



Barriers to the sustainable development of organic farming

Louise Morin

**Natural Resource Management,
Governance and Globalisation
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**Institutional barriers to the sustainable development of
organic farming around the Baltic Sea**

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Advisor: Thomas Hahn
Co-advisor: Markus Larsson
Co-advisor: Annette Löff

Centre for Transdisciplinary Environmental Research, CTM
Stockholm University
www.ctm.su.se

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Natural Resource Management, Governance and Globalisation

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Institutional barriers to the sustainable development of organic farming around the Baltic Sea

- Louise Morin -

- Abstract - A window of opportunity to promote organic farming has opened for the Central and Eastern European countries (CEEC) that have joined the EU in 2004. The development of organic farming has the potential to decrease the amount of nutrient leaching to the Baltic Sea and could help to stop the environmental degradation of the Sea. However, to obtain an organic sector that is both resilient and of large size, there is a need for a diverse set of institutions. This thesis explores the institutions that are lacking to promote the full development of organic farming in the CEEC, as well as the sources of resilience of the organic sector. To fulfill these two objectives, a two-step process has been used. First, a case study approach, formalised by the creation of a set of indicators, has been used to identify the missing institutions, from data obtained from a desktop study. Second, a scenario analysis was used to explore the sources of resilience of the organic sector under three hypothetical development approaches that emphasise the role of governments. The case studies partially support previous studies proposing that the development of organic farming proceeds along six steps: development of an organic farming community, development of the political recognition, establishment of financial support, establishment of non-competitive relationships between the organic sector and general agricultural institutions, development of a domestic organic food market, and development of a discussion and coordination arena. The results show that market development is the least developed step and that there is a correlation between higher governmental willingness and a more developed organic sector. The scenarios emphasize that it is crucial to develop an organic market to make the organic sector independent, and more resilient to change.

Keywords: organic farming, institution, resilience, indicators, scenario analysis, Central and Eastern Europe, Sweden, Poland, Latvia, Lithuania, Estonia

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Acronyms used

| | |
|---------|--|
| BSDB | Baltic Sea Drainage Basin |
| CAP | Common Agricultural Policy |
| CEE | Central and Eastern Europe |
| CEEC | Central and Eastern European countries (here, most often use to refer to Estonia, Latvia, Lithuania and Poland) |
| EBA | Estonian Biodynamic Association |
| EE | Estonia |
| EKOLANT | Ekologiska Lantbrukarna (Swedish Organic Producers' association) |
| EU | European Union |
| EU15 | Member states before the 2004 enlargement (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom) |
| FAO | Food and Agriculture Organisation of the United Nations |
| GDP | Gross domestic product |
| Ha | hectare (1ha = 0.01km ²) |
| HELCOM | Baltic Marine Environment Protection Commission / Helsinki Commission |
| IFOAM | International Federation of Organic Agriculture Movements |
| KRAV | Swedish Association for Control of Organic Production |
| LT | Lithuania |
| LV | Latvia |
| ND | no data |
| OECD | Organisation for Economic Co-operation and Development |
| PHARE | Poland and Hungary Aid for Reconstruction (initially this financial assistance was only applicable to Poland and Hungary, but now applies to all countries with an economy in transition) |
| PL | Poland |
| SAPARD | Special Accession Programme for Agriculture and Rural Development |
| SE | Sweden |
| WTO | World Trade Organisation |

1. Introduction

1.1 Background

The dissolution of the Soviet block in 1989 and the consequent entry into market economy had a significant effect on the economies of the Central and Eastern European countries (CEEC). The subsequent crash in farm-gate prices of most agricultural products and the reorganisation of the agricultural sector resulted in a more extensive land use where the utilisation of pesticides and chemical fertilizers was dramatically reduced (Petersen & Hoogeveen 2004). In theory, this would seem to make conversion from conventional to organic farming easier since the need to adapt machineries and agricultural practices is limited. In turn, this implies a high potential for the development of organic farming in all the CEEC, a fact that is recognised in the rural development plans of all countries under study. The recent accession of some CEEC to the European Union (EU) makes the realisation of this potential even more plausible. By opening a market, and by contributing new knowledge and providing new subsidies, the EU enlargement has opened a window of opportunity in the CEEC to promote the growth of the organic sector (Fischler 2003).

But why promote an agricultural method that typically has a lower yield (Bruulsema 2003)? One reason is because organic farming can support environmental protection and biodiversity conservation in and around the agricultural landscape (Stolze et al. 2000). According to a review by Stolze et al. (2000), organic farming achieves higher biodiversity than conventional agriculture due to the bans on pesticide, higher habitat heterogeneity and more extensive land use overall. Furthermore, organic farming decreases soil erosion, and conserves soil fertility and soil system stability to a higher degree than conventional farming. These properties can decrease the amount of nutrients leaching from agricultural land that result in eutrophication (Stolze et al. 2000). Eutrophication is detrimental to society because it leads to algal bloom, to decreased biodiversity and to poor water quality. In turn, this has indirect, yet significant, effects on fisheries and tourism sectors (HELCOM 2004).

Researchers point out that the environmental degradation of the Baltic Sea cannot be resolved without addressing the agricultural run-offs, and that these can be managed efficiently by organic farming (HELCOM 2002, Granstedt et al. 2005). This should suffice to justify the fundamental assumption of this thesis: organic farming is desirable for society in general as it provides an array of public goods. Moreover, when combining the large potential for organic farming in CEEC with its potential beneficial environmental impacts, the need to further the

understanding of what factors may hinder the sustainable development of the organic sector in CEEC becomes imperative.

1.2 Objectives

Michelsen et al. (2001) have shown that, in order for the organic sector to maintain a positive growth rate, institutions in three societal domains (state, civil society and market) are required. Here, institutions are defined as the norms and rules that steer the behaviour of individuals. Norms and rules can be formalised by being carried out by an organisation, either from the civil society (e.g. producers' association) or by the state. They can also be informal: that is perpetuated by culture and routine (Lynggaard 2001). Prazan et al. (2004) also emphasise that the immaturity of the organic sector means that it lacks many formal institutions available to conventional agriculture: i.e. a detailed regulatory framework; a wide range of policy measures; a complete research program; adequate and widespread training and advisory services; and a complete market. Institutions are clearly of central importance in order to develop a large organic sector. The overall aim of this thesis is thus to understand which institutional factors may hinder the growth of the organic sector in CEEC. The study mostly focuses on formal institutions and on the role of governments in developing them.

The first objective is to describe and to compare the institutions and actors of the organic sector in four CEEC¹ (Estonia, Latvia, Lithuania, and Poland) and one Western European country (Sweden) by using a comprehensive set of indicators. Sweden is used as a baseline country which has a complete organic sector with all necessary institutions (Dabbert et al. 2004, Michelsen & Sjøgaard 2001). Sweden was chosen rather than Denmark or Germany because it has production conditions (e.g. climate) similar to the Baltic States if not to Poland (from all rural development plans, cited at the end) and because it lies completely within the drainage basin of the Baltic Sea, contrarily to either of them. The CEEC also lie completely within the drainage basin of the Baltic Sea, making them clearly linked to the health of the Baltic Sea and making them good candidate in reducing the eutrophication rate (HELCOM 2002). Poland and the three Baltic States were also selected because of their high potential for organic farming and the window of opportunity that recently opened for them (Fischler 2003).

¹ From this point, the term CEEC refers only to Estonia, Latvia, Lithuania and Poland.

The second objective of the thesis is to use a scenario analysis to further the understanding of the sources of resilience in the organic sector. Here, resilience is used to assess the sustainability of the development of the organic sector. In other words, a sustainable organic sector should have high resilience. Adger (2000) defines social resilience as the “ability of communities to withstand external shocks to their social infrastructure”. In this case, a resilient system will be able to maintain the factors that promote the conversion to organic farming by conventional farmers and will prevent the abandonment of organic farming.

1.3 Research questions

- What organic farming institutions already exist in Sweden and the four CEEC?
- How do these correspond or differ between each country, using a set of indicators?
- What institutions need to be developed to achieve a sustainable development of the organic sector in CEEC?
- What the sources of resilience are in the organic sector as pointed out by a scenario analysis?

1.4 Study limitations

The political borders of the countries (Estonia, Latvia, Lithuania, Poland, and Sweden) define the geographic frame of this study. The time frame starts with the emergence of the organic community in CEEC around 1989 and with the expansion of organic farming in Sweden around 1985. It stops in 2005.

The study focuses on the institutions that lead to the development of organic farming within three societal domains (the state, the civil society and the market) because they are identified in the literature as key components of the development of organic farming in particular (Michelsen et al. 2001, Prazan et al. 2004), and of resilience in general (Folke et al. 2005). The influence of the condition of the infrastructures and services is also explored briefly. Global influences or drivers, such as the international organic market and climate change, were not included, to reduce the complexity to a manageable size. The exception is the inclusion of hypothetical WTO agreements and impacts on CAP in the scenario. However, organic sector drivers internal to the EU, such as financial incentives, regulatory requirement, and market opportunities, have been included.

The study focuses mainly on the role of governments in the development of institutions in the three societal domains and the accent is put on solutions that governments can implement. The aim is to provide decision-makers with a better understanding of the role of governments and the implications of different approaches that they may take to promote organic farming.

2. Conceptual and theoretical framework

Definition of organic farming

In this paper, the term organic farming is used to capture both ecologic farming and biodynamic farming. These types of farming have peculiarities that make them distinct from each other, but they face similar issues to expand their activities and are thus grouped together. In this paper, organic farming is defined based on the EU regulation (EEC) 2092-91 that specifies the basic requirements needed in terms of production, certification, labelling and processing that must be implemented in each member state. Regulation (EEC) 2092-91 defines organic farming as a way of producing agricultural goods that restrict the use of off-farm inputs in favour of other farming practices (cultural, biological and mechanical) that can be established on any farms after a period of conversion.

Development of institutions of the organic sector

Ultimately, the development of organic farming depends on the willingness of individual conventional farmers to convert to organic farming practices. In turn, this willingness depends to a large extent on the institutional system in which the farm is embedded (Michelsen et al. 2001). Some systems contain adequate institutions to promote the development of organic farming, others do not. Michelsen et al. (2001) have shown that the continuous development of the organic sector depends on institutions from three societal domains: civil society, market and state. In this paper, the concept of civil society is perceived in opposition to the concept of the state and comprises all the institutions and organisations that are not government-controlled (Baylis & Smith 2001). It includes producers' associations, informal farming practice guidelines, and non-state organisations that participate in lobbying, research and education. The market domain includes supply and demand rules, marketing initiatives, consumers, and food chain actors, such as processors and retailers. The state includes agricultural regulations, standards for organic certification and labelling and different kinds of support. The establishment of those institutions necessary to promote the wide conversion to organic farming are highly influenced by the action taken by the state, which is in turn dependant on the state willingness to promote organic farming. In other words, a state that

shows a high level of involvement in the development of the organic sector can be said to have a high willingness.

Michelsen et al. (2001) also conclude that the institutional development of organic farming proceeds along six steps in Western European countries:

- 1- Establishment of an organic farming community
- 2- Development of the political recognition of organic farming, initiated through the creation of a formal regulatory framework
- 3- Development of financial schemes to support organic farmers
- 4- Establishment of non-competitive relationships between the organic sector and general agricultural institutions (from both the civic and state domains)
- 5- Development of a domestic organic food market
- 6- Establishment of a discussion and coordination arena

The first three are seen as essential for the initial growth of the sector, while the last three are seen as essential for the continuous growth of the sector. The steps can be undergone multiple times, a process that lead to further development. All the steps do not need to have been completed before a step is repeated (Michelsen et al. 2001, Moschitz et al. 2004).

Description of each step and their associated institutions

Each step includes formal and informal institutions which are described here. Throughout the text, there are indicator numbers given in parentheses. These indicators refer to the property of the institution or actor that is being described and have been used to assess the degree of completion of the step in the result analysis (see table 1).

Step 1: The establishment of an organic community starts by the self-organisation of a group of organic farmers into a producers' association. Private standards are one of the first institutions the producers' association develops. These standards specify the requirements to be considered organic and are a precondition for the creation of a separate market (Michelsen et al. 2001). Michelsen et al. (2001) identify the acceptance of a formalised common standard as the first step in developing the organic community identity (indicator 1). Moschitz et al. (2004) point that maintaining the validity of private standards helps the organic community to keep a strong identity after the involvement of the state in certification and standard setting (indicator 4). The power of the producers' association increases with its level of inclusiveness (indicator 5) (Boström 2006).

Step 2: The introduction of private standards encourages political recognition of these standards. This gives credibility and ensures that a minimum set of requirements is uniformly applied nationally (Dabbert et al. 2004, Michelsen et al. 2001). At this stage, organic farming is recognised under law as an alternative way of doing agriculture (indicators 6-7). However, political recognition does not stop with implementation of a regulatory framework, but usually is further anchored by implementing other types of support, such as financial (indicators 10-19) and strategic (indicators 20-22) supports (Moschitz et al. 2004, DFAF 2001).

