

RISK DEFINITION AND RISK MANAGEMENT IN A LOCAL PRODUCTION SYSTEM

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Abstract

The development of social capital and individual well-being in a particular community are determined by local social and economic development. Current international research is focused on innovations in community entrepreneurship and development; the European Union supports research on local production systems (LPS) and other possibilities of doing business and thus enhancing local social and economic development. However, not so much attention is paid to the risks connected with establishing these new, innovative forms of businesses. This led us to conducting our study on risk definition and risk management in a selected case of LPS. We examine how the representatives of the LPS perceive risks in their municipality association. We used qualitative methods for an extensive document analysis of relevant policy documents, databases and websites to identify a list of local production systems in Slovakia. From this list we chose Bioenergia Bystricko, where we conducted an interview with the representatives using a semi-structured interview. The paper is based on original survey data from our own research, conducted mainly within two research projects, LIPSE and FOLPSEC. Based on our primary research we found out that Bioenergia Bystricko grasped the meaning of LPS and they use its potential for local social and economic development, whereas the risk definition and management lags, both in theory and practice. The study analyzes the case of a successful innovation that supports local business activities and as such can serve as an inspiration for other regions in Slovakia. The risk management should however be developed more.

Key words: social and economic development, local production system, innovation, risk management

JEL classification: R11, R58

1. Introduction

The development of territories in the 21st century is characterized by intensive process of globalization, increasing flexibility, mobility of resources, especially technique, technologies, people, growing intensive competition. Last decade, the new trends in forms of economic development and industrial ecosystems have also appeared. If the territory wants to be better as competitors on the market, it has to identify and use unique competence or feature as a competitive advantage. One of the competitive advantage sources in the territory can be a well-developed partnership and cooperation of stakeholders within the territory. It is an essential precondition to develop the production system with the territorial platform known in the literature as local production system.

The aim of the paper is to explain the main feature of LPS's functioning, define the risk management in a selected case of LPS and examine how the representatives of the LPS perceive risks in their municipality association. For deeper analysis we chose a Bioenergia Bystricko as an example of the functioning LPS, whereas the risk definition and management lags. At the end of the paper, we present our recommendations that can serve as an inspiration for other regions in Slovakia.

The methodology used is based on the methodology of two international research projects – LIPSE (Learning from Innovation in Public Sector Environments) and FOLPSEC (Functioning of the Local Production Systems in the Conditions of Economic Crisis). We used an extensive document analysis of relevant policy documents, databases and websites and more than ten expert interviews, which led us to compiling of list of 10 case studies that can be named as best practices of local production systems in Slovakia. One of the case studies was chosen for deeper analysis, where we conducted 8 interviews based on the interview protocol where all types of involved stakeholders were interviewed (table 1).

Table 1 Overview of the interviewees

Interviewee	Role in Organisation
1 Mr. Lakomčík	Statutory of the association
2 Mr. Zajac	Mayor of Ľubietová
3 Mr. Snopko	Mayor of Hiadel'
4 Mr. Bračo	Mayor of Poniky
5 Mr. Budovec	Mayor of Čierny Balog
6 Public Servant	Municipality of Ľubietová
7 Public Servant	Municipality of Králiky
8 Public Servant	Municipality of Kordíky

Source: authors

2. Local production systems

The theoretical approaches to the definition of local production systems differentiate by the field of realised activities, involved actors, but in all approaches is a dominant preposition to realise the interrelated or common activities.

By Lastres (2003, p. 10) the local production systems (LPS) are defined as “productive agglomerations involving economic, political and social agents localized in the same area, performing related economic activities and presenting consistent articulation, interaction, co-operation and learning processes. It includes not only firms (producers of final goods and services, suppliers of inputs and equipment, service providers, etc.) and their different forms of representation and association, but also other public and private organizations specialized in educating and training human resources, R&D, engineering, promotion, financing, etc.”

