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Time schedule of the conference

Preparation of the proceedings and organization: October 2014 – April 2015

Conference: 23-24 April 2015

Researchers from the following higher education institutions, research institutions, and professional organizations presented their scientific papers at the conference:

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Silesian University in Opava	Czech Republic
Estonian University of Life Sciences	Estonia
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The international scientific conference "Economic Science for Rural Development" is organized annually by the Faculty of Economics and Social Development of Latvia University of Agriculture. The proceedings of the conference are published since 2000.

The scientific papers presented in the conference held on 23-24 April 2015 are published in 4 thematic volumes:

No 37 Production and Cooperation in Agriculture
Bioeconomy
Finance and Taxes

No 38 Integrated and Sustainable Regional Development

No 39 Rural Development and Entrepreneurship

No 40 Marketing and Sustainable Consumption
New Dimensions in the Development of Society

The proceedings contain scientific papers representing not only the science of economics in the diversity of its sub-branches, but also other social sciences (sociology, political science), thus confirming inter-disciplinary development of the contemporary social science.

This year for the first time the conference includes the section on a new emerging kind of economy - bioeconomy. The aim of bioeconomy is to use renewable biological resources in a more sustainable manner. Bioeconomy can also sustain a wide range of public goods, including biodiversity. It can increase competitiveness, enhance Europe's self-reliance and provide jobs and business opportunities.

The Conference Committee and Editorial Board are open to comments and recommendations concerning the preparation of future conference proceedings and organisation of the conference.

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We would like to thank all the authors, reviewers, members of the Conference Committee and the Editorial Board as well as supporting staff for their contribution organising the conference and preparing the proceedings. In particular we wish to thank associate professor Signe Dobelniece, assistant professor Zenija Kruzmetra, lecturer Baiba Miltovica, lecturer Lana Janmere, and assistant professor Juris Vuguls.

On behalf of the Editorial Board

Gunars Brazma

*Associate professor of Faculty of Economics and Social Development
Latvia University of Agriculture*

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NATURA 2000 SITES AND SOCIO-ECONOMIC DEVELOPMENT OF RURAL COMMUNES IN EASTERN POLAND

Adam Pawlewicz¹, PhD⁺; **Iwona Cieslak**², PhD; **Katarzyna Pawlewicz**³, PhD; **Karol
Szuniewicz**², PhD

¹Department of Agrotechnology, Agricultural Production Management and Agribusiness,
University of Warmia and Mazury in Olsztyn, Poland

²Department of Cadastre and Spatial Management, University of Warmia and Mazury in
Olsztyn, Poland

³Department of Planning and Spatial Engineering, University of Warmia and Mazury in Olsztyn,
Poland

Abstract. The paper is an attempt at a static analysis of the relationships between the level of socio-economic development of rural communes in the Eastern Poland and the Natura 2000 sites being established within their territories. In spite of public concerns about the emergence of such sites, the authors demonstrate the lack of strong adverse reaction between these variables. At the same time, they indicate that Natura 2000 is not a stimulant of socio-economic development either. The authors analysed the indicators as selected based on literature studies, which showed the level of development in the social, economic, and environmental aspects, of the year 2013, which in turn allowed the calculation of synthetic quantities on the basis thereof. This allowed the classification of 494 rural communes in one of the poorest regions of the European Union i.e. the Eastern Poland. On that basis, the authors investigated the relationship between the values obtained and the proportion of the area of Natura 2000 sites in the communes concerned. The study results indicated huge discrepancies in particular provinces of the region.

Key words: socio-economic development, rural communes, Natura 2000, economic effects

JELcode: O13, R12, Q56,

Introduction

In Poland, Natura 2000 sites have been being established since 2004 when Poland joined the European Union and became the integral part thereof. Consequently, a new form of environmental protection was established under the law, which has typically been situated in areas with a high forest ratio, small population, and on poorer soils as well as in the areas where both underdeveloped infrastructure and poorly developed entrepreneurship are found (Boltromiuk A., 2012). This is a typical characteristic of poor rural areas which primarily include the provinces of the Eastern Poland. At the time of Poland's accession to the European Union, it is the areas concerned that actually turned out to be the least developed ones on the

⁺ Corresponding author. Tel.: +48895233313; fax: +48895233775 E-mail address: adampawl@uwm.edu.pl

national level. This was a determinant for the establishment of a specific supra-regional programme supporting socio-economic development for five provinces, namely Lubelskie, Podkarpackie, Podlaskie, Swietokrzyskie and Warminsko-Mazurskie – *Operational Programme Development of Eastern Poland (OP DEP)*. Based on the Eurostat study of 2002, they were recognised as regions with the lowest GDP per capita in the European Union (Portal ..., 2014).

