiquitous market places and their face-to-face trading between producers and consumers - still existing today as a minor trading form in developed countries - urban wholesalers started to accumulate the agricultural produce and sell it to small urban retailers (Atkins & Bowler, 2001, p 89–102). This trading also adopted the form of auction markets, particularly for perishable foods (Wilson, 1996) which currently are also run as virtual markets through the web (Atkins & Bowler, 2001, p 89–102; Vihma, 2005). However, as the condensing of the retail trade took place by increased mutual competition and reorganisation of the industry, the small retailers - “grocers” - largely disappeared and the large retail capital of the supermarket chains dominates the retail market (Atkins & Bowler, 2001, p 89–102). In many European countries, a handful of top retailers operate large market shares from nearly 60 to 90% (Atkins & Bowler, 2001, p 89–102). In Finland, two large re-

tailers commanded a market share of 72% in 1997 (Atkins & Bowler, 2001, p 89–102), and their share grew to 76% by 2005, indicating the ‘cemented’ structures of Finnish retailing (Mikkonen, 2005).

The large food retailers also compete on an international scale, as they make acquisitions, and merge and establish their retail outlets abroad, reflecting the financial power of their capital investment (Atkins & Bowler, 2001, p 89–102). Furthermore, they enter into buying alliances to form groups, thereby reinforcing their global reach for the quality and quantity demanded by their consumers (Atkins & Bowler, 2001, p 89–102; Hollingsworth, 2004). Simultaneously product ranges are balanced to ensure maximal consumer choice against highest sales potential (Atkins & Bowler, 2001, p 89–102). This development generally aligns, however, with local market conditions, which have recently exhibited growing interest in local or domestically sourced food (Atkins & Bowler, 2001, p 89–102; Jones et al., 2004), a clearly visible tendency in Finnish retailing as well (Vihma, 2005).

During the last two decades, the retail sector has been making use of its position as the interface between the food industry and consumers, whereby its position vis-à-vis the food industry has strengthened (Atkins & Bowler, 2001, p 89–102; Vihma, 2005). The power of the retail industry is also perceived in the rapid growth of private label products, which emphasises the designer role of food by the retail sector while that of the processors tends to weaken (Atkins & Bowler, 2001, p 89–102). The phenomenon takes place also in Finland, as processors have to align with retail power by accepting private label production (Vihma, 2005), even through on-line auctions lasting for a few hours only (Laitila, 2005, in Vihma, 2005). On the other hand, the retail sector makes efforts to sell organic food according to customer demand (Hill & Lynchehaun, 2002; S-ryhmän vastuullisuuskatsaus, 2009) and other products labelled as environmentally benign (S-ryhmän vastuullisuuskatsaus, 2009). However, the organic market share - 1% of the total food market - is still very low in Finland in spite of various promotional measures (Rahtola,

2010) and it has not grown according to the high expectations afforded it within the European food market (Wier & Calverley, 2002). Furthermore, the large retailers have financial and human resources enabling their access to new market interfaces such as internet shopping (Atkins & Bowler, 2001, p 89–102; S-ryhmän vastuullisuuskatsaus, 2009). Finally, large retail chains in Finland seem to move on towards increasingly sustainable practices such as the use of renewable energy, anaerobic digestion of their biowaste and recycling of agricultural nutrients. These ‘industrial’ interests are in line with proactive environmental measures and economic viability (Mikkola, 2010c), evidencing a deeper and more embracing approach to material and socio-economic circulation within the food system.

PUBLIC CATERERS

Public catering has long traditions in several European countries as a social approach to increasing the welfare of young people and henceforth the nation, particularly as collateral service by compulsory education, which started to develop at the end of the 19th century (Bocchi et al., 2008, p 14; Lintukangas et al., 2007; Mikkola, 2010b; Morgan & Sonnino, 2008, p 91). Finnish public catering was initiated at the end of the 19th century to address the nutritional needs of labourers working on industrial sites, and continued to expand into hospitals and public offices, developing further into a generic welfare service used by a large part of the population in the 21st century (ACNielsen, 2007, 2008; Tarasti, 1988). In general, public catering has adopted a low-cost strategy whereby ingredients are procured as cheaply as possible and an ‘industrial approach’ is applied to meal provision (Mikkola, 2010b; Morgan & Sonnino, 2005, 2008), with some important exceptions, such as Italian school catering using organic and local food (Bocchi et al., 2008; Morgan & Sonnino, 2008).

Catering for sustainability, a notion coined by Morgan and Sonnino (2005), condensed the empirical quest for more sustainable operations by public (and commercial) caterers (Morgan & Son-

nino, 2008). With this aim, the use of local food, organic food and local organic food, as well as healthy and affordable nutrition, has been promoted in large cities such as Rome, New York and London, as well as in other capitals, small towns and rural areas in Europe, Canada and the US (Block et al., 2008; Friedmann, 2007; Kloppenburg et al., 2007; Mikkelsen et al., 2007; Mikkola, 2010b; Morgan & Sonnino, 2008; Taskinen & Tuikkanen, 2004). The common denominator for these activities has been the professional caterer, who has identified ‘sustainability deficits’ such as nutritional, socio-economic and environmental problems connected with catering services. In their various positions, caterers have engaged in consequent efforts for improvement within their reach (Morgan & Sonnino, 2008). Empirically, in these reported cases, the caterers seemed to act as ‘engines’ of change towards sustainability, and were often supported by local policies and respective financial powers.

The Finnish catering sector can be seen as a valid entry point to food system ‘sustainabilisation’ as it is relatively large and prominent, implying a strong connection with public wellbeing and environmental impacts (Mikkola, 2006b). In 2006 and 2007, the Finnish catering industry produced annually more than 800 million portions, with a rather even growth rate of 1–2 % per year (ACNielsen 2007, 2008). On average, one third of the population makes use of meal services on a daily basis, and there were nearly 22,000 professional kitchens - among them circa 9,200 public ones - (ACNielsen 2007, 2008) to serve a population of more than five million. Furthermore, at primary and secondary education level, young people (between 7–18 years of age) are served statutory free warm meals, complying with national nutritional recommendations for schools (Lintukangas et al., 2007; Mikkola, 2010b; Opetushallitus, 2004; Valtion ravitsemusneuvottelukunta, 2008). In particular, public catering may be expected to represent good dietary practices and moreover, environmental measures, and may therefore be anticipated to act for sustainable demand within the food system (CEC, 2004; HM Government, 2010; Lintukangas et al., 2007; Mikkola, 2006b). However, it is possible that while

caterers would be willing to act for sustainability they encounter both enabling as well as limiting factors vis-à-vis their quest (Morgan & Sonnino, 2008; Rimmington et al., 2006; Taskinen, 2007). Apparently, Finnish catering professionals engage more with local than organic food, particularly in rural areas (Isoniemi et al., 2006; Risku-Norja et al., 2010), in addition to other aspects of sustainability such as concerns for consumption of energy and water as well as waste management (Taskinen & Tuikkanen, 2004). The Finnish caterers feel that economic aspects may increase in importance in the future, paying the sustainability orientation somewhat less attention (Taskinen, 2007).

1.4 SOCIAL CONSTRUCTIVISM AS RESEARCH FRAMING

SOCIAL EXPLANATIONS FOR ORIENTATIONS TOWARDS SUSTAINABILITY

This study inquires into food system dynamics, where social forces for sustainability are generated by actors working within the system structures, and where the actors' views, efforts and performance introduce marked changes into the system (Giddens, 1991). The study looks first and foremost for social explanations for food system dynamics and possible orientations towards sustainability. Granovetter (1992) claims that "economic institutions are socially constructed, they result from actions taken by socially situated individuals embedded in networks of personal relationships with non-economic as well as economic aims". The valid social explanations need to avoid both over- and under-socialised conceptions in order to evidence the weight of the social in economic developments (Granovetter, 1985; 1992). The author (1992) adopts the "weak embeddedness" view that social relations and institutions always remain relevant for economies. Polanyi (2001, [1957]) presents an extended view of substantive economy when stating that man is dependent for his living upon nature

and his fellows in interchange with his natural and social environment for the means of material want satisfaction.

This study follows the actors' interaction with their social and material environment, as both economic and non-economic motives, social relations and recent historical processes influence actors' various efforts regarding sustainable food systems. These interactions are interesting as they often interfere with 'pure' economic activities and yield orientations towards supply and demand for sustainability. Here the food system is understood to operate on the imperfect market, where the players lean on their more or less valid understanding of the other players, the system and its environmental impacts, often operating without administrative fiat but with possible alignment with socio-economic and policy orientations towards sustainability. In general, this kind of understanding of markets comes close to the one of institutional economics whereby social relations between other actors and the environment increase in importance and impact (Berger, 1994; Dryzek, 1997; Granovetter, 1985; 1992; Ostrom et al., 2007; Williamson, 2000; Worster, 1994).

TURN TO THE TEXT

This study's epistemic stance represents the "interpretive turn" (Schwandt, 2003) or "turn to the text" (Burman & Parker, 1993), whereby food system developments are analysed as they are perceived by system actors, with the focus on "fidelity to phenomena, respect for the life world, and attention to the fine-grained details of daily life" (Schwandt, 2003). The aim is to generate and interpret data in order to 'dive' into the meaning of what food system actors are saying and doing, and to transform this understanding into public knowledge (Schwandt, 2003). Therefore, this study endeavours to disclose actors' reasons for their views and activities rather than their arbitrary relationships (Foster, 1998) or causes (Schwandt, 2003) regarding them. The epistemological position adopted in this study aligns with constructivism, whereby foundational,

mind-independent and permanently fixed reality becomes rejected, as the reality is understood to be socially (re)constructed, mediated by human (re)structuring, and presented in texts (Berger & Luckmann, 1966; Lincoln & Guba, 2003; Parker, 1992; Schwandt, 2003). Texts, according to du Gay (1996, p 54, 70–73) include both action and use of language as these together represent interpretations and deal with socially negotiated “reality”, not the “Real” itself. Language is thus seen as the ‘carrier’ and ‘operator’ of social reality. According to Berger and Luckmann (1966), language is learnt by use and in connection with social and bio-physical reality. As actors always perceive the world from a particular point of view, and with a particular aim, their reality is experienced and expressed as discursive perspectives (Burman & Parker, 1993; Parker, 1992), relevant for human behaviour in general. The socially active ‘work for change’ takes place and is particularly traceable in discourses, which are understood to be expressed by broad patterns of actors’ speech and deeds regarding particular topics (Parker, 1992).

Furthermore, perception of social reality includes a normative dimension pertaining to oneself and others, as “the normative structure of consciousness reflects both one’s patterns of semantic usage but also, and inseparably, the evaluative features of the discursive contexts in which one finds oneself” (Harré & Gillet, 1994, p 162–180). This kind of social development of consciousness introduces the moral dimension into human thinking and activities. Intriguingly, Harré and Gillet (1994, p 179) themselves, in their otherwise rather theoretical work, join the ‘ecological era’ by criticising the discourse of ruthless exploitation of the environment by business parties for the purpose of sheer commercial success.

More specifically, the epistemic stance of this study operates along the Saussurean signifier-signified (S-S) divide (Foster, 1998). According to Eagleton (1991, p 208, in Foster, 1998) the “realists”, aligning with the empiricist model, see the signifier (word) as following spontaneously from the signified (observable ‘reality’), whereas the “relativists” invert the model and see the signified (observable

‘reality’) “following obediently from the signifier” (word). In this study, the tensioned and inclusive view is accepted, that both material and social reality (the signified) and their representations (the signifier) need to be examined critically and reciprocally (Foster, 1998). This kind of ‘reality check’ examines iteratively for connections between what is perceived, and how it is understood and responded to. Soros (2010) discusses his notions of negative and positive feedback loops as the relationship between actors’ expressed views and the situation they perceive. Within the negative feedback loop inconsistencies are looked for between participants’ expressed views (signifier) and the actual situation (signified), resulting in bringing the two closer together through corrective actions (Soros, 2010, p 14–16). If external reality does not change significantly, negative feedback processes “may eventually lead to an equilibrium in which participants’ views come to correspond to the actual state of affairs” (Soros, 2010, p 14–16). In the case of positive feedback loops, consistencies are searched for with the result that actors’ views and perceived reality are driven further apart without corrective action (Soros, 2010, 14–16). However, ‘reality checks’ are made increasingly difficult due to ideologies, whereby observable ‘reality’ becomes bound with “economic and social relations, social interests and positionings, spatial structurings and bodily orderings” (Eagleton, 1991, p 206, in Foster, 1998).

The epistemic position of this study corresponds with “weak holism” (Schwandt, 2003), seeking to explicate a rational basis for evaluating the validity or justification of an interpretation, thus enabling the researcher to decide normatively (more or less ‘true’ or probable) between interpretations and to revise them critically on the basis of evidence. In this way, the data are not understood in a naïve way but discursively, being expressed by an individual with a particular background, within a particular position, situation and purpose. Research of the tripod of sustainable development and food system needs the ability to move in and across the S-S divide and to view critically interpretative constructions pertaining to nature,

economy and human behaviour. The corrective action of 'reality checks' implied in the aim of this study consists first, of reconstructed (researched) views regarding reality, and second, of measures proposed for alignment, adaptation and change. This study suggests that the roots of discursive change grow within these kinds of iterative loops, which currently also concern the scientific and professional debates about sustainable food systems. This study deploys theoretically based conceptual notions, both established and those constructed *ad hoc*, as particular views that are examined according to the actual situations of primary producers and institutional consumers in their structural positions within the food system.

1.5 CONCEPTUAL NOTIONS OF THE STUDY

THE ECONOMIC EXCHANGE RELATIONS AND COORDINATIVE STRUCTURES OF SUPPLY CHAINS

Theoretically, grounded on extensive substantive evidence, forms of exchange relations between economic actors have been categorised in terms of their duration, mutual independence or interdependence and various modes of power (Table 1). Market relations have been understood as the basic economic phenomenon, whereby the Weberian exchange expresses "conflict" of interests, "battle" for gains, and "abomination of fraternal ethics", disregarding the other's situation (Weber, 1978 [1922], p 93, 108, 635, 637, in Swedberg, 1994). According to Swedberg (1994), Weber emphasised that "monetary prices are always the result of a power struggle between the parties on the market". In order to avoid contractual hazards such as dishonesty and fraud, inherent in market relations, and to increase market safeguards, transactions were brought into governance structures of the expanding firm. This explanation by Transaction Cost Economics (TCE) (Williamson, 2000) moves exchange relations from market to hierarchy. Economic relations be-

come transferred from intra-firm to inter-firm organisation, and transactions are removed from the market and put under unified ownership, the firm, in order to organise "cost-effective hazard mitigation through added governance" (Williamson, 2000). Simultaneously, free market relationships between exchange parties as self-interested buyers and sellers, looking for the hardest possible bargain for immediate exchange (Powell, 1990) changes into hierarchic power relationships within a single governance structure (Williamson, 2000). However, on the market there can be firms some of which may dominate supply in various ways and build up a power game with other firms. These may have to adapt to the market dominance through positive or negative sanctions (Powell & Smith-Doerr, 1994); instead of atomistic market relations or inter-firm hierarchies there is a power game and tensions between firms on the market.