The exact definition of the local production system is strongly associated with the history of reproductive capability. This is linked to the principles that govern its self-organisation: the generation of new firms, the expansion of existing firms, the economic and social determinants of the matrix that gives rise to entrepreneurship, the socialisation of knowledge among blue-collar workers; the role played by collective actors; the degree of openness towards the outside (Belussi, 1999).

A local or territorial production system broadly comprises the production equipment, the technological culture and the particular competence or skills necessary for utilising these assets. These physical and intellectual assets give the territorial production system its specific

regional or local characteristics (Lundquist, 1999). One of the features of the LPSs is the cooperation among competing local firms to share risk, stabilize markets and share innovation (Markusen, 1996) in formal and informal horizontal and vertical networks (Winther, 2003).

In the literature, we can find different names for the local production systems. But in all case, it is linked with the geographic agglomeration of firms or linked industries. There can be identified two basic approaches – local productions systems as industrial districts and as clusters. Moreover, the theory of industrial district has a basis for the introducing the term – local production systems. In the literature various forms of this term appear, such as territorial production system, localised industrial system, localised ecosystem, technological districts etc. In the paper, we use a term of local production system as the general term for all kinds of territorial firm's concentrations.

The cluster approach is established by Porter (1998a, p. 77). He defines a cluster as “a geographic concentration of interconnected companies and institutions in a particular field. They encompass an array of linked industries and other entities important to competition. Clusters also often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technologies, or common inputs.” He stresses that in the clusters can be involved various entities, not only firms, but also research and educational institutions, associations or technical support. He argues that the competition in clusters supports the economic growth because it forces the firm to be more innovative and creative, to improve its technologies and strategies (Porter, 1998b). Krugman (1991), a representative of new economic geography, added that the cluster relies on the interaction of increasing returns, transportation costs and demand. Given economies of scale, each producer wants to serve the whole market from one single location. The producer chooses a location that has a large demand and a good infrastructure in order to minimize transportation costs. The local demand is large where the majority of producers have chosen to locate. Therefore, there is a circularity that keeps a created cluster in existence over time once it has been established.

The approach preferring the industrial districts was established by Marshall (1890). Marshall argued that the dynamic of firms ‘geographical concentration leads to growth and organisational developments enabling firms to reap external scale economies. The Marshallian industrial district model emphasises the benefits deriving from economic and business links. In his concept, he visualized an area with a business structure consisted of small locally owned firms making the decisions on investment and production locally. For the firms within the district, a substantial trade is transacted between buyers and sellers, which often entail long-term contracts or commitments. Linkages and co-operation with firms not localized within the district are assumed to be minimal. The local labour market is internal to the district and is also highly flexible. The employees move between firms, and as they live in the same community the firms benefit from the “industrial atmosphere”, meaning that the secrets of the industry are circulating “in the air”. The Marshallian district consists of a relatively specialized set of services constructed to the unique products of the district. The services include technical expertise and repair services. They consist of local financial institutions that are willing to take longer-term risks, due to the fact that they have inside information and trust in the entrepreneurs of local firms (Becattini, 1990; Krugman, 1991).

The theory of Marshallian industrial districts was more developed by Becattini (1990). He is a representative of Neommarshallian industrial district theory and stresses the social aspects of the clustering. He defines the industrial district as a socio-territorial entity which is characterised by the active presence of both a community of people and a population of firms in one naturally and historically bounded area. In the district, unlike in other environments, such as the manufacturing towns, community and firms tend to merge. There are recognised

the fundamental organisations and institutions for the support and transmission of values through generations in the market, the firm, the family, the church and the school. The stakeholders include also the local authorities, the local structures of political parties and of unions, and many other public and private, economic and political, cultural and charitable, religious and artistic bodies.