Step 3: Financial support usually takes the form of area payments that can be differentiated by crops and regions, depending on the policy objectives (Michelsen et al. 2001). These subsidies are paid for each hectare that is cultivated organically (indicators 11 and 13). The aim of area payments is to promote the conversion to organic farming by offsetting the cost of conversion and the cost of the lower production of organic farming. However, this is only until the organic sector attains a critical mass that allows it to be self-sufficient by having an independent market. At this point, the need to be financially supported should decrease (Dabbert et al. 2004). The introduction of area payment triggers the initial growth of the organic sector, but only results in a one-time spurt (indicator 10). In none of Michelsen et al. case studies (2001) did subsequent changes or additions to support schemes lead to renewed growth. Area payments for organic farming are co-financed by the EU via the funding of the Common Agriculture Policy (CAP) (EU 2004). The higher the payment support, the more profitable organic farming becomes, and the larger growth is (Dabbert et al. 2004). Other forms of financial support, such as reimbursement of certification fees or guaranteed loans, are particularly relevant in the CEEC where most farmers survive on very low profit margins (indicators 15-17)(Prazan et al. 2004). Furthermore, financial support should involve research and development because this is what trigger innovations in any market domain and makes it competitive (indicators 18 and 25) (EU 2004).

Step 4: The type of relationships between the organic community and the general agricultural organisations will favour or disfavour the development of the organic sector (Michelsen et al. 2001). According to Michelsen et al. (2001), the relationship between the organic farming institutions and conventional farming institutions can range from a purely cooperative form to a purely competitive form. Under purely cooperative relationships, the differences between each sector are not stressed and there is a risk that the organic sector loses its identity and

eventually disappears by being completely incorporated into the conventional sector (indicators 1, 4, 23, 24 and 26). Under purely competitive relationships, growth rate is reduced by a lack of political support, either financial or strategic (e.g. action plan), and the much smaller organic sub-sector is inhibited by the conventional sector. The middle point on this continuum is what Michelsen et al. (2001) call “creative conflict”, where discussion takes place between each sector without one being subordinate to the other, as would likely occur under the extreme ‘pure cooperation’ end of the scale. The organic sector in this case must have a strong identity and potential to influence society (indicators 1, 3-5). Creative conflict is the most favourable state for the development of organic farming, although both creative conflict and cooperation can foster the development of an arena for discussion and the setting up of partnerships (indicators 8-9). The relationships are not static and change through time, and always fall somewhere between pure forms of competition and pure forms of cooperation (Michelsen et al. 2001).

Step 5: To maintain the organic sector growth that was initiated by the introduction of financial support, there is a need for a mature and independent organic domestic market (Michelsen et al. 2001, Terra Nord 2005). This necessitates the establishment of a complete supply chain, which includes producers, processors, distributors and retailers (indicators 27-29). A lack of processors would result in a lot of organic products being sold as conventional products, thus losing the price premium and endangering the viability of the organic farm, especially given the lower production of organic farming (Terra Nord 2005). A complete supply chain will favour supermarket as sale channel and will largely increase the availability of organic products (indicator 29), which in turn will increase the demand (indicator 33) and the supply (indicator 30) (Terra Nord 2005). Another important characteristic of the organic market is the price premium of organic products (indicators 32). This price premium is a consequence of the lower production of organic farming compared with conventional farming. A price premium can be justified to consumers when they believe that organic products have added quality, in terms of environmental protection, health benefit, animal welfare, or taste (Dabbert et al. 2004). Consumers that are more knowledgeable about organic farming will be willing to pay higher price premium (indicator 31) (DFAF 2001). The demand for organic products increases when certification authority is considered reliable (indicator 35) (DFAF 2001). The demand also depends on the ease of distinguishing organic from conventional products, for example through the use of a well-known logo (indicator 34) (DFAF 2001).

Step 6: A discussion arena, which also eases the coordination among all the actors, could be the administrative committee and council of the certification organisation (Boström 2006) or an advisory council in the ministry of agriculture (Zerger et al. 2005) (indicator 9). Coordination is eased by the creation and implementation of national action plans (indicator 20) (DFAF 2001).

A few ways to promote the development of the steps

Step 1 is the only one that pertains to the establishment of institutions within the civil society domain. The step begins by the self-organisation of a group of organic farmers into a producers' association (Michelsen et al. 2001). Step 1 can be promoted by CEE governments with the money of the European Agricultural Fund for Rural Development (EAFRD) which has a provision for the establishment and operation of producers' associations (regulation (EEC) 1698-2005). However, Moschitz et al. (2004) warn that the identity of the community should develop by itself, otherwise its acceptance by most actors is difficult. Steps 2 and 3 are where governments have the most power to act, because they are the central actor. To increase the support stemming from political recognition, Dabbert et al. (2004) suggest that governments should seek to acknowledge the possibility of organic farming to fulfill multiple policy objectives. This can be fostered by research, by discussion, and by partnership, which all increase the understanding of organic farming. Step 5 is influenced by the actors in all three societal domains. The example of Sweden has shown that producers' associations can have significant impact, especially at the beginning, because they are the first to lobby large retailers and to provide marketing initiatives. In addition, market actors, such as large retailers, have proven that they can have a clear leadership role in promoting organic farming in Sweden (Källander 2002, FAS 2004). Finally, government can favour the establishment of processors by providing guaranteed loans or lower income tax to this type of enterprise (Terra Nord 2005). It can also stimulate the market by making, for example, the use of organic products in public catering mandatory (Edman 2004). The development of steps 4 and 6 are closely related because the development of cooperative relationships often involves discussion and partnerships, which may in turn involve the development of official discussion and coordination arenas to facilitate it. A stakeholders' survey at the European level identified the establishment of a national organic network or a national advisory committee regrouping farmers, market actors and the state as a good way to promote coordination (Zerger et al. 2005). The government is not the only actor who can promote this step, and Boström (2006)

proposes that the discussion arena can be the administrative board and committees of a certification body instead. Effectively, certification and labelling play a central role for all the actors of the organic sector, creating a large incentive for discussion and coordination (Boström 2006).

Resilience of the organic sector

There are two competing definitions of resilience in ecology. Pimm (1991) defines it as the amount of time a system needs to return to an equilibrium state after a disturbance, while Holling (1973) defines it as the amount of change a system can absorb without shifting to a different state. The first one is often referred to as ‘engineer resilience’ while the second has been referred to as ‘ecological resilience’ (Holling 1996). The latter is more compatible with the multiple state nature of social-ecological systems (Walker & Meyers 2004) and is favoured in this paper. In this thesis, the agricultural land under organic cultivation will be considered implicitly resilient because organic farming promotes biodiversity and landscape heterogeneity (Stolze et al. 2001), which are considered central to maintaining high ecological resilience (Walker et al. 2006). However, this does not mean that the social system is resilient as well: a resilient ecosystem can be managed by a vulnerable social system (Folke et al. 2003).

The concept of resilience does not only apply to ecosystems; it applies to the entire social-ecological system. However, the same concept of resilience can be difficult to apply to social systems because humans can anticipate and change their behaviour, giving them a different system dynamics compared to ecosystems (Walker et al. 2006). That is why Adger (2000) defines social resilience differently, as the “ability of communities to withstand external shocks to their social infrastructure”. The social definition of resilience emphasises the stability of a system, rather than the ability to keep functioning. Stability of livelihood is especially important to social resilience (Adger 2000). In this thesis, a resilient social system will be able to maintain the factors that promote the conversion to organic farming by conventional farmers (i.e. by maintaining the social infrastructure) and will prevent the abandonment of organic farming (i.e. through protecting the livelihood) in the face of social shock and institutional changes.

Walker et al. (2006) and Olson et al. (2004) propose social networks, overlapping and redundant institutions, trust, social memory and leadership as sources of social resilience. The

organic community, and more specifically the producers' associations, can contribute to resilience by providing a vision for the different actors (leadership), by providing knowledge dispersion (learning), and by increasing social networking and trust among different actors. Adger (2000) proposes that the resilience of an institution grows through increasing its inclusiveness and its potential influence on society. Saperstein (2006) further highlights that a social system and its actors cannot be forced to be resilient to change. Instead, their resilience must be built by developing participation, self-organisation, learning and adaptation. Thus, social resilience is higher when cooperation and collaboration are high. Competitive relationships lead to lower resilience than cooperative relationships. Furthermore, according to Adger (2000), resilience increases when different knowledge systems are maintained. Thus, creative conflict leads to even higher resilience because it allows both the organic and the conventional sector to maintain their identity and their opinion.

Abel et al. (2006) suggest that support from higher scale can increase the resilience of a system by providing external resources which allow for adaptation following change. Thus, high levels of support and recognition can greatly enhance the capacity of the organic sector to adapt to change. However, Abel et al. (2006) note that excessive subsidisation can do the opposite by giving incentive to not change. They suggest that subsidisation should stop once the system is self-sufficient. Moschitz et al. (2004) also came to the conclusion that large state intervention can lead to a loss of identity of the organic sector. Besides helping to create a self-sufficient sector, financial support can increase resilience when it is spent on increasing knowledge and self-governance (Olsson et al. 2004). Furthermore, a variety of financial measures are expected to provide higher resilience because they can also sustain a more diversified set of actors which is good for functional diversity (Walker et al. 2006).

Walker et al. (2006) define adaptability as the capacity of the social actors to manage resilience. Social systems with greater adaptability have higher resilience because the actors can change the trajectory of the system and prevent the state from shifting to another state. Many case studies mentioned by Walker et al. (2006) demonstrate that a system that is very adaptable in one sphere cannot be as adaptable in another sphere. This is due to the limited resources that allow only increasing adaptability against some shocks.

Thesis contributions

The practical contribution of the thesis lies in the description of new case studies with different historical backgrounds from the case studies from EU15 done by Michelsen et al (2001): Estonia, Latvia, Lithuania, and Poland. The theoretical contribution comes from the integration of resilience theory with the six steps, mostly through a scenario analysis. It also lies in the development of indicators to measure the level of completion of each step. Michelsen et al (2001) could not use this systematic approach because they were exploring the system, but now that the system is better defined, this approach can be used to increase the comparability of different case studies.

3. Case study description

Figure 1 shows the countries on which the study focuses: four CEEC (Estonia, Latvia, Lithuania and Poland) and one Western European countries (Sweden) that are all members of the EU (since 2004 for CEEC and since 1995 for Sweden). The CEEC covers 28.5% of the Baltic Sea Drainage Basin (BSDB) area, while being inhabited by 55% of the population of the BSDB. In contrast, Sweden covers a similar area (25%) but is only inhabited by 10% of the population of the BSDB (Hannerz and Destouni 2006). Furthermore, 58% of the agricultural lands of the BSDB are in the CEEC, while 7% is within Sweden. It should be noted that the Baltic States are similar to Sweden in terms of population and agricultural land, but Poland is more populated and have more agricultural land.

It is important to begin by highlighting some key differences between Eastern and Western European countries. CEEC have a GDP 40% lower than the average of the EU15, and almost 60% lower than Sweden (eurostat 2007). The agricultural and industrial sectors have a larger share of the economy and more people live in rural areas and work in the agricultural sector in CEEC than in the EU15 (eurostat 2007).



Figure 1. The Baltic Sea drainage basin, showing the political boundaries of the countries comprised in it²

² Modified from a map retrieved from: http://www.ikzm-d.de/abbildungen/58_Baltic_map.jpg

Another key difference is their historical past. Poland and the three Baltic States were all under the communist regime of the Soviet Union from the end of WW2 until the end of the 1980's. During that period, Polish land ownership was kept mostly private, while the farms in the Baltic States were mostly converted to collectivised farms (Lerman 2001). Post-independence land privatisation (the return of ownership right to private persons) was carried out differently in all countries. Privatisation in Poland and Latvia resulted in small individual farms while Estonia and Lithuania have kept about 20% of large private corporate farms (FAO 2002).

Organic farming started in the 1930's in Sweden, although the first organic standard were only crafted in 1985 (Källänder 2002). In CEEC, organic farming has started after they regain independence when the Soviet Union collapsed (Prazan et al. 2004). Organically cultivated land accounts for only 0.5 to 6% of the total agricultural land in all the countries. Figures 2 and 3 show the number of certified organic farms and total land area certified organic over time in each country. It should be noted that these graphs show only farms that are certified and not all farms that are cultivated organically. For example, the declining curve of Sweden would be increasing if all farms receiving organic area payment were included. Most organic farms in CEEC are mixed, which means that they engage in both crop and livestock production. In most cases, they possess dairy cows and are managed full time by the owner, although additional income is frequently sought outside the farm (Neiberg 2005). In Sweden, approximately two-thirds of organic land is devoted to grassland production (e.g. clover) and one-third to grain (Källänder 2002).