However, an inherently different view on exchange relations, organised on the basis of network and social ties, is presented (Table 1) by Powell (1990) and Granovetter (1985). Exchange relations are seen as always embedded in the social ones, which are influential as historic, on-going and future phenomena (Granovetter, 1985). These relational modes are very consequential for organisation and efficiency of economic exchange. Accordingly, firms building up supply chains on the market are able to enhance their adaptive capacity and competitive advantage by learning and reorganising their activities across their governance structures (Porter, 1985, Powell, 1990; Wilson, 1996). These exchange relations come closer to network relations, whereby resources are allocated efficiently and flexibly, and benefits and burdens are shared among the partners (Perrow, 1992; Powell, 1990; Powell & Smith-Doerr, 1994). There are several different modes for chains to build on a 'networking' or 'partnering' core, such as inter-firm agreements, strategic alliances, "quasi-integration", stable relationships and partnerships (Powell, 1990). Particularly strategic networks (Jarillo, 1988) allow competitive organisation of the partnering firms at the chain level according to their results in the mutual endeavour. Finally, not only

firms, but even whole economies may be organised in alignment with cultural idiosyncracies (DiMaggio, 1994; Dore, 1983; Granovetter, 1985; Polanyi, 2001; Williamson, 2000).

These relational forms of economic exchange mediate coordination by their respective mechanisms: price for market, authority for hierarchy or domination for market power and trust for network (Adler, 2001). Furthermore, as economic actors are humans, they act as though “embedded” in ongoing network relations (Granovetter, 1985) and their cognitive, cultural, structural and political dimensions become ‘ingrained’ in the economic relations (DiMaggio, 1994), adding to variation in exchange relations. Moreover, economic relations may be less

seldom found in their ‘pure’ forms, but can be observed as mixtures of forms, substituting or complementing each other and thereby resulting in plural forms or hybrid modes (Adler, 2001; Bradach & Eccles, 1989; Jarillo, 1988). Furthermore, as firms become nodes within chain or network structures, the environment exerts impact on their ‘relational realities’, which are described as bound together by “goal congruence” (Ouchi, 1980, in Jarillo, 1988). Jarillo (1988) asserts how the superiority of the strategic network builds up by conceptually connecting transaction economics, effectiveness, efficiency and mutual trust in a model of determined economic behaviour, increasing competitive advantage on the market (Porter, 1985; Wilson, 1996).

Table 1. Forms of coordinative exchange relations among economic actors.

<p>Market relation Economic actors are inclined towards atomistic behaviour, without personal relations, and are independent in buying and selling; there are no future commitments, and inherent antagonistic relations prevail between actors, who look for the hardest possible bargain; price signals are decisive, and the market offers access and choice to all actors.</p> <p>Hierarchy or power relation Economic actors are given orders by management in a position of authority in vertical organisation; compliance is expected without contestation, irrespective of the content of the order; between businesses, overt domination from a power position like buyer power of large businesses implies ability to sanction other businesses’ behaviour negatively or positively.</p> <p>Network relation Economic actors commit mutually to allocate resources flexibly within the network in an effective and efficient way, ‘inside’ information is shared and learning and innovation have a role to play; network actors gain access to resources beyond their own; long-term relations with network actors are trustworthy; sharing of benefits and burdens is fair.</p> <p>Social relation Economic actors, not necessarily within the same supply chain, engage in mutual personal relations; there are long-term relations like acquaintances or friendships; everyday, business and also confidential information is shared; pleasure is experienced from each other’s company and there may be common activities outside the work environment. Although social relations are often conceived as agreeable, they may also exhibit negative perceptions and have unpleasant consequences.</p>

PROFESSIONAL IDENTITY FOR SUSTAINABILITY AS A SOCIAL FORCE

Professionalism is often connected with medical, educational or social fields, but in principle it may be understood to represent any specific domain or area of scientific knowledge exerting influence within and on modern society (Derkzen & Bock, 2007). Professionalism implies legitimacy through features such as its specialised technical knowledge, capacity for self-organisation and getting one's voice heard, as well as the closure mechanisms controlling access to the profession (González & Benito, 2001, p 346-347, in Derkzen & Bock, 2007). Furthermore, professionals are anticipated to display publicly (and privately) behaviour acceptable to the community they serve (Kompf, 1996, p 5, in Derkzen & Bock, 2007) and to associate themselves smoothly with dominant discourses (Dent & Whitehead, 2002, p II, in Derkzen & Bock, 2007).

This apparently rather stagnant depiction of professionalism becomes exposed to ambiguous and challenging developments as novel discourses, such as those about ecology and sustainability gain ground within society (Dryzek, 1997; Worster, 1994). The challenge lies first within the various, more or less professional views of the community the professionals serve (Derkzen & Bock, 2007). Second, the challenge concerns the views of the professional community; Beck (1994a, p 47-52) asserts that the ecological issue has penetrated into occupational fields, and that professionals know how to control production processes towards the ends to which they are committed. As they master the productive intelligence, it brings them power to introduce changes into society on all levels of action. However, Beck (1994a, p 47-52) sees that this penetration of ecological issues into occupational fields may not take place in uniform or mutually agreed ways, but causes "ecological splits" in the "methods, procedures, norms, plans and routines" the professionals engage with. It may be expected that the position of the individual employee is negotiated towards various roles (Forward & Scheerhorn, 1996), such as promoting sustainable devel-

opment within the organisation, while this role more or less lives up to the employees' ecological identity (Thomashow, 1995) as a social identity for ecological orientation (Castells, 1997). Hereby professionals' own views and aims, as active social forces (Burr, 1995) within their organisations (Forward & Scheerhorn, 1996), become important carriers of measures for sustainable development.

As an interesting parallel to caterers, Connelly and Clandinin (1999) illustrate empirically the shaping identities of teachers within their organisations. Teachers are depicted as working with young people within the 'relative privacy' of their classrooms while they also are obliged to align with 'external pressures' such as administrative rules and regulations, educational ideas and parental expectations and wishes. Furthermore, struggling with the sense of 'goodness' of what one delivers to those one serves within the organisational limitations seems to be pertinent to teachers (Connelly & Clandinin, 1999). The position of public caterers seems to resemble in many respects that of teachers, as vividly and accurately described by Connelly and Clandinin (1999). Managing one's work according to internal and external pressures and regarding what one 'feels' is 'right', paints a picture of the 'ingredients' of professional identity applicable to various areas of expertise. Professionals' positions become thus intertwined with their knowledge as 'knowledge landscape', their judgement (Connelly & Clandinin, 1999) and the appreciation and 'voice' warranted for them due to their (technical) knowledge (Derkzen & Bock, 2007). The issue of existing knowledge and its usefulness to the community thus introduces an internal tension to professional work. In general, identities may be seen as multi-layered constructs (Derkzen & Bock, 2007), reflecting by their colourings the circumstances and individual choices within their formative contexts (Connelly & Clandinin, 1999).

Following particularly Beck (1994a, p 47-52) and Connelly and Clandinin (1999), the notion of shaping professional identity for sustainability has been coined for this study as a crystal reflecting the relational entity comprised of organisational strategies and practices for sustainability, professionals'

views about sustainability and their own activities concerning it within their 'room for manoeuvre'. Furthermore, this notion of professional identity for sustainability as a conscious, morally toned and ingrained orientation draws on Ricoeur's (1991) assertion that persons 'carry their own life history' and when asked "who did this?", they are able to answer the question. Giddens (1991) and Hall (2004) understand modern persons as being discursively aware about what they are doing and why. These 'deep layers' of awareness about one's share in the quest for sustainability correspond to some extent to the "responsibility", the directing of which was found to be 'dilemmatic' in public care of the elderly (Mattson Sydner & Fjelström, 2007). The professional identity for sustainability may be expected to gain various colourings according to the successes and failures in its implementation within organisations.

PARTICIPATORY RESEARCH FOR SUSTAINABILITY

Theoretical insights into "participatory learning" and "participative decision making" have translated into developmental working ways towards sustainability in the agro-food sector; both researchers and other stakeholders interact for progress (Pretty, 1995). The new philosophical and methodological underpinnings of participatory research suggest, that research participants must "play a major role in shaping the research agenda", whereby the "collaborative" approach refers to a pre-determined outcome achieved through local negotiations and the "participatory" approach allows the participants to work out both outcomes and methods (Bruges & Smith, 2008). Correspondingly, the participatory research approach also implies that the practitioners have valuable knowledge about the system (Beck, 1994a), the application of which is necessary in implementing possible changes based on collaborative research findings. Participatory research thus embraces participants' own activities and meaning-making in collaboration with researchers; the practitioners are the ac-

tors who are responsible not only for implementing the changes but also for running the system after them. While researchers are often perceived as facilitators by practitioners (Park, 1993, in Bruges & Smith, 2008), both parties expect, in general, to benefit from co-operation (Bruges & Smith, 2008).

One of the 'members' of the participatory research 'family' is the dialogue approach, the characteristic features of which are understood to consist of reciprocity, listening to the other, increased understanding, experiences and realisation as well as finding solutions for various situations, as exercised by the parties of the dialogue (Bohm, 1996; Pretty, 1995). Cronin and Jackson (2004) found dialogue with the 'general public' useful when researching relationships with genetically modified (GM) food. In their dialogue process, the sharing of issues and the search for common ground for solutions in the agro-food sector were important outcomes. Wals (2010) particularly emphasises new forms of learning for sustainability, requiring "hybridity" and "synergy" between multiple actors in society, whereby the boundaries of formal, non-formal and informal education become blurred. This kind of an approach was considered a relevant option in terms of probing into learning at workplaces (Tynjälä, 2008) in the catering industry.

2. AIMS OF THE STUDY

This study examines the actors' orientations towards sustainable food systems, and focuses on the two poles of food supply chains: one of primary production and the other of public consumption. Farmers experience inclusion in or exclusion from the supply chain as a condition of their livelihood; the public catering organisations have a statutory position and therefore the caterers may possibly have more room for manoeuvre in their relationships within food supply chains. Broadly speaking, the activities of primary producers may be assumed to mirror the notion of 'weak' sustainability, whereby their prime interest concerns continuity of their businesses from the economic standpoint, possibly influenced by environmental concerns. As public servants the caterers may be anticipated to have an established position as institutional consumers, enabling them to, on occasions, engage in 'strong' sustainability. They may not be expected to take the ecological dimension as their sole starting point, but could opt for the more inclusive approach of the tripod formulation of ecological, economic and socio-cultural concerns, which could be worked into their operations. Furthermore, the caterers adopt a central position as 'first order consumers' who edit the choice of meals for their customers, the 'second order consumers'. The caterers also represent the local political capacity to negotiate the purchases of food with local vis-à-vis external actors. Finally, the efforts for sustainable food systems made by public catering emphasise needs for learning; the policy perspectives on sustainable food systems do not translate spontaneously into compatible activities for sustainable consumption and hence production.

The research design of the study simplifies the positional differences between production and consumption by deploying the 'ends' of the food supply chains. The design additionally subsumes the actors' views and activities in terms of local, organic and conventional food as well as their en-

vironmental concerns, vis-à-vis the conditions of their livelihoods. This design also questions the empirically evidenced power balance between the poles of the supply chains as well as the appropriateness of the political-moral expectations towards public actors. This holistic pattern suggests that economic relations between production and consumption, in terms of perspectives on local, organic and conventional food, and additionally on environmental-technical features of food, are relevant for both groups of actors for the redesign of the food system.

The research questions of the study at the level of primary production are as follows:

1. What are the forms of economic relations within the food supply chains from the farmers' point of view and how can the farmers ensure their connection to the supply chains?
2. Could there be particular modes of coordination of economic activity within food supply chains that represent more sustainable ways to run a business than others from the farmers' point of view?
3. Are there differences in coordinative modes among local, organic and conventional food supply chains?

The research questions of the study at the level of public consumption are as follows:

4. Do public caterers express professional identity for sustainability within their reach?
5. How do the caterers implement sustainable food systems within their organisations in terms of conventional, local and organic food or environmental-technical features of food?

6. How can caterers and researchers learn more about increasing the sustainability of food served for public consumption?

The summarising research question regarding the overarching pattern of sustainability orientations is as follows:

7. Do the efforts of the primary producers and the public caterers eventually converge as viable orientations towards sustainability in the future?

This study examines the forms of economic relations of individual farmers (I) and the modes of

coordination of economic activities within conventional, industrial (conventional) and organic vegetable supply chains (II). The study explores public consumption as a social force for sustainability through the notion of professional identity for sustainability, whereby local, organic and conventional (the domestic and imported) food and environmental-technical quality of food is the focus (III). Furthermore, the study deals with developing sustainable food systems through participatory research, whereby researchers and caterers learn about the use of sustainable food in public catering (IV). Finally, the study looks for possible converging orientations between primary production and public consumption based on its findings (I, II, III, IV).

3. MATERIALS AND METHODS

3.1 EMPIRICAL DATA

The data of this study consist of three text corpora, the 'local food corpus' and the 'catering corpus', based on interviews, and the 'mixed corpus', including interviews, e-mails and informal discussions. The 'local food corpus' was collected during 2003–2004 and it comprises 17 interviews (I, II). The interviewees were well-known in the small rural municipality by local public caterers, retailers, the municipal manager and university researchers; most of them also knew each other through their positions within the local food system. Moreover, this south-eastern Finnish locality was known for its agro-industrial progressiveness, including pioneering organic farming (Mononen, 2008). It may be claimed that the interviewees represented inherently broad understanding pertaining to the local food system and its connections with the broader Finnish food system.

The study (I, II) made use of 10 interviews of the 17 collected: two vegetable farmers (one organic and one conventional), one industrial (conventional) processor, three catering managers (one provincial executive and two rural managers), two local co-operative retailers (one retail manager and one retail management assistant) and two municipal officers, one of whom was the municipal manager and the other a food sector developer. Not all the interview data of the local food corpus were thus used for final analyses of economic relations; only those cases were chosen for analysis which seemed to illustrate rather coherent and mutually different coordinative structures regarding vegetables. This choice was made during the primary analysis as the aim of the analysis was to find qualitative evidence for the existence of optional and successful coordinative modes of vegetable supply chains. In this sense, the choice reflects theoretical interest in

the quality of socio-economic relations for sustainability.