The newest approaches have been developed during last two decades. The importance of innovations has been increasing and it has influenced also the development of local production systems. The main streams of these theories are developed as “the innovative milieu school (Camagni, 1991; Maillat, 1996), the Nordic School of innovation and learning (Lundvall & Maskell, 2000; Malmberg & Maskell, 1997, Asheim & Isaksen, 1997, 2003) and the geography of innovation approach (Audretsch, Geldman, 1996, Zucker et al. 1998)” (Cuervo, Garcia, Montoro- Sánchez & Romero Martínez, 2009, p. 1990).

The innovative milieu school refers to the LPS as an open territorialised complex which incorporates and masters know-how, rules, standards, values and relationship capital. It is a system comprising all relevant stakeholders enjoying strategic decision-making independence. The core is a cooperation and trust that prompts firms to transcend the usual barriers of competition, to learn from each other and to seek collective solutions (Maillat, 1998).

By the Nordic School of innovation and learning the local production system - regional innovation system is defined as a places where close inter-firm communication, socio-cultural structures and institutional environment may stimulate socially and territorially embedded collective learning and continuous innovation” (Asheim & Isaksen, 2002, p. 83). It includes the industrial companies as a core of the cluster and the institutional infrastructure as educational, research institutions, technology transfer agencies, and business associations etc. The representatives of the geography of innovation approach (e. g. Audresch, Feldman) researched the economic performance of territorial economies. The empirical studies showed that the firm involved in the cluster are more productive and innovative, there arises the positive externalities from the cluster cooperation that contribute to the firm growth and innovative performance (Feldman & Audretsch, 1999; Glaeser et al., 1992).

3. Municipality association Bioenergia Bystricko

Bioenergia Bystricko is an association of eight municipalities that use the local wood waste for heating of municipal objects to ensure the self-sufficiency of the partner villages. It is financed by the projects funded by the European Union. The initial activities started in 2003, and in 2005 the partnership was institutionalised in the form of association (interest association of legal entities). It includes municipalities – Čierny Balog, Ľubietová, Poniky, Kordíky, Králiky, Riečka, Tajov and Hiadel’ (figure 1) (www.bioenergiabystricko.sk, cit. 7. 3. 2016). The ownership is in the hands of local municipalities so they belong to the municipal sector. The main idea behind the founding of the association is that the municipalities would become self-sufficient in energy production and use of local wood waste for heating of public buildings. The association is advised by the NGO CEPA – Friends of the Earth (Priatel'ia Zeme – CEPA) who also helped with the founding process.