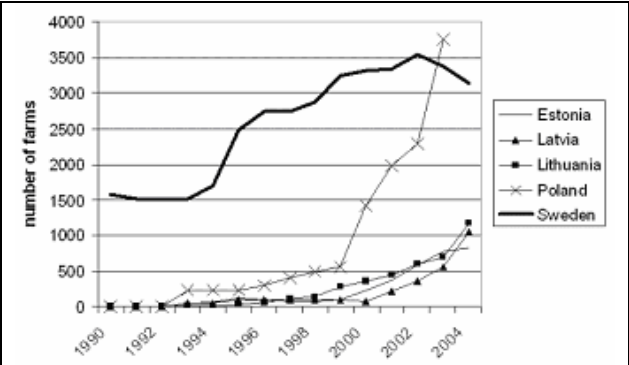


Figure 2. Number of certified organic farms over time in the five case-studies
 Compiled from different sources. CEEC from EkoConnect 2006. Sweden from Källänder 2002, Swedish agricultural year book 2000, Swedish agricultural year book 2005.

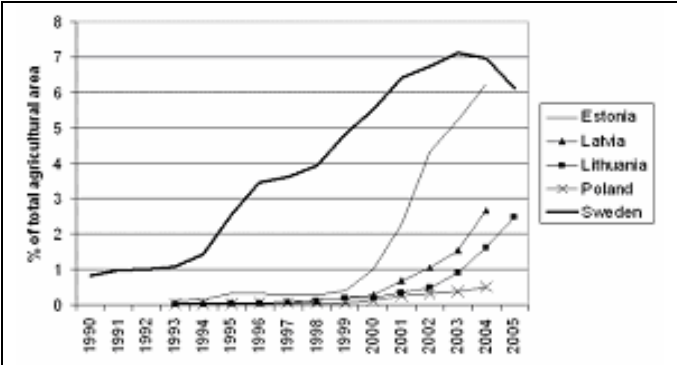


Figure 3. Proportion of total agricultural land certified as organic over time in the five case-studies
 Compiled from different sources. CEEC from EkoConnect 2006. Sweden from Källänder 2002, Swedish agricultural year book 2000.

4. Method

4.1 Case study approach

A comparative case study approach has been used to resolve the applied problem investigated by the thesis. Case study research uses detailed description of a limited number of cases within their real-life context to answer a question. The descriptions are usually based on a multiple sources of evidence, in this case personal communications, official reports, regulation texts and grey literature (Yin 2003). The analysis was standardised through the use of indicators. The case studies were compared to the framework provided by Michelsen et al. (2001) using the matching pattern techniques. This technique aims to establish that a majority of cases is consistent with the theory.

4.2 Desktop study

The bulk of the data came from “grey literature”, which are reports published by governments or organisations that are not peer reviewed. I assessed the solidity of the data and the soundness of the methodology presented in these reports based on the reputation of the publishing body, on the similarities of the methods with peer-reviewed methods, and on my own critical judgement and knowledge. Official government publications, such as rural development plans, action plans, regulation texts, statistical databases, and reports on the development of organic farming were also used. The official websites of some organisations have been cited as well. While the information on the internet cannot be considered reliable in many cases, there are exceptions. One such case is the web site organic-europe.net. This web site is co-funded by the Agriculture Directorate-General of the EU Commission, and is cited in official EU documents. Furthermore, the authors of the country report are known experts in the field of organic farming in each country. Therefore, the validity and reliability of the information is high and it has consequently been widely used. Special care was taken to ensure that the data that is compared using the indicators came from similar sources and was collected with a similar methodology. Data was triangulated with other sources as often as possible (approximately 50% of the time). The assembled data is therefore sound as it is based on a broad set of sources that are each solid.

4.3 Questionnaire and personal communications

The data gathered during the desktop study was complemented by email or telephone contact with people working in the organic sector. The point of making these contacts was to confirm and fill any gaps in the collected data. The data was also complemented by a questionnaire

that covered six topics: legislative support, financial support, market, production, social dynamics and infrastructure availability (see annex 2). The topics and specific factors were selected after a thorough literature review. A test round was carried out on four people to enhance the clarity and coherence. The questionnaire asked detailed questions that required a high level of knowledge to be answered correctly. Ten key people answered it. A main constraint encountered with personal communication was that many people did not have a good enough knowledge of English to answer the questions asked. Although the questionnaire cannot be used statistically, the information it provides is valuable because the people that answered it have a very high level of knowledge of the organic sector in the different CEEC. The first people that were contacted were single out from the literature review or from lists of participants in organic seminars and workshops. A subsequent ‘snowball’ effect led to further people being identified. Since all questionnaire respondents had a vested interest in the promotion of organic farming, a possible bias in their responses should be noted.

4.4 Indicators

Following a thorough literature review, thirty five indicators were selected and should suffice to assess both the degree of completion of the six steps (Michelsen et al. 2001) and the resilience of the system. The selection of indicators was done after a few key characteristics of the completed step were defined from the case-studies of Michelsen et al. (2001) and Moschitz et al. (2004). These key characteristics and their associated indicators are given in table 1. The description of each indicator has already been done in the conceptual framework, along with their literature provenance. The selection was also done keeping in mind the following criteria (OECD 1999):

1. **Specificity:** the indicator has specific relevance to the organic sector, in opposition to the entire agricultural sector.
2. **Analytical soundness:** the indicator can be used to establish a clear and coherent link with the degree of completion of the steps and/or resilience theory.
3. **Measurability:** The indicator could be appropriately described with the available data.
4. **Comprehensiveness:** This concerns the overall set of indicators for one step and underlines the ability of the set to describe the step as a whole.

Comprehensiveness was the most difficult criteria to respect. Only one step is not described by a comprehensive set of indicators: Step 6, the development of a discussion and coordination platform. The indicators only describe whether the step has been initiated or not, and not its development.

Table 1. Characteristics of institutions and main actors of the organic sector after a step has been completed, showing the indicator with which they can be assessed

| Characteristics of the completed step | Indicators used to assess the characteristic |
|---|---|
| Step 1: Establishment of an organic community a) The organic community has a strong identity b) Producers' associations have the power to influence other parts of society | 1: Apparition of first standard (date) 4: Private standard can still be used 3: Power of producers' association 5: Proportion of organic farmers that are members of an association (%) |
| Step 2: Establishment of political support a) Regulatory support exists b) Financial support is high c) Strategic support is high d) Regulatory support exists | 6: apparition of first national regulation (date) 7: apparition of current regulation (date) 10: apparition of area payment (date) 11: Area payment (euro/ha) 13: Total amount devoted to OF (millions of euro) 15: Loans available for improvement of organic farms 16: Lower taxes for organic farmers 17: Certification/inspection costs reimbursement 18: Research support (million euros/year) 20: Action plan for organic farming 21: OF incorporation in strategic plan of government 22: Quantitative target for proportion that should be cultivated organically (%) 6: Apparition of first national regulation (date) 7: Apparition of current regulation (date) |
| Step 3: Establishment of financial support a) Financial support has been introduced b) Area payments are high enough to off-set the cost incurred by conversion and lower productivity c) Research program is well-funded and complete d) There is a few financial schemes to help organic farmers | 10: Apparition of area payment (date) 11: Area payment (euro/ha) 13: Total amount devoted to organic farming (millions of euro/year) 18: Research support (million euro/year) 25: Range of research program 15: Loans available for improvement of organic farms 16: Lower taxes for organic farmers 17: Certification/inspection costs reimbursement 18: Research support (million euro/year) |
| Step 4: Development of non-competitive relationships between organic community and state institutions a)Partnership b) Integration of organic farming in state institutions c) Discussion arena existence d) Strength of the organic community identity e) The power a producers' associations has | 8: Partnerships strength 23: Specific office in agricultural ministry 24: Degree of integration of OF in training establishments 26: Degree of integration of OF in advisory services 9: Discussion arena existence 1: Apparition of first standard (date) 4: private standard can still be used 3: Power of producers' association 5: Proportion of organic farmers that are members of an association (%) |
| Step 5: Development of a domestic organic market a) A complete supply chain exist b) The other structural conditions are favourable c) The behaviour of the general consumers is favourable | 27: Number of certified processing facilities (2004) 28: Promotion by large retailers 29: Distribution of sales channels 34: Number of logos 35: Perception of the quality of certification and control system 31: Proportion of consumer that can correctly define organic farming (%) 32: Acceptable price premium by 50% of the population 33: % of the population that buy OP |

| | |
|---|---|
| | >once a week / >once a month / < once a month |
| d) The market share of organic farming is large | 30: Market share of organic products (%) |
| Step 6: Development of a discussion and coordination platform | |
| a) An inclusive discussion arena exists | 9: Discussion arena existence |
| b) An inclusive coordination arena exist | 20: Action plan for organic farming |

4.5 Scenario analysis

4.5.1 What is it?

Scenario analysis has been used to explore sustainability and environmental issues on multiple occasions. The most recent and well known example is the Millennium Ecosystem Assessment (Raskin 2005). Scenario means different things to different people, but three main types of scenarios can be distinguished: projection, vision and alternative scenarios (Stout 1998). Projection scenarios are based on past statistical trends and try to predict the future (Peterson et al. 2003). Vision scenarios are normative scenarios that present a goal that should be aimed for (Stout 1998). Alternative scenarios are descriptive narratives about hypothetical yet plausible futures that are articulated around drivers of change (Masini & Vasquez 2000, Zanolli et al. 2000, Peterson et al. 2003, and Carpenter et al. 2006). The alternative and vision types of scenario are often combined.

Projection scenarios need long term statistics in order to be efficient and are less flexible (Peterson et al. 2003). These more quantitative scenarios were not appropriate in this case because long term statistics are not available due to the immaturity of the sector and because a lot of flexibility is needed to explore the complex interaction in the system. A visionary scenario was not appropriate either because a “best approach” does not exist in complex systems (Walker et al. 2006). It was thus decided that the best approach to fulfil the objective was to use alternative scenarios which do not use mathematical algorithms, although both quantitative and qualitative variables can be used. The main weakness of alternative scenarios is that it involves a lot of subjectivity because it utilises low methodological formalisation. This can be partially addressed through the use of clear statement of assumptions, and by critical thinking on the part of the reader (Zanolli et al. 2000).

4.5.2 When can it be used?

According to Peterson et al. (2003), scenario analysis is most useful when there is high uncertainty in the system and when system manipulations are impossible. Carpenter et al. (2006) further emphasise the usefulness of scenarios when trends do not point to any obvious direction, when no model exists and when the full range of possibilities is unknown.

Furthermore, Zanolini et al. (2000) consider that scenario analysis is a good method to summarise data from different sources, to understand the linkages between different trends and outcomes, and to understand how a situation might evolve. Another objective for using scenarios is to actively influence and change an undesirable trajectory (Peterson et al. 2003). The organic sector is a complex system with multiple feedback loops between the different societal domains and their actors and its development is subject to uncertainty. Scenario analysis can fulfill the objectives of this part of the inquiry: to examine what are the implications of the different approaches that can be taken by government to promote organic farming in term of social resilience and adaptability.

4.5.3 How is it done?

The approach that has been used to create the scenarios is derived from methodologies proposed by Masini & Vazquez (2000) and Zanolini et al. (2000). The first step is to delimit the time and spatial frame within which the scenarios will occur. In this case the spatial frame is delimited by the CEEC geopolitical boundaries and the time frame within the next 15 years. The second step is to identify the key variables and the causal model that links them together. In this case, the step proposed by Michelsen et al. (2001) is the causal model and the key variables are the main actors and indicators that are important to the completion of each step. The third step is to choose the breakdown factors around which the scenarios are constructed. Breakdown factors are the nodes where the scenarios diverge from each other. In this case, they are the incomplete steps, and the approaches that can be taken by governments to encourage their completion. The fourth step is the formulation of many scenario skeletons and the selection of the most interesting ones that are then developed in a few complete scenarios. Finally, the scenarios can be analysed by comparing what were the consequences of the different breakdown factors for the resilience of the organic sector, what were the important actions of the actors, and what were the pitfalls in each scenario.

4.5.4 How to evaluate the validity of scenarios?

Scenarios are not falsifiable and repeatable in a Popperian sense, because different people using the same causal models and assumptions could come up with strikingly different scenarios by focusing on different drivers. They cannot be evaluated on their predictive power either, as likelihood of a scenario ever taking place is almost zero (Van der Heijden 1996). On the other hand, scenarios can be evaluated based on their credibility. According to Helmer (1981) and Bunn & Salo (1993), credibility can be separated into four components:

comprehensiveness, consistency, clarity, and coherence. A comprehensive scenario - that is, one that is realistic and consistent - incorporates relevant past and present events and drivers of change. However, scenarios should not be too detailed, otherwise interpretation and understanding becomes difficult. Scenarios should be simple and realistic. Finally, a coherent scenario follows the rules set out by the causal models and by relevant theories, such as economic theory or probabilistic theory. The coherence of scenarios depends on the clear statement of which assumptions have been used to create them.