The catering corpus consists of 28 accumulated interviews of caterers in varying positions and in different parts of Finland during 2000–2008 (III). This corpus was initiated as an independent study in 2000–2001 and continued during two separate projects during 2003–2004 and 2007–2008. The time period was rather long and the interviews represented Finnish public catering organisations from rather small through medium to large. Furthermore, the geographic extent was considerable, and the catering organisations were categorised as rural, provincial, sub-urban and urban, to give a broad view of the situation of the public catering industry during the first decade of the 21st century. During this research period, there were no particular factors shaking the solid structure of public catering, except that economic prospects became somewhat tighter than before, leading to slow and steady concentration in the sector.

The third mixed corpus includes interviews and discussions with 15 caterers during 2008–2009 in five different catering organisations (IV). The caterers participated in the test use of organic milk, which was implemented during 2008–2009 in their premises in co-operation with the dairy company and its marketing experts. Furthermore, the two dairy marketing experts were interviewed in 2008–2009. The interview situations also allowed for informal negotiations about the implementation of the test use of organic milk, entailing later e-mails about agreements and practical organisation of the test; these served as additional data (Alvesson, 2003). In addition to this mixed corpus, the views about organic milk presented by experts in two previous text corpora, the 'vitamin D fortification' corpus (Mikkola, 2007) and the 'greenhouse gas emission' corpus (Mikkola & Risku-Norja, 2008), supported the dialogic understanding of the

researcher and served as a community of corroboration in terms of results.

The interview guide for this study was designed originally during 2000–2001 very generically, and was meant to cover broadly the interviewee's professional life while it was particularly intended first, to suit supply chain studies and second, to support actors' characterisations of categories of food and the environment. These consisted of broad topics such as local, organic, conventional and GM food. This interview guide was in use during 2003–2004 (Appendix 1; Seppänen et al., 2006) and was perceived as a productive outline for the interview situation. The same interview guide was deployed in later studies during 2007–2009 with slight modifications, including the concept of sustainable food as an explicated topic previously approached by topics such as local and organic food and the environment (Appendix 1). The interview questions were in principal the same for farmers, caterers and other food system actors, with some appropriate modifications according to the context. The interviews were of a semi-structured, open ended, in-depth type as the interviewees were given freedom to express themselves in the words and tropes they chose, following their own lines of thought, and efforts were made to 'support' the interaction while avoiding verbal clues or normative messages by the interviewer (Kvale, 1996). All these interviews were tape-recorded and transcribed verbatim.

The long time span of the study, from 2000 to 2009, could imply various episodes and respective discursive turns within the food system. However, the situation seems to have been rather stable in that from 2000 to 2009 the interviewees discussed categories of food and sporadically touched upon concepts such as sustainable development and as a far-reaching measure, the life-cycle analysis methodology. The climate change discourse has gained increased visibility during the past decade, but did not occur very often in the interviews.

3.2 METHODS OF SOCIAL INQUIRY

INTERVIEW

Interviews are a "paramount part of sociology" for Fontana and Frey (1998), and for them, the answers researchers get are "commensurable with the questions we ask and with the way we ask them". These authors claim that in order to learn from people they must be treated as people; this was attempted in this study by open-ended semi-structured in-depth interviews (Fontana & Frey, 1998) with farmers, caterers and other food system actors including experts from various fields. Furthermore, qualitative interviews stand as one option for gaining more profound data for grounded interpretations of actors' social reality (Kvale, 1996). The "getting in" (Fontana & Frey, 1998) into the interviewees' 'life-worlds' took place via informants in the agricultural locality and some caterers who had had previous professional connections with the researcher. Interviews were mainly conducted on the interviewees' premises, such as in homey farmhouse kitchens, in the clatter of professional kitchens or in the relative silence of administrative offices. The language and culture of the interviewees were familiar to the researcher, herself having some background in agriculture and the catering industry. The researcher presented herself as someone who was to some extent knowledgeable about the food sector and who wanted to promote sustainable food systems by learning about the actors' views as a researcher.

Interviews with the farmers and caterers were understood to be discursive on two levels; first, every interview situation was a context for interaction, whereby the interviewee considered more or less the 'correctness' of her/his talk. Second, what was to be explicated by interviewees – as well as interviewers – was again, more or less, in connection and interaction with external discourses of all kinds. As Bakhtin (1981, p 338) asserts, "...in real life people talk most of all about what others talk about - they transmit, recall, weigh and pass judge-

ment on other people's words, opinions, assertions, information; people are upset by others' words, or agree with them, contest them, refer to them...". This discursive understanding of reality (Giddens, 1991; du Gay, 1996; Parker, 1992; Potter and Whetherell, 1987) is socially constructed (Berger & Luckmann, 1966) and implies that in this world no empirical method exists for gaining 'pure' and 'independent' knowledge from particular social actors - because they are social actors.

The study aimed at constructing inter-subjective meaning with the interviewees, coming close to empathic identification and phenomenological sociology (Schwandt, 2003). The study exercised simultaneously "Verstehen" from 'outside' in the researcher's capacity and from 'inside' in the capacity of an 'agro-food acculturated' actor when participating in conversations and dialogues in actors' situations (Schwandt, 2003). Hereby the researcher's interpretation may not be final and correct, in line with the view that the interpreter does not share the world of the subjects in their everyday life nor trade. For Gadamer (Bernstein, 1983, p 139, in Schwandt, 2003), "to understand is always to understand differently". However, both kinds of interpretative resources - from outside and inside - are needed in order to transform the meaning of what food system actors are doing and saying into public knowledge (Schwandt, 2003). As the interpretations of this study have been socially constructed within communicative relations between the actors and researchers, as well as external actors in similar fields and trades, they may be evaluated as being rather trustworthy, "justified" or "valid" (Schwandt, 2003).

MEDIATED DIALOGUE

This study was basically interested in the actors' point of view and the considerations of their professional fields and organisations as 'inside' information (Alvesson, 2003), possibly part of developments towards sustainability at large, taking a 'participatory-collaborative' research approach to induce deliberation in the use of organic milk by

caterers. The researcher identified organic milk as a sustainable product with a low market share in spite of the considerable potential for increased production by dairies. As some public caterers involved in this study explicitly disapproved of marketing while aiming at efficient meal preparation processes, a 'neutral' approach of 'mediated dialogue' was applied. The neutrality of the approach consisted of independence of the researcher in terms of organisational, economic and operational developments from the food system actors of the study. Therefore, the position of the researcher resembled that of the "free actor in the network" (Wielinga et al., 2008), with the exception that here the researcher had explicitly informed participants about her pro-environmental and pro-sustainability orientations as the motivation for the study. The catering organisations could be seen as if not exactly 'dedicated' to the idea of sustainability, at least as showing some collateral interest in it. There were also organisations not willing to participate in the test use of organic milk; this indicates the 'independence' of caterers as they did 'have a choice' whether to participate or not.

The aim of the dialogue was particularly to map issues of and create grounds for making decisions (Bohm, 1996; Cronin & Jackson, 2004; Pretty, 1995; Wals, 2010) about the use of organic milk by caterers. The mediated dialogue, whereby the researcher acted as a messenger taking turns between researchers, dairy experts and caterers, avoided excessive resemblance with 'marketing' efforts while retaining the aura of free choice for sustainability for the caterers.

3.3 METHODS OF TEXT ANALYSIS

QUALITATIVE TEXT ANALYSES

The texts were analysed on the basis of the research questions in association with the theoretical background, which consisted of conceptual notions such as economic exchange relations (I, II), professional identity for sustainability (III) and the mediated dialogue about organic milk (IV). The analysis of the text corpora condensed the meanings of interview data as answers into research questions and presented these in a categorised format according to conceptual notions of the study (Kvale, 1996). In this way, the analysis made patterns of social dynamics for sustainability visible within the actors' situations. In each text analysis, the generic conceptual notions were translated by the researcher into actors' contextual activities, which became operationally interpreted as particular economic forms, professional identities or views about concrete and material phenomena presented in dialogue. The 'translations' between conceptual notions and their concrete, everyday equivalents had their basis in the critical and reciprocal interaction between the researcher and the interviewees (Foster, 1998) (I, II, III, IV).

ECONOMIC RELATIONS

The analysis of economic relations included layered analysis of relational form(s), in its/their concrete and contextual details, and the businesses with whom this type of relation was actual, and additionally, who made the claim of the type of relation (I, II). The coding of texts - marking of specific text segments as conforming with particular forms of economic relation - started by making the 'translation' between conceptual notions and concrete activities actor by actor, and denoting with whom the particular relations were actual. After compiling relations in terms of actors, the 'aerial views' of "ego-networks" (Powell & Smith-Doerr, 1994)

were graphically visualised (I, II). The visualisation made it evident that occasionally actors may have different views on the same relation; this was made visible by setting the starting point of the arrows very close to the actor who made the claim (I, II). However, in order to increase readability, Figs. 1, 2, and 3, of this study present stylised network patterns in which this particular detail is not visible as it was rather rare and did not change the interpretations of the actors' orientations. The visualisations of different food supply chains allowed the examination of the coordinative structures at the chain level, enabling further categorising of modes of chain level coordination. The visualisations offered a unique opportunity for the networks to be outlined against the 'grand' concept of a sustainable food system whereby the different coordinative modes of supply chains could be discovered (I, II).

PROFESSIONAL IDENTITY

The analyses of professional identity (III) first divided the caterers into two groups based on their positions, implying their different decision-making options (Bergström et al., 2005). The categorisations for professional identity were done in the same way for both groups, by coding from the transcripts the existence of and possible compliance with the organisational strategies of caterers, and the caterers' views and activities in terms of local, organic, conventional and imported food as well as their environmental concerns. The coding was fixed to a particular caterer, and when compiling all the caterers with their respective strategies, views and activities in a list, qualitative similarities and differences became visible. The caterers' situations were not totally identical, but some of them were similar enough to allow them to be put into the same category, and to be named according to qualitatively sensitive understanding of their approaches towards sustainability. In this study, there remained categories with only a single representative. This fact obviously suggests that there would be more qualitative categories in the 'real world'. However, the data were sufficiently extensive and their analysis 'simple' enough to yield

constructions of professional identities on the continuum from more to less facilitating in terms of sustainability (III).

MEDIATED DIALOGUE

The mediated dialogue (IV) was the theoretical frame within which the qualitative analysis of the caterers' relation to the use of organic milk was constructed. The text analysis of sequential dialogue was explorative in that the aim of the participatory study was learning for both caterers and researcher(s) about issues and grounding of the decisions (Pretty, 1995; Wals, 2010) about the use of organic milk in catering. The analysis constructed the central experiences and arguments made by the researcher(s) and caterers, and reported these in time sequence, after the experimental process of test use of organic milk. The identification of central arguments was carried out by discerning corresponding topical entities from the transcripts of caterers' and dairy experts' speech. Part of the participatory research process was the explication of the researcher's stance towards organic milk, as depicted by the poster - as a textual mediator - which was allowed to be presented on the walls of the premises for caterers and their customers during the period of test use of organic milk.

3.4 GENERALISABILITY AND LIMITATIONS OF THE QUALITATIVE FINDINGS

GENERALISABILITY IN THE WORLD OF MULTIPLE AND INCONSISTENT TRUTHS

Generalisability of research results is closely related with the epistemic stance of the study. Recently, due to the demise of the "ultimate generalisation" as the "grand" formula, perfect determinism has

slowly turned to indeterminism (Lincoln & Guba, 2000). Disciplines do not seem to account for all of reality; instead, the "perspectives aggregated do not necessarily sum to the whole of the phenomenon", while multiple sets of internally consistent statements seem to exist without mutual conformity or consistency (Lincoln & Guba, 2000). Furthermore, axiomatic knowledge systems seem to reach towards "unknown truths" (Hofstadter, 1979, in Lincoln & Guba, 2000). The pervasiveness of generalisations becomes limited as they are seen to be 'constructed' and probabilistic according to their contextual and temporal dependencies, and even physical, chemical and biological generalisations are seen to change (Lincoln & Guba, 2000). Thus the notion of universal truth is rejected while specific personal, local and community forms of truth prevail, particularly in everyday life (Kvale, 1996, p 231).

The ontological and epistemic acceptance of indeterminism and multiple axiomatic perspectives as (positivism and) post-positivism on the one hand, and constructivism and participatory approaches on the other (Lincoln & Guba, 2003), accords in this study with the challenge to sustainability set for the modern food system. In this conceptual framework, the indeterminate character of knowledge regarding the world supports motivation for research and policies for sustainability (Wals, 2010). Furthermore, it is essential that the axiomatic natures of environmental sciences and social and human sciences are contradictory and mutually exclusive by their paradigms (Lincoln & Guba, 2003) because in their respective capacities they enable the 'reality checks' (Foster, 1998; Soros, 2010) to be made in terms of the tripod of sustainable development. However, as sustainable food systems are 'run' by actors, constructivist and participatory paradigms, particularly regarding learning, are at the core of development of sustainable food systems through local and community 'truths' across the globe (Pretty, 1995; Wals, 2010). This approach does not evade positivist and post-positivist understanding about the environmental dimension of sustainable food systems, but rather insists on it as the most reasonable basis for actors'

construction and implementation of a sustainable food system.

The aim of qualitative work in this study was “to produce a coherent and illuminating description of and perspective on a situation that is based on and consistent with detailed study of that situation” rather than to “discover general laws of human behaviour” (Schofield, 2000). Since qualitative inquiry is considered to produce useful understanding for policy-oriented research (Altheide & Johnson, 1998; Schofield, 2000), in this case about actors’ orientations towards sustainable food systems, the generalisability of the qualitative research results needs to be considered in particular (Schofield, 2000).

GENERALISABILITY OF QUALITATIVE RESEARCH

Generalisations are mainly understood as “nomothetic”, law-like natural scientific assertions, while “cultural” or human sciences bring forth “idiographic” knowledge based on the particular individual (Windelband 1998, in Lincoln & Guba, 2000). The problems of idiographic character, in particular, “continue to haunt” social and behavioural sciences in their efforts to make generalisations (Lincoln & Guba, 2000). Unlike statistical generalisations, not within the research interests of this study, the concept of analytic generalisation offers a productive approach to qualitative generalisation (Kvale, 1996). Actors’ discourses – speech and deed – represent both their own voices and those of others (polyvocality) and thereby form an empirical and thus natural basis for generalisation (Lincoln & Guba, 2000). Inquirers are approved of being in a position to take unique factors and series of events into account; when moving from situation to situation, their search for similarities and differences between the cases then allows for reasoned judgement about the extent to which the findings may be used as a “working hypothesis, not a conclusion” (Cronbach, 1975, in Lincoln & Guba, 2000; 1982, in Schofield, 2000; Kvale, 1996). An “appropriate base for information” (Lincoln &

Guba, 2000), such as “thick descriptions” (Lincoln & Guba, 2000; Ryle, cited by Geertz, 1973, in Schofield, 2000), renders “comparability” (Goetz & LeCompte, 1984, in Schofield, 2000) from one case to another for consideration (Schofield, 2000). Furthermore, “translatability” becomes an option if the theoretical stance and research techniques are explicated (Goetz & LeCompte, 1984, in Schofield, 2000). While constant “flux” of social life necessarily interferes with generalisations of this kind, they can be claimed to convey truth “under such and such conditions and circumstances” (Lincoln & Guba, 2000). Lincoln and Guba (2000) regard working hypotheses as being transferable if two contexts are empirically similar enough due to “fittingness” between the contexts. This issue has found one solution in case law, whereby precedent cases are “powerful” in their inclusion of particulars (Lincoln & Guba, 2000) through “assertational logic”, guiding examination of patterns of later cases (Kvale, 1996).