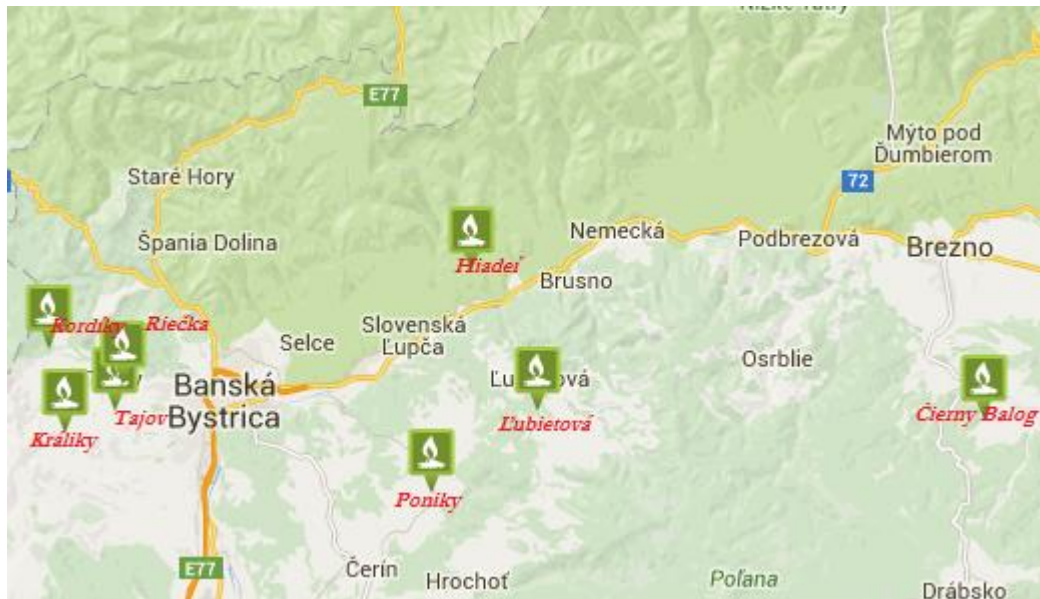


Figure 1: The localisation of the Bioenergia Bystricko villages in the region
Source: authors.

The main activity of the association is a production of the energy and heating power for the purposes of 8 associated villages. Instead of buying electric and heating power from private suppliers outside the micro region the municipalities purchase the energy from village association owned by Bioenergia Bystricko, quasi they pay them-selves. Therefore, it is a closed circle composed of private businesses, municipal enterprises and municipalities in the administrative area of Banská Bystrica region. These reasons allow calling this a local production system with a focus on biomass. All assets (equipment, premises, warehouses, etc.) inevitable for the energy productions are owned by Biomass Bioenergia Bystricko. Building infrastructure and necessary reconstruction was financed from own resources from each partner municipality, the European Union structural funds (ERDF) and state budget in the ratio 5:85:10 (Fľaška, Kološta, 2015).

Since 2003, the association has implemented a few bioenergy measures that strongly contribute to building the real local production system in the area of central Slovakia. To the main benefits of the functioning Bioenergia Bystricko belong:

- modernisation of 15 old boiler houses and 4 warehouses supplying 42 public premises;
- guaranty of long-term safety operating new boilers in the warehouses;
- reducing the fuel expenses by 57% in the partner villages and expanses for heating power for public premises by 20 %;
- price of heating power is lower by 17% in comparison with the private supplier;
- decreasing CO₂ emissions of 1 705 tone yearly and improving the quality of regional environment;
- reusing the wood waste and the waste from the local sawmills; what contribute to protect the depreciation of the forest areas in the region;
- creating new 7 jobs for local people;
- new partnership in the bioenergy as a best example inspiring the regions with the similar preconditions to develop the bioenergy production.

(http://www.mtvosz.hu/dynamic/ok17_peter_bioenergi_bp.pdf; <http://www.promobio.eu/files/file/PeterLakomcik.pdf>, cit. 8. 3. 2016).

4. Risk definition and risk management in Bioenergia Bystricko

Bioenergia Bystricko as successful LPS must deal with several risks. One of them is connected with using public finance and therefore it is obliged to publish contracts, orders and invoices on its webpage in order to minimise this risk. (http://www.zverejnovanie.miesto.org/org/zo_bioenergia/index.php?option=com_fabrik&view=list&listid=4&Itemid=444, cit. 8. 3. 2016). The other types of risk are perceived differently by various interviewees (table 2)

Table 2 Risk definition by the interviewees

Interviewee	Definition of Risk
1	Lifespan of the technology used - machine tools, wood processing - need regular inspection and servicing.
2	Material is from restricted sources –possible price increases.
3	Sources are not very stable - cutting down trees, very dry period, excessive logging, climate change, calamities.
4	I do not consider it as a risk when it is done in conjunction with a rational process and appropriate use of the potential.
5	Financial dependence on EU funding (if there will be a need some time in the future to replace the boiler the village will not have sufficient finances).
6	A lot of paperwork involved in applying for funds, too much bureaucracy for implementing an innovation.
7	We have a supply of wood chips for 15 years – restricted sources.
8	Risks in connection with financing.

Source: authors.

The interviewees mostly talk about operational risks. For these they do not have any strategies, only for the first risk in the table above we can say that regular inspection and servicing of technologies used to prolong their lifespan is a sort of strategy.