The regions which were included in *OP DEP* are, at the same time, regions with the highest proportion of Natura 2000 sites in Poland. It should be noted, however, that the network concerned is not commonly regarded as an element of the policy of socio-economic development. For most local communities, this is another area covered by environmental protection policy, which restricts their free use of space, and is associated with a natural barrier to the development. It is to be noted that this is how the public frequently treats the areas of environmental protection and that in numerous publications and documents at various levels these forms are thus called. Therefore, Natura 2000 is clearly perceived as a threat, and not as a chance or a challenge (Weber N., Christophersen T., 2002).

The establishment of Natura 2000 sites is most commonly associated with handicaps resulting from (Boltromiuk A., 2012): prolongation of the duration of project implementation, costs associated with an environmental impact assessment of projects, uncertainty over the obtaining of a building permit, the lack of guidelines specifying the permissible type and scope of business activity, restrictions on the performance and development of agricultural production, general misinformation, uncertainty over the existing regulations and specific restrictions associated with the functioning of a particular site.

The concept of "development" is complex and multidimensional in nature. It is most frequently defined as a process of positive changes, including both the quantitative growth and the qualitative progress taking place in a particular area, and relating to both the standard of living of the population and the conditions for the functioning of business operators (Parysek J.J., 2001; Potoczek A., 2003; Cieslak I., et al., 2013). Therefore, it can be concluded that the socio-economic development at the local level takes place on four levels: economic, social, political and environmental (Takamori H., Yamashita Sh., 1973; Potoczek A., Stepień J., 2008). All the distinguished levels are not uniform, and their functioning is closely linked. These relationships contribute to the establishment of new, sustained development potential which is supposed to contribute to the more comprehensive meeting of the local community's needs, and to bring about no adverse effects in the surroundings (Szewczuk A., et al., 2011). An analysis of the level of socio-economic development allows the evolution of the concept and formulation of the strategy of an assessment of sustainable development – also on a global level (Vanags J., et al., 2012).

The basis for deliberations and analyses is a thesis that the socio-economic development of rural areas depends, *inter alia*, on the rate of occurrence of Natura 2000 sites within those territorial units. This relationship occurs with varying intensity in relation to heterogeneous spheres of the development, and, contrary to the common belief, it is a directly proportional

relationship. This means that the rate of occurrence of Natura 2000 sites may have a stimulating effect on certain spheres of the development of rural communes. This is proven by the fact that since the Poland's accession to the European Union, the problem areas in the East of the country have been developing despite the increase in the proportion of naturally valuable areas, as is the case for the areas not being included in the Natura 2000 network (Getzner M., Jungmeier M., 2002; Pawlewicz A., et al., 2011). Only in certain cases the indicators of socio-economic development are improving, because the local community takes advantages of the opportunities associated with protected areas, e.g. the establishment of environmentally-friendly agriculture such as organic farming being supported from the Rural Development Programme, or tourism.

The aim of the study is to conduct a static analysis of the relationships between the area of Natura 2000 sites and the level of socio-economic development of rural communes in the Eastern Poland. The developed analysis is based on three methods. Firstly, based on the collected data, the area under research was classified into five grades of the rate of proportion of Natura 2000 sites to the total area of a commune. Secondly, the authors determined a synthetic indicator of the level of socio-economic development of the communes. Finally, they specified an interdependence between the coverage of the area under research by the Natura 2000 network and the level of socio-economic development. In the following sections, the authors introduce the methodologies as applied in the drawing up of this study.

The area under research included provinces of the Eastern Poland, which are still perceived as problem areas, and are actually struggling with development problems in the socio-economic sphere. The basic subject of the study was a rural commune, the total number of which was 494. Rural communes, particularly in the Eastern Poland, are much poorer units with a low level of development. Relatively small areas of those units make them significantly more susceptible to either stimuli or obstacles to the development thereof.