Schofield (2000) argues that electing to study the “typical”, albeit in its limited dimensions, increases the potential for good “fit” with many other situations. Multi-site studies, between three and sixty case studies, help to escape “radical particularism” and improve the basis for generalisations (Firestone & Herriott, 1984, in Schofield, 2000). Furthermore, qualitative studies may reveal future trends as “what may be” and ideal or exceptional situations as “what could be” (Schofield, 2000). Here it is also possible to group cases qualitatively *ex post facto*, thereby using the results to inform about various developmental trajectories (Schofield, 2000). Additionally, Virtanen (2001) identifies “politically elected key figures” to be qualitatively representative of their advocates.

Analytical generalisations are crafted by researchers or legal professionals, but the users of generalisations draw on them as well (Kvale, 1996). Practitioners’ work deploys nomothetic generalisations while their empirical worlds are full of “personal direct and vicarious experience”, often used in an intuitive way (Lincoln & Guba, 2000). In this world, actors make “naturalistic generalisations”, particularly if the information is presented

in the form in which the users experience it (Kvale, 1996; Lincoln & Guba, 2000; Stake, 2000 [1976]). The experiences are seen to be shareable and may obviously consist of both propositions and tacit elements (Lincoln & Guba, 2000). For readers in general and the academic community (Altheide & Johnson, 1998), there remains the evaluation of justification of the researcher's interpretation by its "epistemic norms of internal coherence as well as correctness based on empirical constraints" (Schwandt, 2003).

Finally, a generic support for qualitative generalisations is proposed through the idea of "holographic generalisation" (Schwartz & Ogilvy, 1979, in Lincoln & Guba, 2000, 2003). Another physical metaphor grounding generalisations is the "crystalline", meaning partial understanding of the topic depending on the "angle of repose" (Richardson, 1994, 1997, in Kvale, 1996; in Lincoln & Guba, 2003). These authors are understood to vision "optically based generalisations", whereby details include all the information of the whole image. Intriguingly, these metaphors correspond to the perspectivity of generalisations (Lincoln & Guba, 2000, 2003; Schwandt, 2003).

This study may proclaim to exhibit several different bases for qualitative generalisations. Albeit the studies of supply chains include few farmers only as informants (I, II), these interpretations have been confirmed with some focal farmers, other local stakeholders, independent articles in professional journals of Finnish economic life (Hatakka, 2010) and in later studies in the same region, although not pertaining to the same actors (Mikkola, 2010c). 'Lead figures' or successful actors within food supply chains may be seen to represent to some extent a larger number of farmers or employees in rather similar situations, as being elected to their visible (often informal) positions of 'speakers of the group' by other actors. Furthermore, they exhibit the quality of 'what may be or could be' in concrete, 'theoretically' transferable economic forms and coordination modes based on substantial qualitative generalisations (I, II). Transferability of the working hypotheses and 'fittingness' of the findings for new (rather similar) contexts may

be regarded as legitimate due to the typicality of organisations, strengthened by multi-site studies, particularly among caterers (III, IV).

However, these qualities may not pertain to other national contexts but to a limited extent, in that the circumstances may be quite different and the authored descriptions may not be 'thick' enough. These studies also present some farmers and caterers as 'representative' of more ideal food system actors in terms of what may and could be (I, II, III, IV). Overall, the findings may be regarded as representing 'crystalline' quality of the food system, and be in themselves both truthful and incomplete (I, II, III, IV). Finally, the usefulness of the findings depends on their ability to render analytical and naturalistic generalisations as well as to spark further (collaborative) research and new forms of learning about ways to orientate towards sustainable food systems (I, II, III, IV).

3.5 THE ETHICAL STANCE OF THE STUDY

The researcher is a member of her/his society and needs to explicate the professional responsibilities pertaining to her/his work (Schwandt, 2003). The author condenses these into epistemological, social and moral stances. The epistemological stance, part of the researcher's explicated position (Schwandt, 2003), has been dealt with as alignment with social constructivism and multiple axiomatic perspectives. The social and moral stances become intertwined in research but are discussed separately in this section.

The researcher's social stance refers here to the perceived societal importance (Schofield, 2000) of changing food systems towards sustainability. This research orientation is warranted by interweaving policy goals, business interests and discourses about sustainability and the age of ecology (Castells, 1997; CEC, 1997, 1999, 2004; Dryzek, 1997; Founding Treaties of European Union, 1957, Getting more from less, 2005, Worster, 1994), as well as professional quests for more sustainable food

systems (ADA, 2007; Beck, 1994a; Mikkelsen et al., 2007; Morgan & Sonnino, 2008; Taskinen & Tuikkanen, 2004). By her approach, the researcher represents these interests and in order to support the food system actors with critical research results, aims to 'turn inside out' the question about how orientations towards sustainable food systems become facilitated.

The food system is approved of as an inherently anthropocentric concept, putting the 'eater' and the respective community at the centre of the system operating between society and nature. However, as the sustainability quest is inherently a relational matter, it self-evidently concerns the continuity and state of production animals, plants and the biota in their natural habitats as well. Basically, as the 'other' of the system, nature wields relentless power over the food system and its actors. Here the actors are obliged to comprehend their dependent position (Ayres, 2007), pressing for actors' orientations towards sustainability.

The ethical stance of this research aligns with two orientations; the ones of formal ethical criteria and procedures and the other of relatedness with actors, on an experiential basis (Schwandt, 2003), whereby the researcher worked as someone who was "moved by the plight of others", and was willing "to be touched by another's life" (Nussbaum, 1990, p 162, in Schwandt, 2003). The formal criteria pertain to research ethics as the researcher's personal professional conduct, her conduct with her fellow researchers and her conduct with food system actors as objects of research (Market Research Society, 2005, 2010; National Committees for Research Ethics in Norway, 2006; Resnik, 1998; Sandøe, 2001). The ethical grounding of this work may be identified in Aristotelian virtue ethics and Kantian duty ethics on the one hand, as well as consequential ethics on the other (Kuula, 2006); the researcher sees her task as progressive, in the best interest of the society. However, not only the possibility of beneficial consequences, but one of negative results must be considered as well. Here the study aimed to protect those in possibly less fortunate positions in society; the interviewees and organisations were therefore kept anonymous.

Moreover, this does not mean that the interviewees would not have to have dealt with their critical reflections on the food system; they might have been exposed to issues with negative (personal) connotations or other kinds of sensitive considerations, due to their interest in sustainable food systems or expectations of possible benefits for their organisations due to the research.

From the start of this research in 2000, the aim of the work was explained to the participants as an inquiry into the conditions of more environmentally friendly and sustainable food systems; at the same time, the participants were warranted anonymity. The heads of the respective organisations approved the study and informed the (potential) interviewees about the research. These interviewees had the choice as to whether to participate or not; they gave their personal informed consent for the research. Later, in 2008, due to the request of a journal practising a binding ethics policy, the researcher applied for an ethical approval from a university ethical body (The Ethics Committee of the Life Science Campus of the University of Helsinki). The research ethics approval was awarded retroactively for the research made during 2000–2008, and for the future research to be done within the project, as it was considered to align with the guidelines of Good Research Practice as prescribed by the Ethics Committee.

4. RESULTS AND DISCUSSION

4.1 PRODUCERS' EXCHANGE RELATIONS AS A SOCIAL FORCE FOR ECONOMIC SUSTAINABILITY

The key findings regarding the farmer's position as a focal actor within the supply chain are based on the visualisation of the economic exchange relations within the conventional vegetable chain (Figure 1) as they are analysed by theoretical categorisation, applied operationally in concrete behaviour and made visible by a 'bird's-eye' or 'aerial' view (I). The economic relations tied with the farmer represent both the current situation and end result of his activities, and thus they simultaneously reflect the historical development of his business.

The visualisation (Figure 1) seems to present a complex relational pattern between a host of actors

managing and controlling the flow of food from production to consumption. The complexity becomes evident in that there are few 'simple' exchange relations, be they of the form market or other social relations. The exchange relations seem to consist of combinations of several different strands, becoming double, triple or even quadruple. Furthermore, the relations are active with very different kinds of actors, such as the ones from municipal trade advisors and agricultural administration, research and educational institutes, input companies selling seeds and agrochemicals, field renting farms, industrial vegetable company, growers' company and foreign labourers at the locality and the farmers abroad as well as local retail outlets, wholesalers and multiple retailers. It may be suggested on solid grounds that mastering these complex relations with very different kinds of actors to promote one's business across time and space represents considerable social skilfulness and ability to tie ever

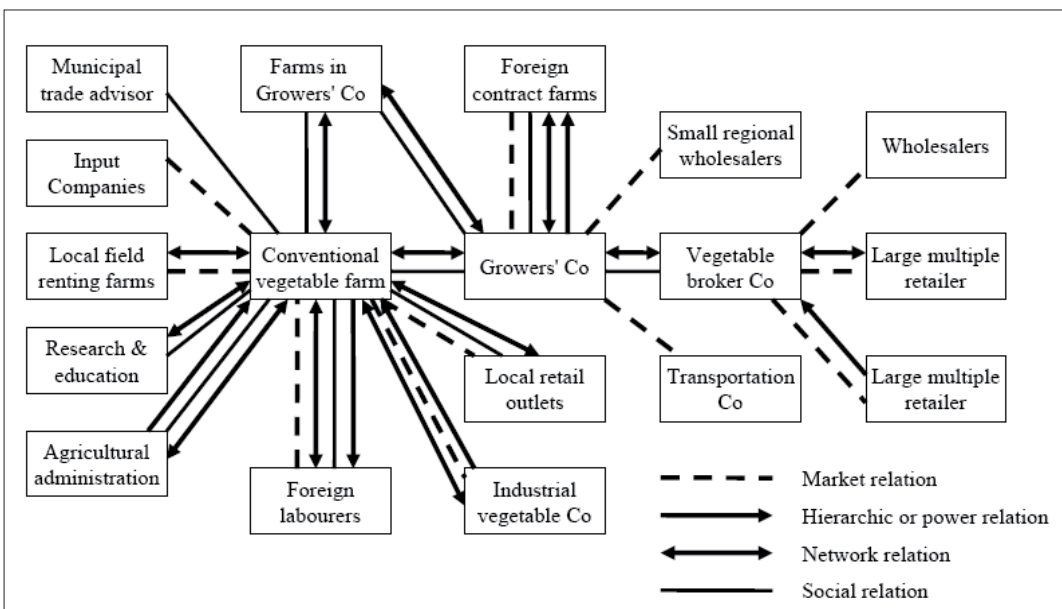


Figure 1. Conventional vegetable chain

new actors into the network (Adler, 2001; Argyle, 1991; Burt, 2000). Simultaneously, these relations evidence on their part the structural 'splits' within communities and in general the 'construct quality' of local community relations.

Interestingly, while the 'productive core' of the chain seems to rest heavily on the exchange relations supported by strands of both 'oiling' and 'stabilising' social and network relationships, the input industries, as sellers, and retailers, as buyers, exhibit market relations with the productive core. Additionally, a retailer seems to use its power by dictating some conditions for sales. In this way, the supply chain appears to consist of a socially governed, partnership based 'productive core', which connects through market relations with the upstream end and market and power relations with the downstream end. This result corresponds to the views about farmers' 'pressurised' position, as reported by Duffy et al. (2003), Hollingsworth (2004), Jones et al. (2004), Stevenson (2005) and Wilson (1996). The local production uses inputs from transnational companies governing the seed and chemical market, whereby network and social relations may hardly be expected to exist or effect to same extent as in relations with local farmers or other actors, increasing the dependency of agricultural producers on market forces of input industry. However, the relations at the downstream end with retailers are 'domestic' and thereby in principle they could allow better adjustment of network relations between the farmers and the retailers; these developments seemed to be initiated already with a retailer but had not yet become 'conventionalised'. If these exchange relations were to gain more social 'air' around them, it would probably make it easier for the farmers to sell their crop according to a more flexible schedule, as necessary for climatic reasons, and according to more precisely agreed produce quality developed by the farmers in agreement with the retailers. Recently, this process of voluntary business-to-business certification has reached wider awareness and interest in Finland (Sorsa, 2010) and the first certificates were awarded in late 2010 to the local farmers (Ruralia-instituutti, 2010). This development complies with Henchion

and McIntyre (2005) about the farmer's need to forward integration and networking. However, the interesting feature would be the possibly for more equal negotiations with retailers about the conditions of market access, as the retailers could engage in practising procedural justice in more profound and sensitive ways (Duffy et al., 2003; Hingley & Lindgreen, 2002). Furthermore, this more equal stance would become visible when making agreements about produce quality in ways not reflecting solely the powerful position of retailers (Konefal et al., 2005), but in addition evidencing considerations for the farmers' position (Duffy et al., 2003; Hingley & Lindgreen, 2002).

In terms of chain development, the social skills became crucial in the growth and organisation of the food supply chain. This concerns local social relations with 'life-history' background, 'high-level' relations and emerging new relations with local and foreign actors. These skills were active in the promotion of the trade, resulting in interest in and advancing learning about vegetable farming. The social skills, deployed by reflective trust in evaluation of the other partners' aims and competence (Adler, 2001), were evident in gathering the group of local farmers, who joined in the effort of running the Growers' company to market their products. The renting of fields – with highly variable contracts – increased the field area and enabled the joining in of foreign labourers' groups, within which their own 'chief' became elected to negotiate labour organisation in the fields of the local farmers. These skills allowed the farmer also to learn more about industrial activities as a previous subcontractor for the industrial company, to be applied in the development of their own company. The social skills enabled investments of labour and capital, together with other farmers, and thus led to enlarging operations. Later, the common travelling with the brokering company head boosted the enlargement of the vegetable farming to abroad in order to deliver round the year to retailers. Instead of expressing naïve trust and waiting for expectations to be 'observed' by others, the farmer evaluated reflectively the aims and commitment of partners and constructed optional future processes with

different actors (Adler, 2001). In short, the social core was able to build up the food supply chain, enlarging in a spiral fashion by sequential horizontal and vertical moves across the years and tying more remote actors into the socially ‘open access’ flow of quality vegetables. The case seems to catch some ideal features of the supply chain of Porter (1985) and align with the theories of economic exchange relations about networks and power relations (Powell, 1990; Powell & Smith-Doerr, 1994), hierarchies (Williamson, 2000) and embeddedness (Granovetter, 1985) as substantive formulations of concrete material practices in economic exchange relations (Wilson, 1996), realised by a socially skilful and initially small-scale farmer in a rather remote northern agricultural region.