In this particular innovation of use of wood chips for energy production, the uncertainty can be seen in the restricted resources, it is not certain if they will have enough wood after a certain period of time or wood as a source is not very stable, it can be damaged or destroyed in case of climate changes or calamities.

Definitely, there is agreement within the association, they all feel financial risk (financial dependence on EU funding) and they also consider the level of paperwork too high for the innovation project.

Being in LPS brings to the association possibilities for innovation. The interviewees identified two types of innovation. First one is the above mentioned innovation that has been already implemented and it is based on the use of wood chips for energy production (the energy needs of public facilities are covered from local renewable sources – wood). The second innovation lies in preparation of strategic documents and analysis of potential of use of (renewable energy sources) RES, e.g. a memorandum of cooperation with CEPA - Friends of the Earth to map the biomass in detail and evaluate the potential use - finding solutions to the white areas, or “Adaptation strategy of forest stands in the cadastral Poniky on climate change by the end of the 21st century” which addresses those village council leaders where there is no gas supply and for heating is used coal only. This document should help to persuade other villages to join the Municipality association Bioenergia Bystricko to start using the second innovation the association has.

For the second innovation, they do not associate any risks. For the use of chips as RES, the risks were following:

- Risk to the service staff - high degree of bureaucracy and administration overloaded the staff (public servants of municipalities) with extra duties. Also lack of finances to finance the employees of the association and possible risk they will have to stop heating.
- Risk to organizations - they do not expect any new innovation, they have other higher priority problems in the village than bioenergy, i.e. risk of stagnation with innovations in the field of RES despite it is sort of expected now from the village. They have to solve other problems and they do not want to lose the reputation of a “green” municipality.

In particular, the interviewees saw following challenges/risk connected with the innovation of RES use implementation (table 3).

Table 3 Challenges in managing the risk of innovation

Interviewee	Challenges Identified
1	Lifespan of the technology used - machine tools, wood processing - need regular inspection and servicing.
2	Material is from restricted sources –possible price increases.
3	Sources are not very stable - cutting down trees, very dry period, excessive logging, climate change, calamities.
4	I do not consider it as a risk when it is done in conjunction with a rational process and appropriate use of the potential.
5	Financial dependence on EU funding (if there will be a need some time in the future to replace the boiler the village will not have sufficient finances).
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7	We have a supply of wood chips for 15 years – restricted sources.
8	Risks in connection with financing.

Source: authors.

For risk management there is no formal risk management structure within the association, there are no specific tools for risk assessment or risk management. Informal structure can be described as follows: the main responsible for managing risks is the statutory representative of the association altogether with the association council. Or if possible, they solve it in particular villages at their council meetings or at some other regular meeting they hold monthly. But strictly speaking, this is not managing risks, as the interviewees said themselves, they do not do anything in the given sense, it is more solving problems that occur on the day to the basis. Only if some problems repeat, when applicable, they use the same solution, e.g. apply some strategy but they do not have it written down, they do not have any standardised forms and procedures. The interviewees do not feel any need to have any risk management, they are satisfied with the situation as it is. If they should prepare some similar project they would be more careful in planning but now, after the implementation of this one, once things are up and running, they do not feel that a risk management is necessary for smooth operation of the project.

5. Conclusion

The association does not have any risk management system – there is no legislation forcing to have such thing by law so they do not have any strategies. The idea of innovation came from the NGO CEPA who also facilitated whole process, municipalities only have to agree to cooperate and establish the association. Without the input from NGO and non-returnable resources the Bioenergia project would not have implemented: the NGO CEPA knew about the possibility of gaining support via start up investment through non-returnable financial contributions from EU funding and therefore addressed those villages without a gas supply but with a more than sufficient supply of timber. In this case, we can speak of successful cooperation of public sector (8 municipalities) and third sector (NGO), which can be a way for creating LSP using socio-territorial entities, both active community of people formed in the NGO and municipal firms in one naturally and historically bounded area.

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