4.6 Michelsen et al. (2001) critics

The study by Michelsen et al. (2001) has been used as the basis of this thesis. Therefore, it is appropriate to briefly criticise their work here. Michelsen et al. (2001) used in-depth comparative case study analysis and institutional theory to explore the role of different institutions in the development of organic farming. The case studies were all from the EU15: Austria, Belgium, Denmark, Greece, Italy and United Kingdom. The case studies illustrated different levels of development of the organic sector. There were examples of cooperation, competition and creative conflict, of small and large organic sectors, of small and large domestic markets, of small and large exports, and of stagnation, reduction and increase of the growth of the organic sectors. This range of characteristics makes their findings robust and possible to generalise from, providing a sound basis for this study.

However, this study has been done within the EU15, where even the poorest country is richer than any CEEC. Therefore, Michelsen et al. (2001) do not consider the economic welfare of the populations, or the state of the rural infrastructure. Those two factors are potentially important for the development of organic farming. Effectively, Zanoli et al. (2000) have shown that the financial situation of general public has a large impact on the demand for organic products, and hence on market development. Richer people in more stable environment tend to have a higher willingness to buy organic products. Furthermore, sustainability theory points that poor services and infrastructures can result in high migration from rural area to cities, increased unemployment rate and low development of processing industries. This in turn reduces market development (Thompson 1998). There might be a need to adjust for the economically less favourable conditions for the development of organic farming in the six steps of Michelsen et al. (2001).

5. Results

5.1 Questionnaire results

Table 2 shows that market development and financial support are deemed more important by all respondents than the social dynamic of rural region (e.g. ageing population or out migration), and infrastructure problems (e.g. rural services, state of road network). Production factors that concern the producers' associations and integration of organic farming within strategic documents are also considered important. Most factors (12 out of the 15) concern domestic obstacles.

Table 2. Factors with the largest influence on the development of organic farming in CEEC. This table is based on all the factors that are included in the questionnaire. The type (F=financial support, M=market development, S=strategic support, P=production characteristic), the scale at which they function (domestic or EU) and the estimate of how much they need to change (“--“decrease significantly, “-“decrease, “=” do not need to change, “+” increase, “++”= increase significantly) is also shown.

| rank | Type | Factors | Scale | |
|------|------|--|----------|----|
| 1 | F | Public investment in processing of organic products | Domestic | ++ |
| 2 | M | Consumer demand for organic products | Domestic | ++ |
| 3 | F/M | Public investment for marketing of organic products | Domestic | ++ |
| 4 | S | Integration of OF in national rural development plan | Domestic | + |
| 5 | F | Area payment for conversion to OF | Domestic | + |
| 6 | F | Public expenditure in extension services and training | Domestic | ++ |
| 7 | F | Public investment in research and development in OF | Domestic | ++ |
| 8 | M | Consumer concerns about food quality, food safety, environmental protection and animal welfare | Domestic | ++ |
| 9 | F | Area payment for maintenance of OF | Domestic | + |
| 10 | M | Link between producers and retailers | Domestic | + |
| 11 | M | Consumer demand for organic products | EU | + |
| 12 | P | Availability of organic producers' association | Domestic | ++ |
| 13 | P | Political power of organic producers' association | Domestic | + |
| 14 | M | Consumer concerns about food quality, food safety, environmental protection and animal welfare | EU | + |
| 15 | F | Other financial help (e.g. guarantee loan, compensation for lost crop, etc) | Domestic | + |

The factors related to infrastructures, services, social dynamics and production have lower influence on the development of organic farming. Except the first two factors, all the factors are considered to have little influence on the development of organic farming. However, table 3 shows that many of them need to change to promote the full development of organic farming. The rural development plans of all the CEEC also stress that the state of rural infrastructures and services need to be ameliorated urgently to promote the economic development of rural area.

Table 3. Factors related to infrastructures, services and social dynamics influencing the development of organic farming in CEEC. This table is based only on the factors related to production (P), availability of infrastructure (I) and social dynamics (S) from the questionnaire. The estimate of how much they need to change (“--“decrease significantly, “-“decrease, “=” do not need to change, “+” increase, “++”= increase significantly) is also shown.

| Rank | Type | Factors | Change |
|------|------|--|--------|
| 1 | I | Availability of organic producers’ association | ++ |
| 2 | P | Political power of organic producers’ association | + |
| 3 | P | Complexity of requirement to become certified | = |
| 4 | P | Development of the national land market | + |
| 5 | I | Availability of investment loans | + |
| 6 | S | Ageing of farmers | - |
| 7 | P | Cost of certification | = |
| 8 | S | Migration out of rural area (depopulation) | - |
| 9 | P | State of farm infrastructure (e.g. building, machinery) | + |
| 10 | I | Availability of water, electricity and waste disposal services | + |
| 11 | I | Quality of road network | + |
| 12 | S | Employment in rural area (other than agriculture) | + |

5.2 Characteristics of the civil society domain

Producers’ associations first appeared in the 1990’s in CEEC and in the 1980’s in Sweden (indicator 1). The questionnaire reveals that although they appeared more than 15 years ago, their availability needs to increase significantly in order to promote the organic sector development. In Latvia, Sweden and Lithuania there is one main producers’ association that aims at regrouping most organic farmers under one banner, making them largely representative (indicator 2 and 5). In Poland, there are numerous small and local producers’ associations (indicator 2), and no official record keeping of the membership is done, preventing the measurement of indicator 5 (personal communication Jozef Tyburski). In Estonia, there is one national producers’ association (EBA) and many smaller, local ones (indicator 2). Membership has been decreasing in the last few years (Moschitz et al. 2004, personal communication Airi Vetemaa) and an estimate suggests that as few as 10-15% of organic farmers are part of any organic associations (personal communication Eve Ader), making the Estonian producers’ associations hardly representative (indicator 5). The questionnaire also points out that the political power of the producers’ associations needs to be increased to promote organic farming in CEEC (indicator 3).

Table 4. Indicators 1-5 describing the institutions of the civil society domain

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|---|---|----------------------|----------------------|----------------------|----------------------|--------|
| 1 | Apparition of 1 st private standard | 1990 | 1994 | 1992 | 1994 | 1985 |
| 2 | Number of producers' associations # national + # local | 1 + 5 | 1 + nd | 1 + nd | 1 + 3 | 1 + 1 |
| 3 | Power of producers' associations | Need to be increased | Need to be increased | Need to be increased | Need to be increased | Good |
| 4 | Private standard can still be used | No | No | Yes | Yes | Yes |
| 5 | Proportion of organic farmers in producers' associations | 10-15% | ≈ 60% | Most | nd | 90% |

1) EE: Mikk 2005, LV: Zarina 2006, LT: Kaspersen et al. 2004, PL: Metera 2006, personal communication Jozef Tyburski, SE: Källander 2002, Ekologiska Lantbrukarna 2000

2) EE: Mikk 2002, LV: Zarina 2006, Drozdovska 2005, LT: Kaspersen et al. 2004, PL: Metera 2006, SE: Källander 2002, Ekologiska Lantbrukarna 2000

3) CEEC: based on questionnaire, SE: Boström & Klintman 2003, Källander 2002

4) CEEC: Tyburski & Zakowska-Biemans 2003, SE: Boström & Klintman 2003

5) EE: personal communication Eve Ader, LV: Drozdovska 2005, LT: Kaspersen et al. 2004, SE: estimate by comparing number of organic farms in fig 1 and the number of organic farms member of Ekologiska Lantbrukarna 2000.

5.3 Characteristics of the state domain

In all the countries, organic farming is regulated based on regulation (EEC) 2092-91 of the EU. In CEEC, new regulations were adopted in 2000 or 2001 in anticipation of their accession to the EU (indicator 7). In Sweden and Lithuania, partnerships are frequent and thorough, while in Estonia and Latvia they are infrequent and irregular. In Poland, they are increasingly frequent (indicators 8-9). The main discussion arena of Sweden is the administrative board and committees of a certification body KRAV which includes members of most interest groups (e.g. food industry, environmental and animal protection organisations, and producers' associations) involved in the development of the organic sector (Boström 2006). In Poland, the discussion arena is a council, hosted by the ministry of agriculture and rural development. All the actors of the organic sector are invited to participate (personal communication Jozef Tyburski). In Latvia, actors within the government sometimes participate in the board meeting of the organic producers' association. However, no formal discussion arena has been established that would regroup all the actors (personal communication ALAO). The presence of an arena for discussion has not been confirmed so far for Lithuania, but is likely to exist given the high cooperation, partnership and interest in organic farming from the government.

Table 5. Indicators 6-9 describing institutions of the state domain related to general political recognition

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|---|----------------------------|-----------|--------|-----------|--------------------|--------|
| 6 | First national regulation | 1997 | 1996 | 1994 | 2001 | 1995* |
| 7 | Current regulation | 2001 | 2002 | 2002 | 2001 | 1995** |
| 8 | Strength of partnership | Weak | Weak | Good | Medium, increasing | Good |
| 9 | Discussion arena existence | No longer | No | Nd | Yes | Yes |

* In Sweden, the regulation for organic farming is not detailed and is limited to the requirement of regulation (EEC) 2092-91. Further details are left to the responsibility of KRAV (Källander 2002, Lampkin et al. 1999).

** A new date have not been found, it can be assumed that it is still 1995.

6) CEEC: Tyburski & Zakowska-Biemans 2003, EE: Mikk 2002, LV: Zarina 2006, LT: Kaspersen et al. 2004, PL: Metera 2006, SE: Lampkin et al. 1999

7) EE: personal communication Eve Ader, Moschitz et al. 2004, LV: Drozdovska 2005, PL: Moschitz et al. 2004, SE: Boström & Klintman 2003,

8) EE: personal communication Eve Ader, Moschitz et al. 2004, LT: personal communication Levina Sturite, PL: personal communication Josef Tyburski, Moschitz et al. 2004, SE: Källander (2002)

9) EE: personal communication Eve Ader, LV: personal communication Levina Sturite, personal communication ALAO, PL: personal communication Josef Tyburski, Moschitz et al. 2004, SE: Källander (2002)

Financial support appeared early in Lithuania and Sweden long before their accession to the EU and before funds were made available for member states through regulation (EEC) 2078-92 (indicator 10). The other countries implemented payment schemes later, through the pre-accession structural funds, such as SAPARD and PHARE. However, in Lithuania the financial support was at first only available to farmers of the Karst region, which is very vulnerable to erosion and nutrient leaching (Gutkauskas 1997). Area payments vary between 50 and 815 euro per hectare, the smaller payments are usually for pastoral land and perennial crops and the higher ones for small berries and vegetables (indicator 11). Area payments for organic farming represent between 8% and 80% of the money invested in protecting the environment in agricultural land (indicator 12). The uptake rates for area payments vary between 50% and 240% (indicator 14). The 240% uptake rate of Sweden is due to the possibility of obtaining area payment without being certified (Dabbert et al. 2004).

Area payments are not the only types of possible financial supports (indicators 15 to 19). In Lithuania and Poland, there is a larger diversity of financial measures than in Estonia and Latvia. Lack of financial support was the number one factor hindering the development of organic sector in CEEC in the 1990's (Zobena 1998), and although it has increased a lot since accession to the EU, it is still listed as a serious hindering factor in the questionnaire and other case studies (see for example Buciene & Eidukeviciene 2005; Hajduk & Staniszewska 2005). The questionnaire identified the lack of public investment in processing, marketing, area payments, advisory services and research as being among the top 10 factors hindering the development of the organic sector. In CEEC, it seems that there is a lack of information for

farmers about agri-environmental schemes (including organic area payments) and that measures for intensive agriculture have priority over agri-environment schemes (IUCN 2004).

Table 6. Indicators 10-19 describing institutions of the state domain related to financial support in 2004

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|----|--|---------|--------|-----------|---------|--------|
| 10 | Apparition of area payment | 2000 | 2001 | 1993 | 1999 | 1989 |
| 11 | Area payment (Euro/ha) | 80 | 82-139 | 118-734 | 55-382 | 50-815 |
| 12 | % of agri-environmental scheme devoted to organic farming | 16 | 80 | 72 | 8 | 25 |
| 13 | Total amount devoted to organic farming (millions of euros/year) | 3.1 | 4.9 | 15 | 7 | 57.8 |
| 14 | % uptake of area support | 80% | 93% | 50-60% | 88% | 240% * |
| 15 | Loans available for improvement of organic farms | No | No | Yes | Yes | nd |
| 16 | Lower taxes for organic farmers | No | No | Yes | Yes | nd |
| 17 | Certification/inspection costs reimbursement | No | No | Yes | Yes | No |
| 18 | Research support (million euros/year) | 0.1 | 0.1 | 0,046 | 0,27 | 5.9** |
| 19 | Estimate % of agricultural research funding devoted to organic farming | 1% | 19% | 6.33% | 0.2%*** | 10% |

* In Sweden, a farm does not need to be certified to get payment for organic farming.