Economic sustainability may be claimed to be crucially important if it is considered as a ‘passage’ towards overall sustainability. Additional sustainability developments may also be intertwined with economic developments. There were indica-

tions of the farmers’ interest in more environmentally friendly farming, and they were able to share common ground with environmental researchers (Mikkola, 2006a).

4.2 COORDINATIVE DEVELOPMENTS WITHIN SUPPLY CHAINS TOWARDS SUSTAINABILITY

The issue of coordinative relations within supply chains seems to impact on chain development and the effectiveness and efficiency of the chain operations (II). By applying the same theoretical economic exchange relations, two additional vegetable supply chains, one industrial (Figure 2) and one small organic (Figure 3), were studied for their coordinative structures. The ‘bird’s-eye’ perspective

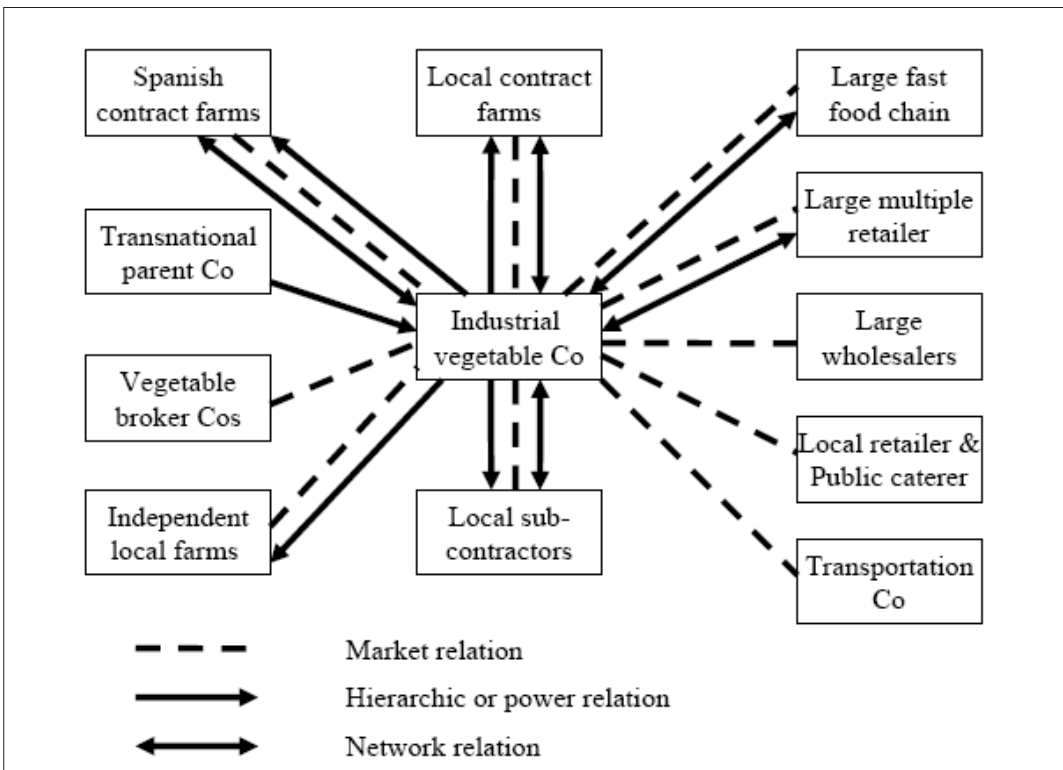


Figure 2. Industrial vegetable chain

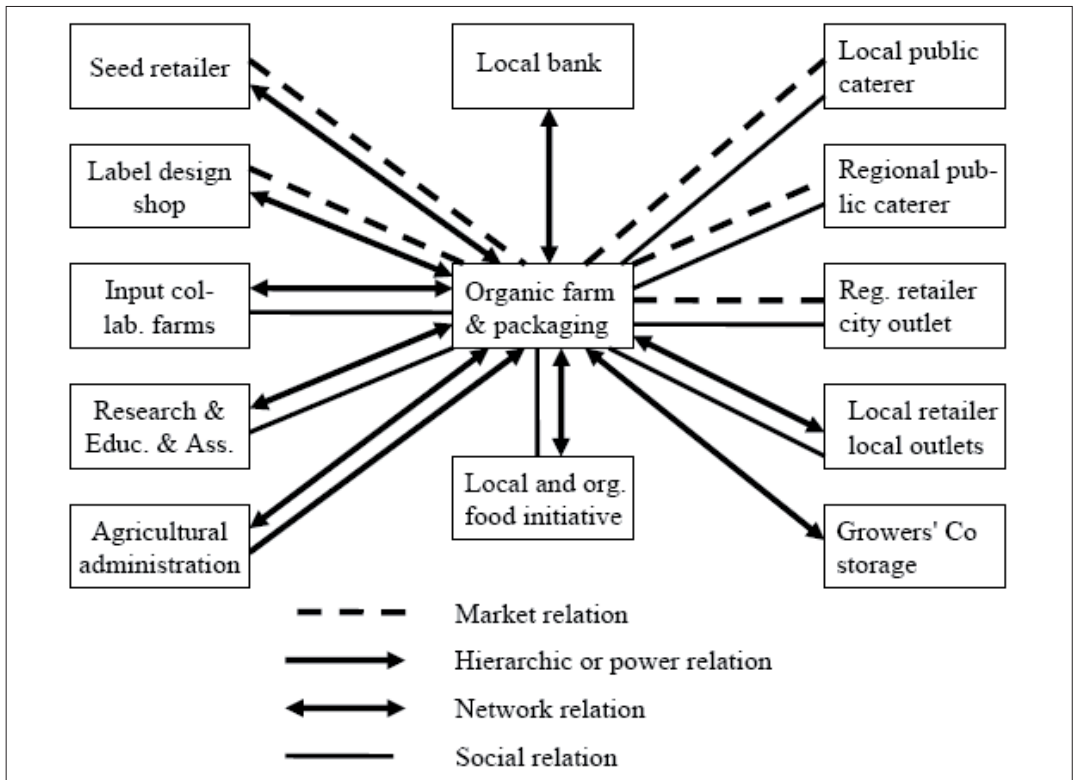


Figure 3. Organic vegetable chain

made these structures visible at the chain level, and their theoretically grounded forms of economic exchange disclosed the differentiation at the chain level as they were compared with each other.

One key finding about the coordinative relations was their invisibility or lowered visibility for the actors beyond their own node at the chain level. Furthermore, external actors to this trade such as customers have scarcely any knowledge about any of these relations; the exchange relations within supply chains are unknown to the 'outsiders'. Another key finding turned out to be that the "socially overlaid" chain level coordination (Figures 1 and 3) seems to make a difference, as compared to strategic coordination (Figure 2) (Jarillo, 1988). The socially overlaid coordination, rich of social and network relations, appeared to allow more social learning, price and investment flexibility and possibilities for more democratic discussions and bottom-up decision-making, including adaptation to partners' life situations, than was discernible

in the operations within the strategic chain. Furthermore, the conventional chain offered 'open access' for farmers joining the supply chain, as it was growing steadily. At its core, the strategic chain represented more conditional network relations and therefore, although effective by its top-down management and efficient in its operations, offered less authentic participation and commitment options for its local actors. Furthermore, the employees started their work in the industrial company and left it as they chose, whereas the participants in the socially overlaid chains lived and worked in the locality on a more continuous basis on their farms. Within the strategic chain, the local farmers and other actors became employees and subcontractors, but in the socially overlaid supply chains the farmers were participants and "knowing agents" or 'professionals of their own farming' (Morgan & Murdoch, 2000). They represented to some extent the bioregional entrepreneurship (McGinnis, 1999). However, the industrial chain offered

learning benefits for the local actors; interaction between differently coordinated supply chains was thus an important feature in developing vegetable farming within the locality.

Finally, the socially overlaid chains represented mainly endogenous economic development whereas the industrial chain illustrated a primarily exogenous one. This development may be seen as a “victory” of the local over the global (Morgan & Sonnino, 2008, p 1–19) and success in the learning challenge (Seppänen, 2004; Seppänen et al., 2006). This result concerns both the source of financial resources and receiver of financial benefits, whereas all chains increased employment and tax revenues for the locality.

An interesting point in the socially overlaid supply chains, the conventional (Figure 1) and the organic one (Figure 3), was their difference in terms of growth. The conventional chain was an ‘open-access’ chain, with mutually agreed quality standards for participating farmers, and exhibited good continuous growth, whereas the organic chain remained ‘truly’ local, without new members taken aboard on the local market. Actually, the market competition between organic producers displaced other local organic farmers from the local retailer and moved the competition to other local and national arenas, where the conventional chain was also active. In this case, the local market presented itself as being as competitive as any market, and excluded farmers willing to participate, thus failing to support the proximate systems of locally grown food (Hinrichs, 2000; Kloppenburg et al., 2000; Seyfang, 2006). Basically, these developments meant on the one hand that farmers were excluded from local markets because local consumers did not favour their products, and an indication on the other hand that local consumers were excluded from their local market (Hinrichs, 2000). Eventually, this buying behaviour may be seen as an expression of ‘modernisation discourse’ and furthermore, as an ingrained market relation, in spite of visible initiatives to promote local food, as confirmed by the retailer (Mikkola & Risku-Norja, 2008). These developments hardly intensify local cohesion of organic farmers in ways assumed in

literature (Beus & Dunlap, 1990; Mononen, 2008). However, there was quite a lot of co-operation between conventional and organic farmers, whereby farming as a shared activity seemed to increase the density of community relations.

The organic chain (Figure 3), on the other hand, illustrates well the stable and sustainable operation of a ‘truly local’ vegetable chain. In this most ‘local case’, the re-localisation effort could not be extended to agricultural input materials, revealing the dependence on external inputs. The local status of the chain was also confirmed by other local actors and hence may be regarded as justified understanding. However, according to a local retailer, the share of local food in local annual retail turnover was about 5–6 % only, which could be much larger (Mikkola & Risku-Norja, 2008). Therefore, growth options may be seen to exist in this rather stable situation as well, reflecting the need to increase weak demand and ‘limited’ appreciation by local customers of their own, local produce as embodiment of ‘bioregional discourse’ and ‘sustainability discourse’ (Mikkola & Risku-Norja, 2008). The local retailer participated in the visible initiative of local food marketing by designing a logo to be used as a shelfmark, but no particular educational material was used as was in the local organic food networks project reported by Seyfang (2006).

The study reveals an intriguing question about the ‘fairness of trade’ between actors within the North (Jaffee et al., 2004) and about the focused use of power to effect economic sustainability of the primary production of vegetables. The producers possibly indicated exceptional social skills, enabling learning, networking within the region and beyond with heterogeneous actors, and increased their volume and quality to match the demand by retail. If the primary producers are able to ‘rise’, how do the ‘powerful ones’ and the ‘ordinary customers’ respond to this achievement? Not only large processors and retailers, referred to in the literature (Atkins & Bowler, 2001; Hollingsworth, 2004; Mikkonen, 2005; Vihma, 2005), but also the local customers seem to act as a threshold factor for increasing the local demand. Are they willing to consider their share of ‘fairly traded’ food within

the North and the locality? Eventually, the very generic discourse of unequal exchange relations between North and South seems to leave the local exchange relations relatively 'untouched' and 'forgotten'. Basically, Jaffee et al. (2004) and Morgan and Sonnino (2008) present the question of ubiquitous fair trade that would regard exchange relations not only between but also within the North and the South. This generic view tends to inquire into the 'fairness' issue regarding all market behaviour and all system actors as balancing their trading between quality, volume, economic value and geographic distance, which highlights the systemic character of change towards sustainable food systems and which works through nodes across the ties between them.

However, in terms of scalar adjustment, the industrial chain (Figure 2) and the conventional chain (Figure 1) were able to match the volume of retail demand, enabling the trade. This suggests that the small and medium sized enterprises (SMEs) also need to adjust to the retail way of doing business and pursue more standardised quality and compatible volumes (Ruralia-instituutti, 2010; Sorsa, 2010). This ability for scalar adjustment may mean that SMEs are in need of upgrading their supply chains, possibly in ways including socially overlaid or strategic elements. Negotiating about the scale and quality issue with the retailers may ease the competitive access to the market. This kind of development could possibly come closer to the situation of heavy competition between vegetable supply chains in Europe (Wilson, 1996). However, it also could entail the introduction of more localised production on to the retail market through socially overlaid networks. While increasing the volume and quality by chain level coordination, it could render relatively small competitors' mutual relations more 'social' within their networks, extending the relational impact to local (farming) communities – perhaps strengthening the local farming industry.

The economic exchange relations made visible in this study are abstractions, but the working hypothesis of economic sustainability of the socially overlaid network is rather strong because it has

a solid basis in developed substantive economic theory, rigidly connected with local empirical reality, allowing for analytical generalisations (Kvale, 1996) and confirmed by a number of actors. These include the interviewed focal actor of the large conventional chain in a later post-interview discussion and other local actors such as municipal administrators (Schwandt, 2003). Eventually, more than five years after the initial interview with the focal actor of the large conventional chain, the leading Finnish national journal of economic life published a very similar case of a successful greenhouse entrepreneur verifying the same mechanism of enlargement (Hatakka, 2010). Obviously, some members of the community of practitioners seem to share and agree about these developments, which increase the strength of naturalistic generalisation (Kvale, 1996; Lincoln & Guba, 2000; Stake, 2000). Furthermore, in recent studies one socially overlaid network of organic dairy farmers and another one of pig farmers have been identified in different parts of Finland. Particularly intriguing is the fact that these groups have invested rather heavily in their biogas facilities, evidencing the social dynamics present in socially overlaid networks, particularly in a risky agricultural market with low state subsidies for bio-energy (Mikkola, 2010c). Therefore, the results may be regarded as rather well substantiated by academic and practitioner communities (Schwandt, 2003) and qualitatively generalised as to what may be and could be (Schofield, 2000). The findings indicate that socially overlaid supply chain coordination may present successful developments for economic (and tentatively environmental) sustainability as well as suggest how the industry could be organised on wider scale, consisting of a number of supply chains matching local, domestic and more extended demand and competing in the market.

4.3 PUBLIC CATERERS' PROFESSIONAL IDENTITY AS A SOCIAL FORCE FOR SUSTAINABILITY

The notion addressing public caterers as a social force for sustainability was coined on substantive and extensive theoretical grounds as being professional identity for sustainability (III). The notion aimed at grasping the professional orientation towards sustainability in contexts where organisational sustainability strategies could be relevant, available possibilities to pursue these goals variable and the caterers' own views and efforts made more or less coherent and intensive. The notion also highlights the appropriation of caterers' anticipated role in developments towards sustainable food systems. In this study the caterers were divided into executives and managers (Bergström et al., 2005), the former mainly responsible for procurement and the latter responsible for organisation of catering and support for procurement's choice of food items.

Key findings suggest that professional identity for sustainability existed among caterers, however, to very varying extents. There were caterers who were committed to catering for sustainability, albeit in different ways in different situations (Morgan & Sonnino, 2005, 2008). Eventually, there were also those who experienced difficulties in finding the way forward within their organisations and those who perceived limited options in food procurement for sustainability and rather stressed other internal issues such as waste, water and electricity. The professional identity for sustainability could have very variable outcomes in terms of operational achievements within organisations, network building, professional satisfaction and external (favourable) visibility, implying emotional shades from contentment, even celebration, to resignation and alienation. These professional identities were, however, understood to probe specific embodiments of generic ecological identity (Castells, 1997, p 112–113;

Thomashow, 1995) in the particular professional sphere (Beck, 1994a, p 47-52; Derkzen & Bock, 2007).

There were 'balanced' executives who actively managed the procurement relations with the local and organic suppliers, and made efforts to decrease environmental impacts of operations through co-operation with suppliers and their own personnel. While these executives also could use domestic and imported food, they were particularly keen to use local and organic food and to provoke both favourable publicity for their sustainable procurement and to share it as a concept in tender calls. This 'balanced approach' was financially well supported by municipal sustainability strategies and an informed municipal board. This kind of active approach was also discernible to a 'cooperative' procurer, who had no municipal sustainability strategies behind him, but only wanted to lower the costs of the public meal service through mutually planned activities with long-term suppliers, and used the shared savings to motivate the joint endeavour. The third solution, by an executive, was to lean on a strategic guideline of an organisation to buy organic food; however, no efforts to negotiate with suppliers were undertaken. Finally, this 'rule-abiding approach' met with resistance by the wholesaler, which only contingently observed the contract with this rather 'insignificant' customer. All these organisations shared the interest to procure more sustainable food, which was interpreted by them as local, organic or conventional domestic. All these organisations also had to solve economic problems due to actual or foreseeable budget cuts. A less productive shade of professional identity was exhibited by caterers 'juggling' for sustainability. These executives were expected to implement regional sustainability strategies without extra funding or follow-up by their board. Additionally, the executive perceived unwillingness or uneconomic efforts by local suppliers, and felt uncertain about public procurement rules. This made the executive's position difficult when trying to design possibilities for support mechanisms to increase local exchange. Furthermore, there were 'critical' voices among executives about the scarce knowledge on

the overall sustainability of the food system, particularly along the food chain in terms of chemicals, energy and water consumption and eco-social issues. In spite of consecutive waves of environmental and sustainability strategies, they found hardly any support by internal or external environmental consultants and could not figure out differences between businesses based on their internal quality management documents. Moreover, these executives had experienced weak response by some local and organic suppliers and less than fair competition among 'big players'; they wondered how to 'fit in' with their sustainability agenda. Finally, there were executives, who under heavy cost discipline 'delimited' their approach to organisational sustainability strategies by applying it to procurement of conventional food only. However, these sustainability approaches stressed serving vegetable meals and efforts to limit expense on energy, water and waste management. This approach resembled faintly Wal-Mart approaches of ever cheaper costs (Fishman, 2007) for public services.

Among managers with more 'operative' professional identity for sustainability, there was an 'action approach' identified as efforts to introduce organic food into catering in spite of organisational non-organic practises. The manager aligned with organisational focus on waste as a main environmental issue, but made additional efforts to introduce organic consumption in more informal educational settings. There were also 'supportive' managers, who sought to purchase local and organic food, equally appreciated, and to co-operate with local suppliers. 'Concerned' managers applied for procurement of local and even organic food, in the hope of good quality, improved food safety and enhanced rural development, and expected more advanced and explicit quality criteria for public food. The 'contented' approach to sustainability was expressed by a manager who had had the opportunity to enjoy the use of organic food and simultaneously develop creatively the organisational routines for sustainable catering. Finally, a rather relaxed professional identity for sustainability was cast by the 'contingent approach', in the way that loose sustainability strategies and positive aware-

ness of 'good things' endowed the use of parlance for sustainability without compatible measures in professional activities. A more discouraged professional identity for sustainability was moulded through personal eco-social awareness, hardly compatible with the constant heavy cost discipline and streamlined organisational operations. This situation resulted in a 'selective approach' to sustainability, whereby considerations of organic or local food were distanced and an option for vegetarian meals was deployed as an ecological approach. Again, the situation portrayed a straightforward approach for decreasing costs under economic pressure on public spending.

Caterers were in general very aware of sustainability issues, and in cases of successful and 'empowering' professional identities for sustainability, they received consistent support from their organisations and/or by their co-operative personnel and supplier networks. Interestingly, a sympathetic professional identity for sustainability, conceiving of oneself as an active supporter of sustainable development, may flourish without clear connection with 'real life' activities. However, more often than not, the caterers developed 'troubled' professional identities for sustainability, largely due to lack of organisational and/or supplier support, or even due to the caterers' limited devices for more thorough and planned strategies for procurement. Rather, they seemed to be overwhelmed by organisational saving efforts, leading to 'wal-martisation' of their activities, and to internal re-organisation of services rather than external orientations towards sustainability at large.

Importantly, some caterers did try to work with suppliers for increased sustainability, through domestic, local and organic food (Kovács, 2008; Seuring & Müller, 2008). Cheap imported food was a reality, and used by caterers, although not as a most favoured option. The spheres for activities concerned first and foremost the caterers' premises and the working ways of personnel, but extended to supplier networks as well in co-operation with supply chain actors. Here, one of the main strategies applied the redesign of the supply chain, typically in terms of packaging or transport. The other

central strategy deployed disconnection to one (conventional) chain and reconnection to another (organic one); that is, sustainability was sought after by choice of supply chains (Kovács, 2008; Seuring & Müller, 2008). Occasionally, there were also public meetings with local suppliers in order to develop tendering practices among the active and successful caterers (Walker & Preuss, 2008). In some progressive catering organisations, a few research-based supply chain developmental projects were identified, albeit with meager outcomes. These projects aimed at designing local tendering practices on the one hand, and deploying the life cycle approach for tendering on the other (CEC, 2004).

Across the organisational levels, the professional identities for sustainability were rather less than more in alignment with one another. Surprisingly, along the command chain, successive levels could exhibit very different sustainability orientations. The organisational orchestration of sustainability orientation, as well as informed discussions about developing consistent organisational strategies and operations for sustainability, would also call for support by research due to the perceived ambiguity of 'reality' behind supply chains, indicated by trial projects. Future developments along these lines would possibly increase work satisfaction, which seemed to be positively affected by successful sustainability approaches (Mikkola, 2010a).

The results are based on multi-site case studies, including large internal variation, and may be regarded as a rather valid interpretation conveying analytic and naturalistic generalisability (Kvale, 1996; Lincoln & Guba, 2000; Schofield, 2000; Stake, 2000). Furthermore, the results may be seen to refer to current trends and future ideal developments (Schofield, 2000), albeit with limited transnational fittingness (Lincoln & Guba, 2000). Finally, according to Luhmannian lines of thought (Luhmann, 1989), the societal role of public catering could grow if it were able to mediate sustainable food systems more effectively between the two environments of society; that of the Environment and the other of Individuals.

4.4 PARTICIPATORY RESEARCH AS AN ACCELERATOR FOR CHANGE TOWARDS SUSTAINABILITY

As a form of participatory research, this study made use of a researcher's dialogue with caterers, supported by other researchers and dairy company marketing experts in promotion of the use of organic milk in catering as part of sustainable food systems (IV). The dialogue was constructed as a *post hoc* description of a test use period of organic milk and organised in turns, whereby the issues relevant to researcher, marketing experts and caterers about the use of organic milk were condensed into concrete aspects regarding the milk system. The first turn, which grounded the dialogue about organic milk with the caterers, was the researcher's perspective made about the 'sustainability status' of organic milk, based on a collegial study (Risku-Norja & Mikkola, 2009) and the researcher's expert interviews (Mikkola, 2007; Mikkola & Risku-Norja, 2008). The organic milk was considered sustainable as it was produced locally without using pesticides and synthetic fertilisers, in excess of demand, and entailing higher income for farmers and increased welfare for cows. Furthermore, there was no limiting relation perceived between the population's nutritional demands and available food supply, and the price of organic milk did not exceed that of upmarket functional milk products.

The second turn consisted of caterers' questioning about organic milk. They perceived problems such as the lack of vitamin D fortification, low selenium content, lack of large packaging sizes and wholesalers' contingent alignment with contracts when delivering organic milk, its high price and principled rules for 'all organic' policies. In short, these matters went against the nutritional and price principles, agreed deliveries and current serving mode, as well as 'streamlined' efficiency of catering operations, whereby additional separation of food items and bookkeeping increased the

practical effort. Furthermore, the caterers did not perceive a strong contrast between the sustainability quality of organic and conventional milk, which 'damped' their efforts for conversion.

The third turn consisted of comments of the dairy marketing experts to the caterers, mediated by the researcher both orally and supported by a poster, which was designed for the purpose of informing about the sustainability quality and strategies 'behind' organic milk in co-operation with the dairy experts. The chemical composition of organic milk was clarified in terms of legislation about vitamin D fortification, and methods for increasing selenium content of organic milk (Kuusela & Okker, 2007). Additionally, fatty acid composition of organic milk has been perceived as favourable, but it would need more corroboration by research. The problem of packaging sizes was explained as being historical-economic, to be developed according to anticipated demand. The periodical use of organic milk was suggested as a solution for lack of vitamin D fortification, 'all-organic' policies and price problems, and aiming at consumption of larger volumes of organic milk gradually. Possibly there would be room for price negotiations in the future. The researcher suggested that the caterers' position in the market could be aligned with an "intermediate mediating strategy" (Deane-Drummond, 2006) towards sustainability, as caterers primarily focused on operational aspects of catering.

The fourth turn was the caterers' agreement to test the use of organic milk, whereby they accepted the poster about sustainability quality and strategies for organic milk to be presented in the catering premises for customers to see and examine. For the test situation, organic milk was only available in one litre cartons, and the caterers accepted the explanation of the dairy company about legislative and logistic problems of organic labelling and large size packaging for the test situation. The caterers were interested in possible positive developments in chemical composition in terms of vitamin D, selenium, and fatty acids. The public funding, however, seemed to develop in a negative direction due to the economic recession of 2008 and 2009, and the price would still be an issue for the caterers.

Some caterers paid positive attention to the idea of "intermediate mediating strategies" (Deane-Drummond, 2006), although they saw that the reality of milk production could not be thoroughly understood by them. The decisions were made based on available knowledge and the prevailing situation. The caterers saw that to reorganise the organic milk supply chain in terms of increasing demand by catering would take time and no 'quick fixes' were in sight.

The caterers received the suggestion about their positional options on the market as consumers of organic milk vis-à-vis its producers. The dialogue was welcomed by the caterers since it took place with an independent and 'knowing' actor, allowing expression of interests and (annoying) experiences more freely, even in ways typical for 'counselling' situations. There was no pressure for immediate organisational developments by the caterers, and the test use was a start – due to various reasons – for the use of organic milk for some, while for others it remained just a single test use to support future decisions about the use or non-use of organic milk.

This dialogue made it clear that understanding other food system actors' situations can be increased by learning in the workplace. This means learning within a context about other contexts in association with one's own; the inter-contextual learning (Tynjälä, 2008) was the aim of the test use of organic milk. The contextual options and future changes become more clarified and barriers are lowered for comprehension of the wider field of industrial developments (Cronin & Jackson, 2004), in this case the role of organic milk in catering as part of the larger milk system. The informal and trusted 'round of talks' has chances, although limited, to change cemented patterns, and suggests that developmental talks of some kind could be organised on a more regular basis between caterers and their suppliers. In particular, the caterers who wish to 'reach' into the supply chains would need to learn about the context of the products they use and how their use impacts on supply chains. The organisation of this kind of learning by participatory approach may, however, be quite demanding.

The frame for participatory learning needs first to be construed as meaningful by the participants, networking efforts are essential for inviting the actors to reflect about the chain environment they work in and finally, more extensive understanding about the chain phenomena is needed as supported by external experts such as industry experts and researchers (Pretty, 1995; Wals, 2010).

4.5 CONVERGENCE FOR SUSTAINABILITY BETWEEN PRIMARY PRODUCTION AND PUBLIC CONSUMPTION

As a policy goal, it has been widely accepted that food systems are to develop towards sustainability on the global market place; here the market is seen as the level of the playing field for sustainability (Defra, 2010; HM Government, 2010; Huomisen ruoka – Esitys kansalliseksi ruokastrategiaksi, 2010). These basic conditions translate into operative goals such as low-carbon activities, resilience, profitability as well as competitive and innovative local and domestic firms developing in partnerships with particular institutional consumers, directing the development of the food system through informed and sustainable choices (CEC, 2004; Defra, 2010; HM Government, 2010; Huomisen ruoka – Esitys kansalliseksi ruokastrategiaksi, 2010). The preliminary conditions of the market place for sustainability may be explored by examining convergence between efforts of primary producers and public caterers to promote sustainability of their trade in viable ways. This analysis draws on research results regarding the primary production (I, II) and public consumption (III, IV).

The “knowing agents” (Morgan & Murdoch, 2000), identified as socially skilful actors within the open socially overlaid network as a particular, more equitable, economic coordination mode, were found to exert exceptional qualities in meeting the market demand for growth, learning and competi-

tiveness through particular locally induced long-term partnerships (I, II). While the organic supply chain adopting this mode of coordination did not exhibit growth as it operated ‘solo’, it was highly resilient due to its relations within the locality (II). As the organic supply chain was inherently based on ecological principles, other local conventional and organic farmers in their networks also exhibited ecological considerations more generally (Mikkola, 2006a). Furthermore, within the conventional chain local farmers recently joined voluntary quality schemes addressing industrial standards (Garbutt, 2005; GlobalG.A.P., 2010; Ruralia-instituutti, 2010; Sorsa, 2010). As these local farmers evidence the ability to intertwine economic viability and ecological considerations, they may be seen to represent producers fit for supplying sustainable markets (Defra, 2010; HM Government, 2010). At this stage, they need demand for their produce as sustainable food to support their developments (HM Government, 2010; Huomisen ruoka – Esitys kansalliseksi ruokastrategiaksi, 2010; Mikkola, 2006b).