** The total research funding includes forestry and fisheries. The specific amount for agriculture is blended with them. Thus, the number is likely to be smaller than what is shown.

***approximation based on two different years

10) EE: Mikk 2002, LV: Zarina 2006, LT: Kaspersen et al. 2004, PL: Metera 2006, SE: Källander 2000

11) EE: Prazan et al. 2004, LV: Latvian ministry of agriculture 2006, LT: Rush 2006, rural development plan, PL: Porter 2006, rural development plan, SE: rural development plan.

12) EE, LV, LT, SE: Tuson & Lampkin 2006, Hrabalova et al. 2005, PL: rural development plan 2004-2006

13) EE, SE: Tuson & Lampkin 2006, Hrabalova et al. 2005, LV: Drozdovska 2005, PL: Polish ministry of agriculture and rural development 2006, LT: Lithuania ministry of agriculture 2005.

14) EE, LV, PL, SE: Tuson & Lampkin 2006, Hrabalova et al. 2005, LT: rural development plan

15) All: Tuson & Lampkin 2006 Hrabalova et al. 2005

16) All: Prazan et al. 2004

17) All: Tuson & Lampkin 2006, Hrabalova et al. 2005

18) All: Slabe 2004

19) EE: Statistic Estonia 2007, LV: Latvian council of science 2006, LT: Slabe 2004, PL: Polish Central Statistical office 2007, SE: Slabe 2004

The rural development plan of each country includes provision for organic farming (indicator 21). However, the questionnaire reveals that in CEEC integration of organic farming in rural development is the fourth most important factor hindering organic farming and needs to be increased. All the countries except Poland have an action plan for coordinating organic farming development (indicator 20). In Sweden and Lithuania the quantitative target set up in these action plans is relatively high: at least 15% of the agricultural land should be cultivated organically by some given year (indicator 22).

Table 7. Indicators 20-22 describing institutions of the state domain related to strategic support

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|----|--|---------|--------|---------------------------|--------|-------------|
| 20 | Action plan for organic farming | Yes | Yes | Yes | No | Yes |
| 21 | OF incorporation in strategic plan of government | Yes | Yes | Yes | Yes | Yes |
| 22 | Quantitative target for the proportion of agricultural land that should be organic | Yes | No | 5% by 2004 15% by 2015 | No | 20% by 2005 |

20) All: Slabe 2004, EE: Estonia ministry of agriculture 2002, LV: Zarina et al. 2006, Prazan et al. 2004, LT: Jansen & Simon 2005, Rush 2006, Prazan et al. 2004, PL: Prazan et al. 2004, SE: Källander (2002)

21) All: national rural development plan. CEEC: own data questionnaire

22) EE: Kalm & Laansalu 2002, LV: personal communication Levina Sturite, LT: Jansen & Simon 2005, Rush 2006, PL: Prazan et al. 2004, SE: Källander 2002, Boström & Klintman 2003

The integration of organic farming within state institutions varies greatly. It is most integrated in Latvia, Poland and Sweden, least integrated in Estonia and Lithuania. Research is almost exclusively carried out by institutes subsidised by the state. The implementation of a full research programme occurs only in Sweden and Lithuania, although Poland has a full programme for crop research. In Estonia, integration of organic farming is weak. There is only one course devoted to organic farming and most advisory services and training are given through the organic producers' association EBA and Kagü-Esti Bios. In all the other countries, advising services are provided by the same advisory and training centre as conventional agriculture. In Poland and Sweden, the main agricultural universities offer organic farming courses in their curricula. There is a professional course offered by the Latvian university of agriculture devoted to the theoretical and practical aspects of organic production (Zarina 2006, Drozdovska 2005).

Table 8. Indicator 23-26 describing the integration of the organic sector within agricultural institutions of the state domain

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|----|--|-------------------------------|--------------------|--------------------|-----------------------------|------------------------------------|
| 23 | Specific office in agricultural ministry | Yes | No | Yes | Yes | No |
| 24 | Integration of OF in training establishments | Weak, almost fully segregated | Largely integrated | Nd | Largely integrated | Largely integrated |
| 25 | Range of research program | Production only | Production only | Almost full range* | Almost full range* for crop | Full range* for crop and livestock |
| 26 | Integration of OF in advisory services | Almost none | largely integrated | Little integration | largely integrated | Largely integrated |

*Full range: research programme covers topics of production, food quality, and market development.

23) CEEC: Tyburski 2003, Ministry of agriculture websites, SE: Ministry of agriculture website, Källander 2002

24) EE: Mikk 2005, PL: Moschitz et al. 2004, Brent 1999, LV: Zarina 2006, SE: Källander 2002


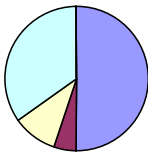
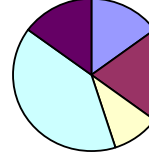
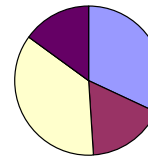
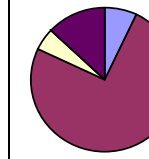
25) All: Slabe 2004

26) EE: Mikk 2005, personal communication Eve Ader, PL: Moschitz et al. 2004, Brent 1999, LV: Zarina 2006, Drozdovska 2005 LT: Tatulos programa 2005, SE: Källander 2002

5.4 Characteristics of the market domain

Indicators 27 to 29 show that all the actors of the supply chain are present in Sweden, while both processor and distributor are very limited in CEEC. The lack of processing facilities is one the most important factors that hinders the development of the organic sector in CEEC according to the questionnaire and to previous studies (for example Mikk 2005, Terra Nord 2005, Buciene & Eidukeviciene 2005, Hajduk & Staniszewska 2005). Indicator 29 shows that supermarkets account for more than 75% of all the sales in Sweden, but that favoured sales channels in CEEC are typically direct sales and market places.

Table 9. Indicators 27-30 describing the maturity of the organic market based on physical structures

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|----|--|--|--|---|--|--|
| 27 | Number of certified processing facilities (2004) | 14 | 8 | 19 | 99* | ±500 |
| 28 | Promotion by large retailers | No | No | beginning | beginning | Yes |
| 29 | Distribution of sales channels <ul style="list-style-type: none"> ■ Direct sales ■ Supermarket □ Organic/health food shop □ Market place ■ Other |  |  |  |  |  |
| 30 | Market share of organic products | < 1% | < 1% | 1.5% | < 0.5% | 2.5% |

*in 2005

27) EE: Estonia veterinary inspection 2006, LV: rural development plan, Zarina 2006, LT: rural development plan, PL: Polish Ministry of agriculture and rural development 2006, SE: KRAV 2006

28) EE: Moschitz et al. 2004, Mikk: 2005, LV: Gulbe & Hazners 2005, Terra Nord 2005, LT: Rutkoviene & Abraityte 2006, PL: Moschitz et al. 2004, SE: FAS 2004

29) in 2004-2005. EE: Pehme et al. 2007, LV: Gulbe & Hazners 2005, Terra Nord 2005, LT: Kaspersen et al. 2004, Rutkoviene & Abraityte 2006, PL: Bakula & Smoluk 2005, SE: Dabbert et al. 2004, FAS 2004

30) for 2004-2005. EE, LV, PL: based on numbers from countries with similar market characteristic from Dabbert et al. 2004 and Ritcher et al. 2006. LT: Terra Nord, SE: Dabbert et al. 2004, Terra Nord 2005

The indicators shown in table 10 indicate that consumers behave according to a non-mature market in CEEC but according to a mature market in Sweden.

Table 10. Indicators 31-33 describing the maturity of the organic market based on consumer behaviour

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|----|---|---------------|---------------|---------------|--------------|----------------|
| 31 | Proportion of consumer that can correctly define organic farming | Medium 65% | Medium 70% | Medium 70% | Low 30% | high 93% ** |
| 32 | Acceptable price premium (in % higher) by half the population | 10% | Very low* | 25% | 10-20% | 30% |
| 33 | % of the population that buy OP >once a week / >once a month / < once a month | nd | nd | 35 / 32 / 33 | 17 / 48 / 33 | 6 / 48 / 45 |

* 4% are ready to pay 30% price premium, 21% are ready to pay a price premium (Gulbe & Hazners 2005)

** 93% recognise KRAV logo and associate it with organic farming

31) EE: Pehme et al. 2007, LV: Gulbe & Hazners 2005, LT: Rutkoviene & Abraityte 2006, PL: Kucińska et al. 2006, SE: KRAV 2006

32) EE: Mikk 2005, LV: Gulbe & Hazners 2005, LT: Rutkoviene & Abraityte 2006, PL: Kucińska et al. 2006, Bakula & Smoluk 2005, SE: Dabbert et al. 2004

33) LT: Rutkoviene & Abraityte 2006, PL: Bakula & Smoluk 2005, SE: Terra Nord 2005

The questionnaire identified consumer demand for organic products in CEEC as the second most important factor that hinders organic farming. In Sweden and Poland, the reliability of the certification body is good, while it is poor in Estonia and Latvia, and medium in Lithuania. There are a limited number of logos (indicator 34) in all countries.

Table 11. Indicators 34-35 describing factors that influence the development of a mature organic market

| | | Estonia | Latvia | Lithuania | Poland | Sweden |
|----|--|-----------|--------|-----------|--------|--------|
| 34 | Number of logos | 3 | 1 | 2 | 2 | 2 |
| 35 | Perception of the quality of certification and control system* | Very poor | Poor | Medium | Good | Good |

34) CEEC: Tyburski 2003, SE: Boström & Klintman 2003

35) CEEC: Prazan et al. 2004 * This study does not depict the point of view of the consumer directly, but the point of view from ministry of agriculture, organic producers' association, organic farmer advisors, and organic farmers. However, the deficiencies that are perceived by major actors are likely to be transmitted to the general public. SE: Michelsen & Sjøgaard 2001

6. Results analysis

6.1 Present and lacking institutions

The results section shows what institutions are present in each societal domain. The most important are: the private and governmental standards for organic production and certification, the strategic and financial support measures from the government, and the demand and supply of the market. Identifying the missing institutions can be difficult without using a framework that indicates what is needed. This framework is provided by the study of Michelsen et al. (2001) that proposes six-step process for the institutional development of the organic sector. The steps that are incomplete highlight what are the missing institutions. The degree of completion of each of these steps has been measured by using a set of indicators which describes the characteristics of the completed steps (see table 1). Sweden has been used as a baseline country and the indicators should resemble those of Sweden for a step to be considered completed. A country missing a third of the characteristics scores half-way, and a country missing at least two-third or more scores beginning.

The six-step process was based on case studies from Western European countries only. The collected data suggest that the development of organic farming in CEEC proceeds at least along the same first three steps: no country has completed steps 2 or 3 without having completed the previous ones. Furthermore, indicators 1, 6, and 10 show that the initiation of each step follows the order of steps 1, 2, and 3, although in Lithuania steps 2 and 3 are reversed: the gap of one year could be explained by delays in the legislative adoption of regulations. However, given the immaturity of the organic sector in CEEC, no conclusion

about the development along the last three steps can be taken. It can only be assumed that the development will proceed along those steps. It is also important to note that Michelsen et al. (2001) acknowledge that a step can begin without the previous one being completed. This is clearly the case here, where many steps have been at least partially initiated.

Table 12. Degree of completion of the six-step process of the institutional development of the organic sector. Dark grey means that the step is only beginning, light grey that the step is half way, and white that the step is completed. The evaluation of the completion of each step was based on the indicators described in the result section. The * symbol means that data for one indicator is missing. The degree is assessed from the other indicators.

| | Step 1 | Step 2 | Step 3 | Step 4 | Step 5 | Step 6 |
|-----------|---------------------------|------------------------------|--------------------------|-------------------------------|----------------------------------|--|
| | Organic community | Political recognition | Financial support | Type of relationship | Organic market | Discussion and coordination arena |
| EE | Half-way (eroded) | Beginning (eroded) | Beginning | Competition (eroded) | Beginning* | Beginning |
| LV | Half-way (near completed) | Half-way | Beginning | Cooperation/Competition | Beginning* | Half-way |
| LT | Completed | Completed | Half-way | Cooperation/Competition* | Beginning | Half-way* |
| PL | Half-way* | Half-way (increasing) | Half-way | Cooperation/Competition | Beginning | Half-way |
| SE | Completed | Completed | Completed* | Cooperation/Creative conflict | Completed (although still small) | Completed |

The data also suggest that step 5 is the most difficult step to complete and might be dependant on the completion of the other steps to be completed. In three countries out of four, step 6 is half-way while step 5 is still beginning. Furthermore, even Sweden which has completed all the steps still has a small market. The findings of Zanoli et al. (2001) suggest that the development of the organic market in CEEC might be hindered by the poorer economic situation of the population compared with EU15. Furthermore, although the infrastructures are not considered the most important factors hindering organic farming, they need to increase to allow its full development (table 3). For example, the quality of the road network and the availability of water, water and electricity services need to be increased. For CEEC, there might be a need to push market development to step 7 and to include another step as step 6: the development of good rural infrastructures. Other researchers have identified market development as the main hindering factor for the development of the organic sector (see for example Terra Nord 2005, DAFA 2001).