Indeed, among the public caterers, both procurers and managers, there is professional dedication to take sustainability issues into account, albeit collaterally and to varying extents, within the entity of their professional work (III). A rather common attribute of sustainability seems to be the use of domestic, local and organic food, exhibiting accountability for issues of rural development, food quality and environment at large. A case was also made about offering vegetable meals as a sustainability approach; moreover, some of these economical meals were recommended by the Ministry of Environment (2009) aiming at systematic launch of this practice in 2010 in Government kitchens. Caterers also asked serious questions about sustainability features of food, as these were perplexing and made caterers feel indecisive. In the early interviews with caterers, climate change was not an issue in the way it is today. However, as caterers like any other actors are often limited to “talk most of all about what others talk about” (Bakhtin, 1981, p 338), their environmentally coloured accounts may be understood as responsiveness to and valid

in the frame of discourses on climate change and sustainable development. Furthermore, there are initiatives to co-operate with supply chain actors, either as 'inner circle' negotiations and measures (Seuring & Müller, 2008), or through open industry meetings (Walker & Preuss, 2008). Eventually some caterers consulted experts to support their more profound understanding of tendering, eco-social quality of food and life cycle assessment methodologies, albeit with limited success (III). Table 2 presents the caterers' orientations towards sustainability as their orientation to purchase particular food categories, to co-operate with supply chain actors and their epistemic interest in more detailed and scientifically grounded features of sustainable food choices (III). The table is a very 'graphic' representation of these simplified and dominant approaches, hiding rather nuanced professional experiences.

This case-based picture of the professional field of public catering rather plausibly presents very different and sporadic orientations in terms of categorised food choices, co-operative activities and epistemic interests. These orientations do not appear to form a 'pattern' in terms of the size or location of the organisation, nor in terms of time of the interview. More importantly, some of the actors, such as 'critical' executives and 'concerned' managers, simultaneously exhibited co-operation bound orientations and worried and puzzled epistemic questioning about sustainable quality of food, particularly at the level of the supply chain. There were also caterers who were 'co-operation-bound' without noteworthy epistemic interests, such as 'balanced', 'co-operative' and 'juggling' executives and 'supportive' managers. Furthermore, caterers such as 'rule-abiding' executives and 'action' oriented and 'selective' managers asked foundational

Table 2. Caterers' orientations toward sustainability by their categorised food choices, co-operation with supply chains and epistemic questioning of sustainability features of food (x = interest, o = no particular interest, y = not particularly mentioned) (III).

Orientation Approach	Local food	Domestic food	Imported food	Organic food	Co-operation with supply chains	Epistemic questioning
Balanced	x	x	x	x	x	o
Rule-abiding	o	x	y	x	o	x
Co-operative	x	x	y	o	x	o
Juggling	x	x	y	o	x	o
Critical	o	x	x	o	x	x
Delimited	o	x	y	o	o	o
Action	o	y	y	x	o	x
Supportive	x	x	o	x	x	o
Concerned	x	x	o	x	x	x
Contented	x	y	y	x	o	o
Contingent	x	x	o	o	o	o
Selective	o	x	x	o	o	x

questions about quality of sustainable food at the supply chain level, without special interests or possibilities for co-operation (III). Furthermore, the caterers participating in the test use of organic milk had several questions about its quality. They learned about organic milk quality being impacted by particular historically developed industrial operations and legal considerations, which were basically 'beyond' their level of experience and communication within the supply chain. Therefore, understanding the connection between product quality and its product history as subsequent production processes or modules at supply chain level (Usva et al., 2009) was outside their reach. The participatory research aimed at sharing the process stages of organic milk and their impacts on the economic, social, nutritional and environmental status of the milk (IV).

If sustainable food systems represent a challenge for learning by collective endeavours, such as participatory learning within the context of work (Bruges & Smith, 2008; Pretty, 1995; Tynjälä, 2008; Wals, 2010), the primary producers exhibited a record for initiating development of their own brand according to what they had learned in the trade and through certification procedures (I, II). Caterers identified for their co-operation-bound and epistemic interests in supply chain development would represent socially 'self-selected' actors for participatory research efforts towards sustainable food systems (III, IV). However, if something as 'hidden and confidential' as socio-economic relations between actors (I, II), or as environmental-technically advanced as Environmental or Carbon Footprints (Usva et al., 2009), are to be deployed as both epistemic and co-operation approaches, levelling the food supply chain operations to radically new orientations towards sustainability, more profound and longer-term participatory research, would seem to serve the purpose poignantly.

If caterers were to take the lead as 'exemplary consumers', their views in constructing sustainable diets with other food supply chain actors would need to embrace economic, environmental, nutritional and social aspects at the supply chain level, in an effort to orientate both consumption and

production towards sustainability (Defra, 2010; HM Government, 2010; Huomisen ruoka – Esitys kansalliseksi ruokastrategiaksi, 2010). This exertion implies letting all the tensions within particular food supply chains be reflected in the negotiated constructions, which, however, could offer simultaneously a platform for both eco-social reconciliation and environmental 'reorganisation' of productive activities. To simplify this demanding task, the learning by and negotiations between the 'ends' of the supply chain, such as caterers and primary producers, could serve as a pilot case.

A rather remote model example to this end is the "Wheat Calculator", a participatory decision-support system based on a complex scientific model. The Wheat Calculator tool was designed by Australian researchers for wheat farmers' use, in order to prevent nitrate leaching to groundwater (Bruges & Smith, 2008). According to these authors, the project furthered both farmers' and scientists' interests while it was also aligned with environmental policy goals. However, in spite of mutual trust between farmers and researchers, earned by honesty on the part of researchers, tensions appeared due to participants' differing interests in terms of economics, environmental impacts and learning (Bruges & Smith, 2008).

The viable co-operation within supply chains would thus need not only trust embedded in long-term co-operation, but also a suitable tool designed for use by supply chain participants. One such technical option could lie in making use of module-based supply chain LCA data drawn from extensive data sets and designed as infographics for rather easy use by food systems actors (Mikkola et al., 2010; The Economist, 2010a,b; Usva et al., 2009). These tools could be further combined with socio-economic developmental information regarding actual economic exchange relations and the 'life-world' situation of particular supply chain actors. Eventually, emphasis should be laid on the contextual applications of these methodologies in ways which enable and empower caterers and producers themselves to co-operate within food supply chains towards sustainability in creative ways (Pretty, 1995; Wals, 2010). Furthermore,

the combination of environmental-technical and socio-economic perspectives would enable the examination and development of particular categorised foods such as domestic, local and organic, as well as imported, in a more grounded way. As there are requirements for environmental-technical approaches and competitiveness and innovativeness of regional businesses (CEC, 2004; Defra, 2010; HM Government, 2010; Huomisen ruoka – Esitys kansalliseksi ruokastrategiaksi, 2010; Suomen kestävän kehityksen toimikunnan asettama strategiaryhmä, 2006), these novel solutions are seen to support policies for sustainable markets.

These extensive social dynamics for sustainable food systems through participatory research, to be

realised through communication between knowledge perspectives, are put forward in Figure 4 in a tentative form. The particular feature suggested by Figure 4 is the incomplete, unfinished and iterative character of the more or less concerted (locally induced) efforts towards sustainability (Pretty, 1995). These activities also call for social and epistemic skills as well as economic resources from supply chain actors as well as researchers (IV). “These multiple realities and complexities will have to be understood through multiple linkages and alliances, with regular participation...” (Pretty, 1995) when aiming at changes as extensive and profound as the ones animating the concept of a sustainable food system as part of sustainable development.

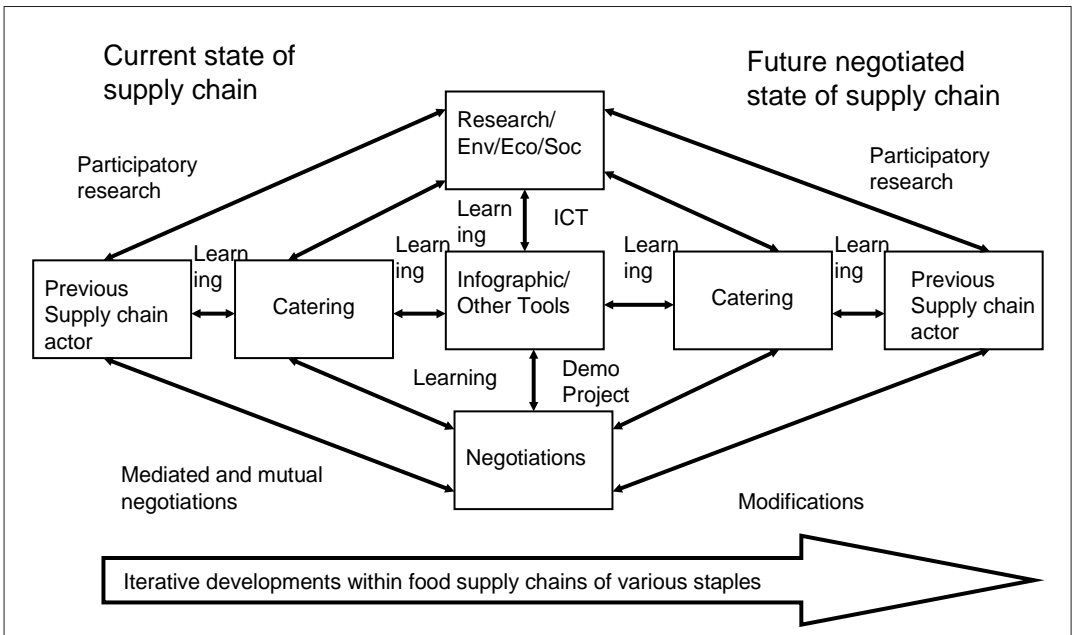


Figure 4. Social dynamics for sustainable food systems through participatory research by communication between knowledge perspectives.

5. CONCLUSIONS AND FUTURE WORK

5.1 FACILITATING SUSTAINABILITY ORIENTATIONS WITHIN PRIMARY PRODUCTION

FORMS OF FARMERS' ECONOMIC RELATIONS ENSURING CONNECTIONS TO SUPPLY CHAINS

As farms are essentially businesses, farmers' exchange relations are seen as key features in their economic development and their success is understood as an indication of their access to and competitiveness on the market. This study is based on 'root' economic relations such as market, hierarchy – either at the organisational level or based on market power – and network relations. Furthermore, the study included social relations, which were operationally defined as one form of the relational mix which exchange relations are seen to be composed of.

The focal actors of vegetable supply chains were found to operate complex and variously composed exchange relations consisting of different combinations of the four basic exchange forms. Farmers developing strong social and network relations, at times supported by market relations and agreeing to hierarchic and power relations, were able to connect themselves to supply chains. These farmers also managed with foreign labourers through a middle-man who again mediated the four relational strands to the labourers. Furthermore, the focal actors connected themselves with southern farmers to secure vegetable deliveries to their buyers during wintertime. Finally, the focal farmer had social connections with research and educational institutes, agricultural administrators, local environmental officers, as well as a broad range of buyers such as local retailers, small wholesalers and large multiple

retailers. Farmers differentiated among themselves in terms of network and social relations with the buyers within the supply chains, while the inputs, such as seeds, fertilisers and pesticides, were similarly bought by them through market relations.

The study tentatively identified a particular feature in successful farmers which was interpreted to imply their ability to co-operate, learn 'on the run' to develop their trade, take tolerable risks, communicate with very diverse professionals as well as plan and carry out joint activities such as investments, labour sharing and study tours. This feature was termed 'social skilfulness', which has been interpreted as tuning activities based in the membership of the local farming community. Therefore, mutual social relations may carry significant social dynamics within locally and regionally based farming and other communities in terms of development of agricultural trade. This notion gives weight to nuanced everyday encounters and life histories that form in a particular agricultural area. This identification, albeit tentative, of the importance of social skilfulness and social relations as a basis for development of agricultural trade emphasises social activities that enable the further growth of social skills. The suggested finding is to some extent corroborated by external evidence and recent research, but clearly broader and more convincing data than are currently available are needed to establish the relevance of social skilfulness in the field of agriculture.

COORDINATIVE MODES OF ECONOMIC ACTIVITY WITHIN SUPPLY CHAINS FOR SUSTAINABILITY

As supply chains grow from the relation between the seller and the buyer, to network formations with ever more branching, their coordination becomes an issue as the need to balance production

with consumption increases. The coordinative modes, as based on combinations of economic exchange relations, were analysed as aerial patterns of the three vegetable supply chains studied. The rather common coordinative mode, presented in the literature, known as the strategic network, was identified among the studied cases. This network is typically built upon market and network relations, entailing support for learning, task sharing, developmental activities and increased benefits from profitable business, as well as losses from less profitable ones. However, the market strand within the relational mix of the strategically coordinated supply chain introduced both more flexibility and insecurity for individual businesses, which could be replaced by new ones on occasion.

A new kind of coordinative mode at the supply chain level was discovered and termed the 'socially overlaid network', which consisted at its core of social and network relations. They introduced particular strength into the supply chain, as trust enhanced developmental work inherent in learning efforts, led to shared financial and labour investments and allowed members to spend time together also in an informal atmosphere. Furthermore, as the supply chain built around local farmers' mutual coordination, its members were rather stable actors ensuring growth and stability for the local economy. As the conventional supply chain was open, it allowed growth while the organic one did not, being 'truly local' and limited to the local market niche for organic vegetables.

The socially overlaid network represents an important coordinative mode, which is suggested to introduce increased sustainability to the agro-food industries. This claim is based on the enhancement for learning, capacity to make use of capital and labour investments, endurance of economic stress and more equal economic relations made possible by the adjustable but cohesive character of these supply chains. This finding may represent an important formulation for the agro-food sector as the construction unit for a sustainable food system, particularly under current market conditions, implying a farmer's often adversarial position within the food system. The notion of a socially overlaid

network and economic (and environmental) success has been empirically and independently corroborated by the reported existence of several similar networks in Finland. However, beyond these cases there is no knowledge concerning their prevalence.

Obviously, supply chain coordination may take place in extremely variable contexts and follow very different relational patterns. Furthermore, the chain coordination may not represent any consistent or well-thought-out patterns, but rather consist of 'traditional' or ad hoc solutions reflecting a more or less stable power balance between the nodes and at the level of the whole supply chain. Finally, the chain level coordination mode is often unknown to actors beyond their own nodal sphere; comprehension of supply chain level operations or their active development is challenging in this situation. Realisations such as these call for integrative work along supply chains in order to increase their developmental potential. These kinds of activities are suggested here to conceal considerable capacity for sustainability.