The political willingness to promote organic farming can be appreciated from the relative amount of money being spent on organic farming (indicators 12 and 19), from the amount of attention that is paid to organic farming research (indicator 25), from the level of partnership

and discussion (indicators 8-9), from the level of strategic planning (indicators 20-22), and from the degree of financial advertisement, as shown by the uptake rate (indicator 14). When considering the amount of money invested in organic farming, it should be kept in mind that the CEEC have lower GDP than EU15, which limits what they can invest. The compilation of the indicators suggests that the government of Lithuania has a high willingness, probably similar to the one of Sweden. It also suggests that the willingness in Latvia and Poland is medium, although they differ in the approach they use. Latvia invests proportionally more in organic farming and has higher strategic support, while Poland focuses more on partnership and discussion. Finally, in Estonia the willingness is low. Therefore, it appears that a higher willingness to promote organic farming helps to complete the steps because Lithuania has the most steps completed, and the highest willingness and Estonia the least steps completed and the lowest willingness.

Table 13. Level of political willingness to promote organic farming displayed by each national government. Dark grey means that the indicator suggests a weak willingness, light grey that the indicator suggests a medium willingness, and white that the indicator suggests a high willingness. The * symbol means that data for one indicator is missing and that the level is assessed from the other indicators.

| | | EE | LV | LT | PL | SE |
|----|---|-----------------|-----------------|--------------|-----------------------|-------------|
| 8 | Strength of partnership | Weak | Weak | Good | Medium, increasing | Good |
| 9 | Discussion arena existence | No longer | No | Nd | Yes | Yes |
| 12 | % of agri-environmental scheme devoted to OF | 16% | 80% | 72% | 8% | 25% |
| 14 | % uptake of area support | 80% | 93% | 50-60% | 88% | 240% |
| 19 | % of agricultural research funding devoted to OF | 1% | 19% | 6.33% | 0.2% | 10% |
| 25 | Range of research program | Production only | Production only | ± full range | ± full range for crop | Full range |
| 20 | Action plan for organic farming | Yes | Yes | Yes | No | Yes |
| 21 | OF incorporation in rural development plan | Yes | Yes | Yes | Yes | Yes |
| 22 | Quantitative target for area cultivated organically | Yes | No | 15% by 2015 | No | 20% by 2005 |
| | Result | Low | Medium | High* | Medium | High |

Figures 2 and 3 show that one of the most important steps is the introduction of financial support to organic farmers. Effectively, the growth curve in all the countries increase significantly when they introduced support measures for organic farmers, around the year 2000 (indicator 10). These area payments were introduced with funding from the European Union in prevision to their accession. In Lithuania, the curve does not increase immediately after the introduction of the first area payments in 1993, because they were only available to farmers in one part of Lithuania, and not to all the farmers.

Estonia seems to be a contradiction: It has experienced fast growth rate even though it has not completed any step. This could be explained by the high governmental involvement and interest in organic farming in the period between 1998 and 2001. At that time, a discussion arena was established, cooperation was larger, and strategic support was high. Governmental involvement has been reduced gradually in later years and those steps have retrograded. On one hand, the larger organic producers' associations have displayed low resilience to this sudden involvement of the government. Effectively, after the state got involved in certification, their activities slowed down and their membership dwindled. Furthermore, the lower interest of government has not triggered renewed activity. On the other hand, the growth rate of the organic sector is still high. Unfortunately, it is too early to decide if this is a sign of high resilience from the organic sector or if it is the effect of a lag between the change and the feedback to the system.

6.2 Resilience of the organic sector

As Carpenter et al. (2001) point out measuring resilience is a tricky process. The objective here is therefore not to measure resilience but to assess what, if any, sources of social resilience are present in each country. Three sources of resilience could be investigated from the collected results: cooperation and collaboration, overlapping and redundant institutions, and self-organisation. The possibility that other sources of resilience exists is high.

Cooperation and collaboration are directly linked to steps 4 and 6. In Estonia, organic farming and conventional farming institutions are in competition and the weakening interest of the government in organic farming cannot help the establishment of cooperative relationships. Furthermore, only a small proportion of organic farmers are part of producers' associations, making even collaboration among the organic community weak. Therefore, this source of resilience is weakly displayed by the organic sector of Estonia. The other CEEC have cooperative/competitive relationships. In Lithuania and Latvia, the government has a high willingness to promote organic farming, a fact that could help the promotion of cooperation. At least, in Lithuania and Latvia, the inclusiveness of the producers' association promotes collaboration among the organic community. In Poland, the establishment of an arena of discussion might result in more collaboration. Therefore, this source of social resilience is high for these three countries.

The only information that was gathered about overlapping and redundant institutions concerns the producers' associations. Indicator 2 shows the number of associations at the national level and at the local level. In Estonia and Poland, there are a few organisations at the local level and one at the national level. This might provide a higher resilience because farmers could switch from one organisation to another one if needed. However, this does not give more resilience to the individual organisation, as the example of Estonia suggests. There are not enough data to evaluate this source of resilience in Lithuania and Latvia.

Self-organisation is enhanced by the completion of step 5: an independent market provides resources that can be influenced by the organic sector and reduces the dependence on external resources (e.g. governmental subsidies). A market has not been established in any of the CEEC. Furthermore, the government steers the development of the organic sector more than the organic community by providing money (step 3), extension services and training (indicators 24 and 26) and strategic planning (indicators 20-21). In all the CEEC, the power of producers' association should increase to promote the full development of organic farming. Therefore, this source of resilience is weak.

7. Scenarios

The results suggest that the institution whose lack hinders the most the development of organic farming is the market. A market would further promote the development of organic farming and provide resilience to the organic sector. This step is also identified as being difficult to complete. Therefore, this step will be the first breakdown factor of the scenarios. In the scenarios, three different governmental approaches have been examined: a focus on increasing the supply via increased area payments and favourable measures for processors (scenario 1), a focus on increasing the demand via public procurement of organic products and public education (scenario 3), and no focus from the government to develop this step (scenario 2).

The second breakdown factor is the governmental motivation to promote organic farming because the state has a dominant role in the completion of most steps and the results suggest that countries with more active governmental involvement have a more developed organic sector. Each scenario is constructed around a different governmental motivation to promote organic farming. Dabbert et al. (2004) identify two main reasons for politicians to support organic farming. First, it can be perceived as a market opportunity. In this case, emphasis is

put on the private goods that are produced by organic farms. Second, organic farming can be regarded by politicians as a way to fulfill other policy objectives, such as biodiversity maintenance, decreasing nutrient run-offs, maintenance of small farms, or promotion of tourism in rural areas. In this case, organic farming is seen as producing public and private goods. The first reason is emphasised in scenario 1, the second in scenario 2, and a combination of both is used in scenario 3. The complete lack of interest of a government in organic farming has not been observed in any case study and has not been included here.

The scenarios involve many other variables, enumerated in table 14. Their values are derived from the focus given by, and the trade-off imposed by, the breakdown factors. For example, in scenario 1, the government values organic farming as a market opportunity (breakdown factor 2), and emphasises the supply to develop the market (breakdown factor 1). Thus, all the variables are focused on increasing supply and increasing the market size: financial supports are favourable to larger farms to increase the economy of scale; certification transparency is enhanced to increase the credibility of the products; research programs focus on productivity to increase the supply and decrease the cost. However, education is not prioritised because money is invested directly in increasing supply via larger area payments, instead of indirectly increasing it by increasing demand. The other actors also have their own agenda in these scenarios. Their behaviour is steered by economic theory which stresses that people are rational beings who are drawn toward the best opportunity. For example, in scenario 1 the government financial measures are an opportunity for export companies to increase their activity in the CEEC, while in scenario 2 the farmers will not seek certification to save money. The last variable is the disturbance, the institutional change that must be addressed by the organic sector: the removal of financial help from the CAP of the EU. This disturbance is a plausible reality that is emphasised by Zanolini et al. (2000). It is in the light of this disturbance that the sources of resilience are discussed in the next section.

It should be noted that the scenarios do not pertain to any individual countries, because the level of details and information would be overwhelming and would make subsequent analysis difficult. Instead, they are meant to be generic stories that are possible in all CEEC. However, the scenarios are linked to each country's specific situation in the next section.

Table 14. Matrix table showing the values of the breakdown factors, variables and disturbance that differ in each scenario

| | Scenario 1 Power in size | Scenario 2 Power in number | Scenario 3 Power in knowledge |
|--|---------------------------------------|---------------------------------------|--|
| Market development focus (breakdown factor 1) | Supply | None | Demand |
| Governmental motivation (breakdown factor 2) | Market opportunity | Providing public goods | Combination of previous two |
| Financial support | More favourable to larger farms | Maintained | Diversified |
| Certification | Credibility and transparency enhanced | Not required to get area payment | Credibility and transparency enhanced |
| Education of general public | Not a priority | Not a priority | Top priority |
| Research and development | High, focus on productivity | High, focus on environmental benefits | Higher in all sector |
| Processing companies involvement | Early for export | No | Early, local level |
| Large retailer involvement at domestic level | Late | No | Early |
| CAP funding (disturbance) | Decreased | Decreased | Decreased |

Scenario 1: power in size

In preparation to the accession to the EU, all the CEEC created regulations about organic farming and introduced area support for maintenance and conversion. The principal aim was to comply with EU regulations. The introduction of subsidies had a large impact on the organic sector, and its growth rate was very high for a few years. Following the rapid expansion of the organic sector in the 2000's, policy makers understood that organic farms could provide a way to support the rural economy, if only they could conquer the developing market of the EU and even of the USA and Japan...

At this stage, the productivity of the sector is emphasised. Research programs focus on increasing productivity with new breeds and techniques better adapted to colder climates. Financial support is changed and, although it is still dissociated from productivity to comply with WTO agreements, it is more favourable to larger farms, to increase the efficiency and competitiveness of the organic sector. The change in financial support measures forces many smaller farmers to stop producing organically. Instead, they use other measures, such as less favoured areas or classic area payment. After all, the requirements are less demanding and provide as much money under these circumstances. Many smaller farms even quit farming altogether, thus increasing land abandonment or increasing the size of other farms. In fact, the organic farms that were bigger from the outset grow even bigger and economy of scale begins to pay off. These large farms that are producing for export are often corporate farms. They

start their own producers' association to lobby the government, instead of joining the associations that already exist. They have a strong voice in government and almost prevent the other associations from being heard. Political recognition for smaller farms decreases, there is a subsequent loss of power that turns into smaller financial resource and less activity at the local level.

The government also pays more attention to the quality of certification: inspection becomes more rigorous and the process more transparent. The mandatory use of the organic EU logo from 2009 helps export to the EU market. Furthermore, CEEC organic products are cheaper because the agricultural work force still obtains lower wages than the EU15 average, and because there is a large amount of manual labour available. Export companies are prosperous.

Meanwhile, to a large extent, the development of the domestic market is left to other actors even though the government has helped increase the supply. At first, large national retailers are slow to get into the business. However, when the supply is high enough, they decide to get involved and sell organic products in most of their shops. Moreover, with the raise in wages and in health and environmental concerns in the larger cities, there is a demand that needs to be fulfilled. The diversity and availability of products stays small, but a small domestic market gets established in larger cities with the help of private retailers.

Finally, the EU complies with the request from the WTO to stop subsidisation of farms, even though the subsidies are aimed at protecting the environment. Funding from the EU stops, while national financing is greatly reduced. However, the large companies have already attained the critical mass that they needed to be self-supporting. They have now found an optimum pace at which to operate and do not need these subsidies any longer: it was a nice surplus but not a vital one. Switching back would mean a lot of new investments, it is not worth it. It can be even perceived as a plus for the large corporate farms, because no other farms in the EU is receiving any money now and with lower wages, they become even more competitive. The window of opportunity has been successfully used...

Scenario 2: power in number

Accession to the EU meant the introduction of a lot of money, as well as many new obligations, especially in terms of environmental protection. The government starts to recognise organic farming as a good way to protect biodiversity and reduce nutrient leaching

from agricultural land. As this understanding grows, the accent is put on increasing the area under organic cultivation, especially by providing higher subsidies. Besides direct area payments, the government invests in advisory services, to provide information on best organic practices to most farmers.

The example of Sweden is also followed, and subsidies can be obtained without farms needing to be certified. This encourages small farm holders to convert to organic farming: they get more money for their land and they do not need to pay for certification. Certification can be costly and small farms gain little value from it because they do not market their products where the logo makes a difference. Instead, they sell their products locally or as conventional products. Organic farmers are highly dependent on the subsidies because they do not receive price premium in many cases. The area under organic cultivation increases very quickly for a while and then growth stagnates because farms that found it profitable to convert have already done so. The government is satisfied with the area covered and does not push for more.