DIFFERENCES AMONG COORDINATIVE MODES OF LOCAL, ORGANIC AND CONVENTIONAL FOOD SUPPLY CHAINS

The coordinative modes of three vegetable chains included in this study are extremely limited examples, but they suggest questioning the nature of local and organic vis-à-vis conventional food supply chains as they are often understood to reflect mutually different economic and community relations. The industrial vegetable supply chain of this study represented a conventional entity on the food market, ranging from local to domestic markets, and connecting suppliers, from local to international. These activities were highly strategically managed in terms of economic viability rather than stable exchange relations with the local farmers across the years. The conventional vegetable chain, even though not as large as the industrial one in terms of volumes, had a similar pattern of both local and foreign suppliers and markets ranging from local to domestic. However, the supply chain was managed

in a very different way as a socially overlaid network, resulting in more equitable and stable economic developments for the farmers. Furthermore, the chain was open to new actors, enabling its enlargement. The organic supply chain was truly local due to its 'restricted' nature, connecting with the local retailer's outlets. However, the supply chain did not enlarge, but resulted in other organic farmers searching for new and extended markets.

Based on this very incomplete evidence, it may be suggested that the provenance and mode of production in themselves do not necessarily entail particular economic forms within supply chains, nor the modes of their coordinative relations, but rather allow extensive and arbitrary selection of forms of economic exchange as part of the coordinative mode. Furthermore, these relations within supply chains make up part of the relations within the local (farming) community, which acquires relational contents and qualities through them. These extremely limited cases of different and contradictory forms of economic exchange relations and modes of coordinative relations promote the idea of their significance for the lived-by experience of farmers and (farming) community development.

5.2 FACILITATING SUSTAINABILITY ORIENTATIONS WITHIN PUBLIC CATERING

PROFESSIONAL IDENTITY FOR SUSTAINABILITY AMONG CATERERS

As professional caterers are offered the role of exemplary actors working for sustainable food systems, in terms of ecological, economic and socio-cultural developments, this study looked into the possibilities invested in their professional positions and interests. The study confirms that professional identity for sustainability, a notion drawing on and compressing the conditions of the caterers' con-

text and their views about sustainability at large, is shaping among caterers.

The caterers were noted to have a hierarchic differential, whereby executives were legally and economically responsible for procurement and managers participated as experts in the selection of food items, in accordance with menus, nutritional recommendations and suitability to particular catering processes. A professional identity for sustainability was exhibited at the executive level as a 'balanced approach', whereby efforts were made to purchase local and organic foods in addition to preferred conventional domestic food and less so to imported food. A 'co-operative approach' sought to establish co-operation with supply chains in order to develop financial and subsequent ecological benefits. There was a 'rule-abiding approach' whereby procurement rules were followed without ability to control the 'tough game'; there was a 'juggling approach', which looked for co-operation with local supply chains but gained scant response from them; there was a 'critical approach', which complained about the lack of knowledge on sustainable food choices in terms of environmental and economic knowledge regarding the whole supply chain; there was a 'delimited approach', regarding other aspects of caterers' work as being more important than 'sustainable choices'. Among catering managers, there was an 'action approach', motivated by the urgent need to promote sustainability through organic food; there were 'supportive' and 'concerned approaches', promoting local and organic food; there was a 'contented approach', happy about use of organic food and experienced creativity for sustainability; there was a 'contingent approach', relaxed about purchases of organic food and finally, a 'selective approach' for sustainability, within strict economic terms of conventional food choices. These descriptive characterisations illustrate the nuanced interplay of the professional context and the caterers' more or less coherent, informed and long-term efforts directed towards sustainability rather than their anticipated straightforward promotion of a sustainable food system.

The professional identities for sustainability painted by this study are certainly not exhaustive. However, they display a wide range of different orientations towards sustainability, making visible the successes, struggles and indifferences experienced by caterers, as well as the consequences of these orientations in terms of social dynamics for sustainability.

IMPLEMENTATION OF A SUSTAINABLE FOOD SYSTEM THROUGH CONVENTIONAL, LOCAL AND ORGANIC FOOD AND ENVIRONMENTAL-TECHNICAL FEATURES OF FOOD

Caterers, as 'first order consumers', work as choice editors of food for the eaters, 'second order consumers'. They deal with food on a mass scale with the positional option to implement sustainable food systems through their activities such as procurement of specified food categories. Broadly, conventional domestic food was agreed to be a basically good option, preferable when compared with imported food by the caterers included in this study. This relation to staples is rather common, while also imported food was used as it was bought through competitive bidding. Some large organisations in particular wanted to buy large lots and had no opportunity to deal with small entrepreneurs. This reduced their actual interest in local and organic food. This state of affairs emphasises the value of integrative work that needs to be done by farmers for their own and the caterers' interests. Caterers with 'rural' interests referred to rural livelihoods and development, which kindled their interest in local and particularly in organic food, while some caterers recognised no particular difference between these two and regarded them as more or less the 'same thing'. Moreover, some caterers viewed organic food as a desirable option for sustainability worth promoting, for various motives, such as explicated organisational strategies or experienced ambiguity about the quality of food in terms of environmental and individual health. Furthermore, caterers felt professional responsibility for feeding young people healthy food. Even-

tually, caterers expressed ambiguous views about sustainability of foods from different provenances and production modes. There were caterers who were aware of various quality management systems, life cycle thinking and knowledge about the chemical composition of food, particularly regarding substances desirable and not desirable in food. However, caterers had no resources to accomplish their constructive activities pertaining to food they bought and prepared meals from.

Clearly, what caterers purchase is not always what they would like to buy, nor do they always have specific grounds for options they wish to take. Caterers dealing with staples for mass production of meals do have a special relationship to food quality, often without having the broader or more profound knowledge base on the matters of interest and concern for them. This kind of epistemic and relational gap calls for a remedy by supply chain actors, the food industry, education and research.

LEARNING ABOUT INCREASING SUSTAINABILITY OF FOOD FOR PUBLIC CONSUMPTION BY RESEARCHERS AND CATERERS

The study turned to a participatory research approach in order to introduce organic milk into public catering as a means of fostering sustainability. This mode of research was chosen to enrich researchers' and caterers' mutual understanding about the pragmatic problems regarding the use of organic milk in catering. The dialogue between the caterers and dairy company mediated by the researcher made clear that large-scale industrial changes are needed in addition to legal procedures required by the European Union, if organic milk is to be processed, labelled, packed and served in the way caterers prefer. The modern food system is heavily structured by industrial investments and European Union level regulations, which do not necessarily respond to customer induced manoeuvres in terms of new practices and innovations. Furthermore, the results suggest that the caterers' anticipated role as exemplary actors for a sustainable food system would justify more connections

and communication with industries, as well as primary production to increase understanding of developmental pathways within food supply chains. This view heralds a socially based quest for communicative integration of primary producers, food industries, wholesalers and retailers with the catering industry. The study envisages sustainable choices, which turn out to be not only choices over demand, but also choices over supply.

5.3 CONVERGING PATTERN OF SOCIAL DYNAMICS FOR SUSTAINABILITY BETWEEN PRIMARY PRODUCTION AND PUBLIC CONSUMPTION

This study examines the mutual orientations towards sustainability within primary production and public consumption to establish whether a viable pattern of social dynamics for sustainability emerges. Here, primary producers, once having managed to coordinate their supply chain in economically viable ways, enter the phase of recorded good agricultural practices, entailing environmental measures to be instituted. The caterers represent the quest for sustainability, coined as professional identity for sustainability, whereby it matters to them what kind of food they procure within the frame of European Union procurement directives. Furthermore, there were caterers who exhibited both co-operation-bound orientations with supply chain actors and epistemic questioning about the sustainable quality of food. Within the supply chains, multiple pressures and more or less coherent efforts, often invisible to the public, but to some extent recorded during this study, exist among primary producers and catering professionals for learning about ways to increase contextually the ecological, economic and socio-cultural tripod of sustainability of the food system they are embedded in.

In this study, food is looked at from multiple perspectives, including its provenance and production mode, and is understood to be further embedded in invisible economic relations and fuzzy environmental aspects. However, these features are seen as both relevant and dilemmatic qualities by demand and supply, suggesting shared requirements for developments at the food system level. As phenomena within the same social reality at large, these systemic knowledge perspectives - the socio-economic and the environmental-technical ones - could be allowed to juxtapose, whereby both a more analytical and holistic pattern could be constructed by parties of food supply chains. A particular supply chain could act as a platform for shared social reality, whereby its actors' constructive work would be supported by a scientifically grounded modular tool for industrial application. The results of this 'reality check' could lead to consequential implementations, though partial and gradual, pierced by multiple interests by the parties, at the level of individual food supply chains. Furthermore, this basic pattern of social dynamics towards sustainability could ideally be used in iterative circuits, and studied in terms of developmental potential within the supply chains. The elements of this pattern of social dynamics for sustainable food systems, to be worked out in participatory research by practitioners and researchers, are currently only barely visible, and do not correspond to mainstream activity within the food system in a straightforward way. The pattern celebrates endeavours towards sustainable food systems "squeezed between the fault line of environment and society" (Atkins & Bowler, 2001, p 13), suggesting what may be and could be an ordinary 'between-industries' practice for designing staple production and consumption for sustainable diets at an advanced level.

If sustainable development is in 'tune with' and can 'break into' modernity, it would need to change the systemic socio-economic and environmental structures of consumption and production. This kind of change means that networks of actors, in terms of organisations, businesses and consumers along the food chain, invest time and effort to construct a new discourse, possibly grounded in new

research based tools and descriptions of the supply chains. Thus a new way of speaking and acting in terms of sustainable consumption and production may grow within particular food chains and gradually, as a long-term 'project', extend to wider food systems.

5.4 FUTURE RESEARCH FOR SUSTAINABLE FOOD SYSTEMS

If social skilfulness, a rather vague concept in this study, is important in the agro-food sector, requires more evidence through networking studies. Its role in sustainable development, embedded in actors' mutual relations entailing trust and 'fairness', learning, innovation and competitiveness, is particularly intriguing, and not only in terms of economic and ecological perspectives but also in extended terms of wellbeing and occupational satisfaction.

As the analyses of forms of economic exchange within networks were rather rudimentary in this study, more sophisticated analysis of economic relations, disclosing more nuanced content of the qualitative ties composing and changing the network structure, would be fruitful. The analysis could also focus on empirical findings along more extended spatial and temporal networks. The carry-over effect of different exchange relations within networks would be very important in terms of various power, network and social relations. Research could also focus on 'critical' nodes upon which a number of network actors depend. Furthermore, the social embodiments of various relations, particularly in terms of power and social issues, would be culturally interesting in terms of sustainability.

The socially overlaid network as a novel economic coordination mode, based on only a few findings, would need more research about its prevalence and contextual effects, particularly in comparison with other coordinative modes. Economic and environmental quantifications would be very interesting. Research could also identify more

novel network coordination modes that affect food system operations.

To date, domestic, local and organic foods, as well as imported foods, have been the alternative categories characteristic of the quest for sustainable food systems. In order to promote sustainable food systems, more clarity would be needed on environmental and socio-economic impacts of different categories of foods on a commensurable basis, at the supply chain level. To this end, caterers and other food systems actors would need a basis for contextual, professional and creative choices for new menu construction and novel sustainable food cultures. These reconstructive activities need advanced tools, relating one's activities to the environment, economy and socio-cultural aspects of the food chains.

Infographics is one such tool that has been suggested, which describes the modular socio-economic situation and environmental impacts of food transformation along the chain. This kind of tool could be developed in close collaboration with researchers in life cycle studies and social sciences, as the negotiation about implementation of changes would evidently be a socially shared process. Participatory learning and 'brokering for sustainability' would be applied in dedicated projects with committed actors. Networking efforts, when using the infographic tool, need research on its transformative effects in meal services and within supply chains for various staples.

6. ACKNOWLEDGEMENTS

Development of this study has been enabled through vital support by research and academic organizations as well as active and dedicated professionals. From the beginning of this study Professor in agroecology, Juha Helenius understood the need for multiple disciplinary perspectives and their integration for food system research; he was the intellectual and mental carrier of this socially oriented study. Dr Laura Seppänen initiated the study of economic exchange relations by her knowledgeable introduction and critical comments. Professor in environmental protection science Pekka Kauppi had an essential impact on the study through his advice regarding the crucial importance of academic writing. The wider academic community played a decisive role in the study through the anonymous reviewers of the articles; their intellectual pull and connoisseur support have critically upgraded the papers. Finally, the pre-examiners of the study, Professor Sirpa Kurppa of MTT Agrifood Research Finland and Professor Clare Hinrichs of The Pennsylvania State University helped to hammer home the conclusions on the system level; they dragged the load uphill.

The author wishes to thank MTT Agrifood Research Finland for initial economic support for the study. The author acknowledges gratefully the grants awarded by Foundation for Economic Education during 2000–2003 and by South Savo Fund of Finnish Cultural Foundation for 2005. From 2004, University of Helsinki, Ruralia Institute has offered a unique platform for the projects under which this study has made ‘reality checks’ in the food system: Local Food System: Impacts and Learning Challenges (LOFO, 2003–2005), Nordic Excellence in Healthy and Sustainable Catering (HealthCat, 2005–2007), innovative Public Organic food Procurement for Youth (iPOPY, 2007–2010) and Sustainable Food Education for Self-Efficacy

Development (SEED, 2009–2011). The funding bodies of these projects have allocated resources in support of sustainability studies: Ministry of Agriculture and Forestry for LOFO and iPOPY, Nordic InnovationCentre (NICe) for HealthCat and Academy of Finland for SEED, which are gratefully acknowledged. Finally, the author wishes to thank the University of Helsinki for financial support for the study through a grant for the finishing touch in 2010.

Furthermore, research colleagues and friends in Finnish, Nordic and other European universities and research institutes have been fellow travellers, sharing the burdens and the delights of micro-sociological food system research. The food system actors, such as farmers, caterers, processors and administrators, accepted the additional work in being interviewed and participating in ‘real-life’ tests; their openness and interest in research was the very basic condition for this work.

Over all these years, my husband Esko has offered his visionary and steadfast support to back up the study. Finally, my children Sakari, Inkeri, Eeva, Erkki and Eero have each participated in this endeavour in their own very special way amidst everyday life; in addition to its conceptual efforts, this research path has been a deeply social and pragmatic enterprise requiring sharing of our mutual strengths.

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APPENDIX 1. INTERVIEW GUIDE FOR FOOD SYSTEM ACTORS

Interview guide 2000–2003

Part One.

1. Could you please tell about your activities?
2. From where do you get your input and raw material for these activities?
3. Where do your products go to or where are they marketed?
4. With whom do you work and who are your partners?
5. What do you aim at in your work and what seems to be difficult?

Part Two

1. What do think about conventional food?
2. What do think about organic food?
3. What do think about GM food?
4. What do think about local food?
5. What do think about food and environment?

Interview guide 2000–2003 as modified for 2007–2009

The question regarding GM food was taken off and replaced with question about sustainability.

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