The non-mandatory certifications combined with the good public advisory services result in an unforeseen outcome: new organic farmers do not join the producers' associations any longer. The power and the voice of the organic community are weakening with its dwindling memberships. The lack of leadership and lobbying activity to promote the market is apparent: the government does not see the importance of getting involved and the organic community is weak. The domestic market develops slowly. There is no pull from large retailers because they are not lobbied, and no push from the supply because the small size of the farms makes the production inefficient.

Finally, the EU complies with the request of the WTO to stop subsidisation of farms even though the subsidies are aimed at protecting the environment. Financing does not stop altogether but is greatly reduced; national governments cannot provide the share from the EU as well as their own. Selling organic products with the price premium is suddenly the only way to be viable. The governments realise that they must develop the domestic market if they are to maintain the organic sectors and use it to fulfil environmental objectives. They take measures to help the setting up of processing plants, to involve large retailers, to educate the population. However, they lack partners to do so: associations of organic producers are weak because of the low participation of the farmers for many years. The social capital and

knowledge has been eroded. A lot of small farms go bankrupt before the market develops, reducing the supply and the availability, which further reduces the demand. This in turn leads to even slower market development: a vicious cycle is now in place. The critical mass that was needed to self-maintain the sector is once again not achieved. The window of opportunity has been missed...

Scenario 3: power in knowledge

Accession to the EU meant the introduction of a lot of money, as well as many new obligations, especially in terms of environmental protection. There is space for new and innovative approaches. The accession to the EU has convinced the government to see organic farming as a way to fulfil multiple objectives at one time. Consequently, organic farming is perceived as a market opportunity, but also has a way to protect the environment, water quality and biodiversity. Furthermore, the more labour intensive, smaller scale nature of organic farming could be a way to protect the small farm businesses and maintain the character of the rural landscape, and it may be a good way to diversify rural economy, by attracting tourist business.

When the multi-functional character of organic farming is recognised by government leaders, financial measures that, until now were mostly focused on area payments, change. Area payments for conversion and maintenance are kept, but part of the money is redirected to build knowledge. Money is invested in developing a full research program, from production to marketing. The knowledge transfer to farmers is also improved: informative publications are made more readily available, specific training for organic farming practices of farm advisors is increased, and advisory services for organic farming is made available through the regular state extension services. In many cases, those services are provided for free. Organic production is included in many agricultural universities curricula. However, farmers are not the only ones to be educated. The general public is also a target, and promotional campaigns are launched. Agriculture and nutrition is introduced as a subject in school curricula.

Measures to stimulate the demand of the domestic market, such as mandatory use of organic food in public catering services, are also put in place because there is an understanding that to be sustainable and achieve the multiple policy objectives, a domestic market is a necessity. The government realises that the first issue to be addressed is the lack of processing facilities, and money is made available for their establishment, for example with guaranteed loan and

lower tax income rate. Preference is directed to small scale, local plants because they provide more employment. This focus on small scale decreases the overall efficiency of the system, but favours the contact between consumer and food chain actors. Trust is building, knowledge is increasing. The market develops slowly but steadily. Furthermore, governments create councils that regroup all the big players, such as producers' association, ministry of agriculture, large retailers and processors, who provide them with action plans and advice.

Finally, the EU complies with the request of the WTO to stop subsidisation of farms even though the subsidies are aimed at protecting the environment. The area payment stops and, to remain profitable, the price of organic products needs to be increased. The domestic demand remains sufficiently large to maintain the organic sectors because public awareness is high and consumers believe in the benefit of organic farming. The critical mass needed in order to have a self-sufficient market has been attained. The window of opportunity has successfully been used...

8. Scenarios analysis

Connecting the scenarios with reality

A recurrent theme in all the scenarios is the size of the farms. In scenario 1, large farms are favoured, because the market opportunity that represents organic products is focused upon. Therefore the farms must be competitive and cost-effective, i.e. economy of scale must take place. Smaller farms are less efficient, but provide higher landscape heterogeneity, with associated higher biodiversity, and also provide more employment than larger farms. These properties comply with the objective of scenarios 2 and 3 protecting biodiversity, and of scenario 3 protecting rural economy. Difference in the size of CEE farms is visible also in reality. Large corporate farms are more common in Estonia and Lithuania than in Poland and Latvia, due to the approach they have taken to re-privatise the land after regaining independence. They account for 25% in Estonia and 18% in Lithuania, while they account for less than 5% in Poland and Latvia. It is important for the governments of Lithuania and Estonia to keep in mind that if their objective for organic farming is to protect biodiversity and rural character, they should provide incentives for small farmers to convert as well, since it is the small farms that provide the most landscape heterogeneity and, therefore, biodiversity.

Besides the high proportion of large farms, Estonia shares another characteristic with scenario 1: the largest organic farms have created their own producers' association (Society of Estonia Organic Producers) in 2000 (Mikk 2005). Unfortunately, the impact of this new association has not been documented. However, the consequence of scenario 1, i.e. the prevailing voice of an economically more powerful association leading to the reduction of smaller associations' influence, is perfectly plausible. The government of Estonia should try to maintain access to all producers' association while ensuring that the smaller associations have an equal voice.

The export emphasis of scenario 1 can also be taken where small farms are predominant, like in Poland. In fact, there are already a few large and successful organic export companies established in Poland. An example is the company Symbio Impex Polska Sp.z.o.o. that started their operation in 1998. Instead of having very large farms to decrease the shipping cost as in scenario 1, this company signs exclusivity contracts with many small organic farmers that are located close to a processing plant that it owns. These farms guarantee some level of quality and Symbio guarantees to purchase their products when this minimum quality level is reached. Farms that are under contract with Symbio offer a striking difference to other farms in the region: they have new equipments and new buildings. Furthermore, Symbio provides an arena for discussion between the farmers: all the contracted farmers in a region meet twice a month to discuss common problems and future trends. This increases the collaboration between farmers, a fact that is demonstrated by the sharing of farm equipments between larger, older contractors and new contractors. Symbio also has an impact on the community where it has a presence: it provides well-paid employment in regions where unemployment rates are high and increases the conversion rates of surrounding farms (SEAF 2004). This real life example, combined with the scenarios, illustrates that developing organic farming through export can be beneficial to the organic sector and to the rural communities.

The national rural development plans can provide insights on which scenario is closer to the real objective for organic farming of each country. All the plans recognise that organic farming is beneficial to the environment and that it is a way to make the agricultural sector more sustainable. They all also recognise that the lack of processing plants is a main hindering factor in the development of the organic market. It would appear that all the countries are aiming for scenario 3, which emphasises both the market and the public goods provided by organic farming. However, acknowledging an objective does not imply that steps are taken toward its fulfillment. The emphasis given to different research projects is one way

to identify how much action takes place with regard to a particular scenario. Scenario 1 emphasises research about productivity and pest control, scenario 2 highlights research about best agricultural practices and their impacts on the environment, while scenario 3 stresses the importance of a complete research program, from production to marketing. This can be linked to indicator 25 that highlights the range of the research program. Lithuania, Poland and Sweden display full programs, although it is limited to crop in Poland, while Estonia and Latvia only focus on production. Thus, although they acknowledge the beneficial impact of organic farming on the environment, the actions of Estonia and Latvia in fact focus solely on market.

Using the scenarios to visualise the resilience of the organic sector

This section uses the previous scenarios to explore and to illustrate the social resilience of the organic sector in the face of an institutional change: the removal of funding from the EU. In this thesis, a socially resilient organic sector should be able to maintain the factors that promote the conversion to organic farming by conventional farmers (maintain the social infrastructure) and should prevent the abandonment of organic farming (protect the livelihood) in the face of disturbances. According to that definition, scenarios 1 (power in size) and 3 (power in knowledge) have displayed high resilience because the livelihood of the farmers did not change and because the overall social structure stayed the same (Adger 2000). The approaches that were taken in these two scenarios seem to have been successful at using the window of opportunities that has open with EU accession, even when a parameter of the window changes, in that case when the money is out of the equation. According to Folke et al. (2005) social resilience is partly maintained by diversity and redundancy of institutions. In this case, the diversity of incomes from different scales that scenarios 1 and 3 enjoyed (from subsidies and from selling their product on the market) has maintained a higher diversity compared to scenario 2 (power in number) where incomes only came from subsidies. This further illustrates the conclusion of Abel et al. (2006) that external resources, such as the area payment to favour conversion, should aimed at constructing self-organisation. In this case, it should aimed at making the organic sector independent from these subsidies, by increasing the capacity of all the actors to collaborate, by increasing knowledge and by creating a domestic market.

Scenarios 1 (power in size) and 3 (power in knowledge) have successfully crossed the window of opportunity because the subsidies have been used to create a market, allowing the

organic sectors to be independent. However, what would be their resilience to a shock to the market, to either supply and demand? A common variable to scenarios 1 and 3 is the presence of a high supply and high demand for organic products. The organic sector in both scenarios can influence supply by changing the subsidies or by educating conventional farmers about organic farming. However, the high demand in each case is not coming from the same level as the organic sector. In scenario 1, it is coming from a higher scale that cannot be influenced by the organic sector directly, while in scenario 3, it is coming from the same scale, the national level, that can be directly influenced by the organic sector. The organic sector in scenario 3 can educate the population and hence influence the demand. The possibility to influence key variables of the system is defined by Walker et al. (2006) as adaptability, which they consider an important source of resilience in social system. Thus, the organic sector of scenario 3 has a greater adaptability and thus resilience than the one of scenario 1, because it can manage both supply and demand. This shows that diversifying the incomes is not enough and that a focus on domestic market development gives more resilience. In brief, these scenarios comply with the findings of Walker et al. (2006) that a system that is very adaptable in one sphere cannot be as adaptable in another sphere.

The scenarios illustrate that self-organisation, adaptability, collaboration, discussion, and knowledge building are important to increase the resilience of the organic sector. These properties are fostered by the six steps of Michelsen et al. (2001). Only scenario 3 (power in knowledge) has undergone all six steps, and has been found to have more sources of resilience. In scenario 1 (power in size) and 2 (power in number), step 5 (domestic market) and 6 (discussion and coordination platform) are completely missing. In reality, although most steps have been initiated in the CEEC, only the first step and in the case of Lithuania the second steps been completed. The scenarios suggest that there is a need to advance the completion of the steps to be able to face uncertainty.

9. Discussion

Implication for the Baltic Sea

In 1987, all the countries around the Baltic Sea agreed that by 1995, there should be a reduction of 50% of the nutrient load reaching the Sea. This goal is still unachieved today and the environmental degradation of the Baltic Sea continues (HELCOM 2004). From all the input sources, agriculture is the biggest one and accounts for almost 50% of all the nutrients leaching to the sea. Almost half of those agricultural run-offs come from Poland, Estonia,

Latvia and Lithuania and their share is likely to increase. Effectively, the CEEC had lower run-offs than western countries since the 1990's because the financial situation of farmer did not allow them to use fertiliser. However, as their economies recover, their agricultural practices intensify again, a fact that is already noticeable in the Baltic States. HELCOM stresses that the 50% reduction goal cannot be achieved without addressing the agricultural run-offs (HELCOM 2002).

A study by HELCOM (2002) reveals that in order to attain the 50% goal, there would be a need for all agricultural land in the Baltic Sea drainage basin to become organic or for half of the land to be set aside. The first solution implies a 25% reduction in yield, the second a 50% reduction (HELCOM 2002). From this point of view, mass conversion to organic farming is more advantageous economically than to maintain conventional farming on a smaller area. This points to the need of changing the agricultural sector. In fact, Granstedt (2000) advocates that to address nutrient input from agricultural land, the specialisation of the sector must be ended, and recycling within the farm increased. These are large changes that are difficult to apprehend.

A scenario approach, such as the one that has been taken in this thesis, can help in this change by illustrating how the organic sector can be developed, by demonstrating pitfalls and elaborating on the role of a diverse set of actors. A scenario analysis approach that is combined with stakeholders' workshops can help the different stakeholders to understand the problem, its cost and benefit, and the possible solutions. It promotes social learning by encouraging participant to assess the adequacy of their solutions (Peterson et al. 2003). It is this kind of tool that is needed to promote the required changes to the agricultural sector that are indispensable to stop the degradation of the Baltic Sea.

Policy implications

Organic farming is proposed as a solution toward the achievement of the 50% goal and the reduction of the environmental degradation of the Baltic Sea. The thesis furthers the understanding of the institutional factors that hinder the development of organic farming in the CEEC and aimed at providing support for decision-makers that want to promote organic farming effectively. The following recommendation should be kept in mind by decision-makers when creating and implementing promotion programme.

The first recommendation is to ensure that support to organic farming aimed at developing the self-independence and self-organisation of the organic sector, by taking a market oriented approach. The organic sector needs to be able to adapt to change in support measures and changes in market demand and price. The second recommendation is to foster discussion, collaboration and coordination between all the actors. These are central to many steps in the development of organic farming. It can also further the understanding of each actors and increase the level of support to organic farming. The last recommendation is to think not only about the growth of the organic sector but also about its resilience. A very large organic sector that is heavily dependant on subsidies is more vulnerable and less sustainable than a small organic sector that is developed using a market approach. Resilience theory suggests that in order to have institutions that are resilient to change, state intervention should aim at: increasing redundancy of institutions; strengthening response capacities; supporting self-organisation; fostering learning and education; and encouraging adaptation.

10. Conclusion

The case studies partially support the previous work of Michelsen et al (2001) that proposes that the development of organic farming proceeds along six steps. The first three steps were initiated in the right order, and later steps were not completed before the previous ones were completed. However, they also suggest that step 5, market development, might need all the other steps to be completed in order to be completed.

In all countries, the window of opportunity has been used to some extent by the establishment of a regulatory framework and financial help. However, there is still a long way to go before the organic sector in these countries is fully developed and resilient to change. Lithuania is the CEEC with the most steps completed, and with the highest willingness to promote organic farming. Its organic sector could gain resilience from the social network and trust that is generated by the frequent partnerships and the strong organic community. Estonia is the country with the least completed steps. However, it also has the highest growth rate per hectare. The political support that has been decreasing since the beginning of the 2000's might explain this dichotomy. The growth rate has continued so far, but whether it is explained by a high resilience in the system or from slow feedback, the results cannot tell. Latvia and Poland are half-way through most of the steps and have medium willingness to promote organic farming. Poland probably displays the highest potential for resilience because it has focus on partnership, discussion and has overlapping producers' associations.

The results have shown that the market is the least developed step. They have also shown a correlation between higher governmental willingness and more advance development of the organic sector. The impacts of these two factors on the social resilience of the organic sector have been explored in three hypothetical scenarios. The scenarios highlight the importance of developing a market to make the organic sector independent of external supports that can change rapidly. The analysis also suggests that the development of coordination and cooperation platforms can increase the resilience of the system by evening out the adaptability to more than one sector. At present, the disturbance that is pictured in the scenarios would be enough to stop the rapid growth of the organic sector in CEEC because the organic sectors displays few sources of resilience and is not self-organised. There is a need to continue the development along the six steps with an emphasis on the resilience of the system. The growth trends and the political will that transpires from the rural development of CEEC give hopes that at least some of them will succeed in creating a large and resilient organic sector.

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Ministry of agriculture website

Estonia <http://www.agri.ee/index.php?language=english>

Poland <http://www.minrol.gov.pl/DesktopDefault.aspx?TabOrgId=981&LangId=1>

Latvia <http://www.zm.gov.lv/structure/index.php?sadala=686>

Lithuania http://www.zum.lt/min/OS/dsp_struktura.cfm?StambesnisID=0&langparam=EN

Sweden http://www.sweden.gov.se/sb/d/2160/a/66256;jsessionid=aGc_A_Xfk4U9

Development plan

Estonia

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Latvia

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Personnal communication

Airi Vetemaa. Phone. March 2007. Executive director and member of the Board of the Estonian Organic Farming Foundation, and specialist for the Centre for Ecological Engineering, Estonia

Eve Ader. Email. May 2007. Estonian Plant Production Inspectorate, Estonia

Josef Tyburski. Email. May 2007. PhD, Mazury University in Olsztyn, Poland

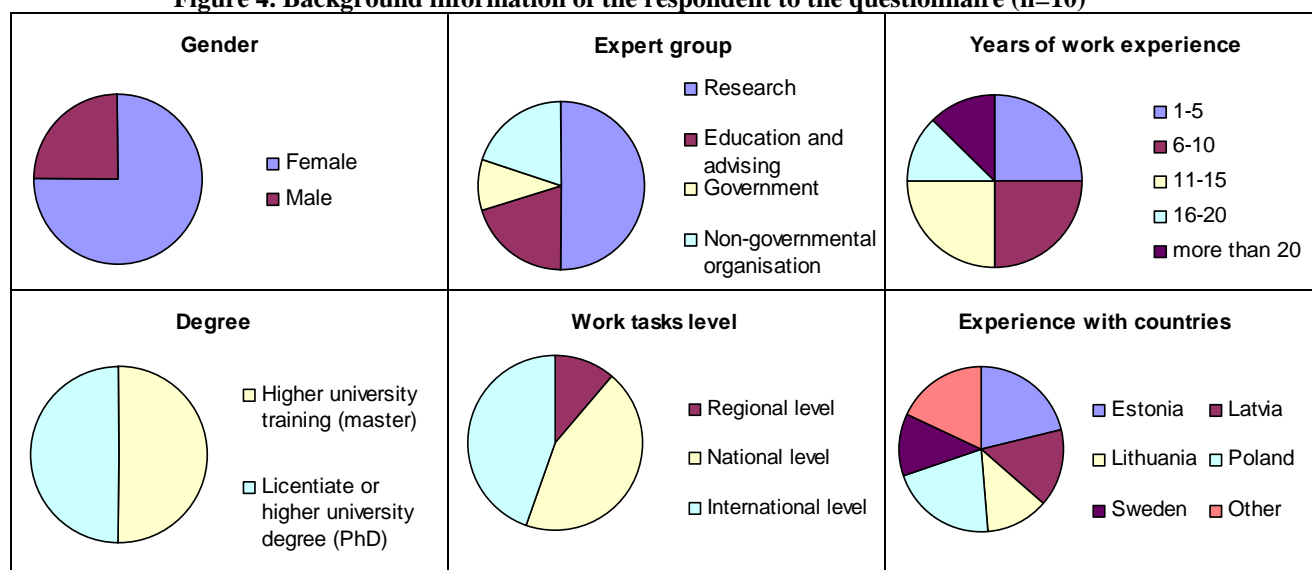
Levina Sturite. Email. May 2007. Senior researcher, State Stende Cereals Breeding Institute, Latvia

ALAO. May 2007. Official representative of the Latvian Organic Agriculture Association. Latvia

Annex 1: Who answered the questionnaire?

- Researcher at the Research Institute of Organic Agriculture (FiBL) (Region)
- Senior expert at Ekoconnect (Region)
- Federal agricultural research institute (Region)
- Chief specialist – ministry agriculture Estonia (Estonia)
- Executive director and member of the Board of the Estonian Organic Farming Foundation, and specialist for the Centre for Ecological Engineering (Estonia)
- Head of the department, docent Klaipeda University, Rural development research centre (Lithuania)
- Academic teacher and supervisor of Organic Farming specialisation in the frames of Agricultural study at Warsaw Agricultural University (Poland)
- PhD researcher in the field of organic farming in a Governmental Research Institute (Poland)
- Latvian agricultural university professor (Latvia)
- Director of Bioekspert (certification body) and Secretary of the council for organic agriculture (Poland)

Figure 4. Background information of the respondent to the questionnaire (n=10)



Annex 2: Questionnaire

This questionnaire was an excel file. The letter was on the first sheet, the questionnaire on the second. An email was first sent to ask for their participation. If they wanted to participate, the questionnaire was send with a second email.

----- Sheet 1 -----

Dear expert,

This survey investigates various obstacles and opportunities affecting the development of organic farming (thereafter OF) in Eastern European countries relative to old member states. We use the definition laid down in regulation EEC 2092/91 to define OF. This questionnaire will be sent to different groups at the national level of five countries (Estonia, Latvia, Lithuania, Poland and Sweden) and also at the regional level.

This survey will be used in two different projects. First, it is part of my master thesis on the development of organic farming in Eastern European countries (with a special focus on Estonia, Latvia, Lithuania, and Poland). Second, this study is encompassed in an EU project that compares the different types of governance used to conserve biodiversity at the European level. This project is called GEM-CON-BIO (Governance and ecosystems management for the conservation of biodiversity) and is financed by the 6th framework program. More details can be found at www.gemconbio.eu.

I am hoping that you will take a few minutes to answer this questionnaire. You should answer it for country x in the name of your organisation. I guarantee that the responses will be handled professionally, and the answers from any single respondent will not be revealed from the data.

Best regards and many thanks for your cooperation

Louise Morin
+46(0)739052598
louise.morin@gmail.com

----- Sheet 2 -----

Factors that may affect the development of organic farming - Questionnaire for country x

| <p>You should answer the questions for Sweden at the national level. When a question says EU level, you should answer how a change at the EU level influence OF at the national level. You should use your best professional judgement and answer in the name of your organisation. Please click and type an X on your answer. Please return the questionnaire to louise.morin@gmail.com as soon as possible (preferably before April 1st 2007)</p> | A | B | C | D |
|--|--|--|---|--|
| | To promote the development of organic farming (OF), does the factor need to | How much influence does this factor have on the development of OF | How is the factor likely to evolve in the future | Certainty of the foreseeable change |
| | -2=decrease considerably | 1=none | -2=decrease considerably | 1= extremely uncertain |
| | -1=decrease | 2=a little bit | -1=decrease | 2= uncertain |
| | 0= stay stable | 3= very much | 0= stay stable | 3= half and half chance |
| | 1=increase | 4= a lot | 1=increase | 4=quite certain |
| | 2=increase considerably | | 2=increase considerably | 5= extremely certain |
| 3= not important | | | | |
| Legislative support | | | | |
| Integration of OF in national rural development plan | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Integration of OF in national agricultural regulation | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Quantitative target for national OF share | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Financial support | | | | |
| Public investment for marketing of organic products - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Public investment in research and development in OF - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Public investment in processing of organic products - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Public expenditure in extension services and training - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Other financial help (e.g. guarantee loan, compensation for lost crop, etc) - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Tax on input of conventional farming - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Public investment for marketing of organic products - EU level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Area payment for conversion to OF - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |
| Area payment for maintenance of OF - national level | -2 -1 0 1 2 3 | 1 2 3 4 | -2 -1 0 1 2 | 1 2 3 4 5 |

| | | | | | | | | | | | | | | | | | | | | |
|---|----|----|---|---|---|---|---|---|---|---|----|----|---|---|---|---|---|---|---|---|
| Production | | | | | | | | | | | | | | | | | | | | |
| Development of the national land market | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Availability of long term lease | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Size of farm | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Fragmentation of land ownership | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Availability of paper attesting ownership rights | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| State of farm infrastructure (e.g. building, machinery) | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Complexity of requirement to become certified | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Cost of certification | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Political power of organic producers' association | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Market development | | | | | | | | | | | | | | | | | | | | |
| Consumer demand for organic products - national level | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Link between producers and retailers - national level | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Consumer concerns about food quality, food safety, environmental protection and animal welfare - national level | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Consumer demand for organic products - EU level | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Consumer concerns about food quality, food safety, environmental protection and animal welfare - EU level | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Social dynamics | | | | | | | | | | | | | | | | | | | | |
| Migration out of rural area (depopulation) | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Ageing of farmers | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Employment in rural area (other than agriculture) | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Availability of infrastructure | | | | | | | | | | | | | | | | | | | | |
| Availability of water, electricity and waste disposal services | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Availability of investment loans | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Quality of road network | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Availability of organic producers' association | -2 | -1 | 0 | 1 | 2 | 3 | 1 | 2 | 3 | 4 | -2 | -1 | 0 | 1 | 2 | 1 | 2 | 3 | 4 | 5 |
| Do you think OF can increase significantly in your country? Do you think it is a good thing to promote OF? | | | | | | | | | | | | | | | | | | | | |
| Any additional comments will be greatly appreciated | | | | | | | | | | | | | | | | | | | | |

Thank you for participating in this survey! Please send your questionnaire back to louise.morin@gmail.com

Background information (You may check more than one if you feel it is appropriate)

1. Gender

- a) *Female*
- b) *Male*

2. Educational background

- a) *Natural science*
- b) *Social science*
- c) *Economic*
- d) *Technical*
- e) *Other? _____*

3. Degree

- a) *College or vocational training*
- b) *Polytechnic or lower university degree (bachelor)*
- c) *Higher university training (master)*
- d) *Licentiate or higher university degree (PhD)*
- e) *Other? _____*

4. Years of work experience

- a) *1-5*
- b) *6-10*
- c) *11-15*
- d) *16-20*
- f) *More than 20*

5. According to your work experience and education, you belong to the following expert group

- a) *Research*
- b) *Education and advising*
- c) *Government*
- d) *Non-governmental organisation*
- e) *Farmer*

f) *Enterprise/industry/trade*

g) *Administration*

h) *Other? _____*

6. Which CEE countries have you worked with?

- a) *Estonia*
- b) *Latvia*
- c) *Lithuania*
- d) *Poland*
- e) *Sweden*
- f) *All Central and Eastern European countries*
- g) *Other?*

7. The majority of your work tasks are done at the

- a) *Local level*
- b) *Regional level*
- c) *National level*
- d) *International level*

8. How often do you work on topics related to organic farming (e.g. decision-making, development, research, education, advising)

- a) *Daily*
- b) *Weekly*
- c) *Monthly*
- d) *A few times a year*
- e) *I do not work on those topics*

9. Optional: For which organisation do you work?

10. Optional: What is your job position?