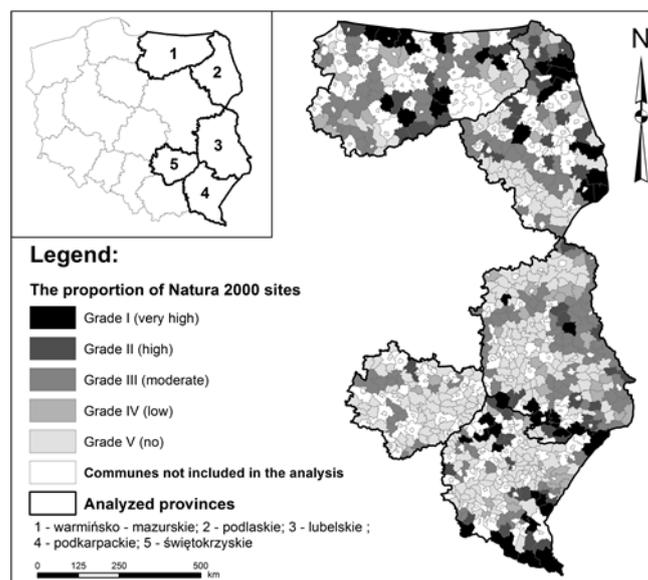
While proving the advanced thesis, the authors employed the basic methods for statistical analyses. These methods allowed the synthetic values representing the level of socio-economic development to be described, classified, and obtained. Moreover, the intensity of correlation of the phenomena being described was determined by the methods concerned. Tasks of the research are detailed in next chapter with results.

Research results and discussion

In order to achieve the set purpose, it was necessary to maintain the previously mentioned procedure. The first step was to determine the rate of coverage of the area of communes accepted for analysis by Natura 2000 sites. The said indicator was obtained while analysing data and using information collected within the framework of the *Partnership System of Economic Change Management within Natura 2000 Sites*. Based on the collected data, the authors classified the area under research, and distinguished five grades indicating the intensity of the phenomenon in a given area. The classification was conducted according to the following

principles (Wysocki, F., 2010): grade I – $(S_{Ni} \geq \overline{S_{Ni}} + s_{NS_i})$ – a very high degree of coverage of a commune by Natura 2000 sites; grade II – $(\overline{S_{Ni}} \leq S_{Ni} < \overline{S_{Ni}} + s_{NS_i})$ – a high degree of coverage of the commune by Natura 2000 sites; grade III – $(\overline{S_{Ni}} - s_{NS_i} \leq S_{Ni} < \overline{S_{Ni}})$ – a moderate degree of coverage of the commune by Natura 2000 sites; grade IV – $(S_{Ni} < \overline{S_{Ni}} - s_{NS_i})$ – a low degree of coverage of the commune by Natura 2000 sites; grade V – no Natura 2000 sites are situated within the commune, where: S_{Ni} – indicator of coverage of the commune by Natura 2000 sites, $\overline{S_{Ni}}$ – arithmetic average of the coverage indicator S_{Ni} , s_{NS_i} – standard deviation of the coverage indicator S_{Ni} .

The obtained results of the classification are presented in the demonstrative map of the area under research (Figure 1).



Source: authors' calculations based on www.natura2000.efort.pl, Access: 20.09.2014

Fig. 1. The proportion of Natura 2000 sites to the total area of rural communes in the Eastern Poland

The next phase of the analysis was the determination of a synthetic indicator of the level of socio-economic development of communes based on the Central Statistical Office of Poland data. Complex phenomena, such as the socio-economic development, cannot be expressed using a single characteristic, or measured directly. They need to be characterised using a variety of variables (Caschili S. et al., 2014).

Examples of indicators which need to be indicated as those showing the situation in such spheres as environmental protection, health, and social income are cited in numerous publications and reports. However, the indication of a universal set of such indicators is not possible due to both the multitude thereof and the diversity of the purposes of the analyses being undertaken (Rutz D., Janssen R., 2014). The construction of a certain standard of the variables being applied may have a significant effect on the level of monitoring and formulation of a decision-making policy as part of the construction of, e.g. sustainable development. It has

also been emphasised by the European Commission which requires the Community institutions to draw up a list of such indicators (Pallemaerts M., Adelle C., 2009).

For the proper diagnosis of data, it is, thus, therefore necessary to develop synthetic indicators – especially, where the cited quantities are supposed to provide the image of the level of socio-economic development. Such an approach allows the replacement of the set of multiple explanatory variables with one synthetic variable, which allows the reduction in the number of variables, facilitates estimation, and, in certain cases, eliminates the possibility for obtaining the values of the assessment of parameters being incompatible with the direction of the impact of single explanatory variables on the response variable (Cieslak M., 2001).

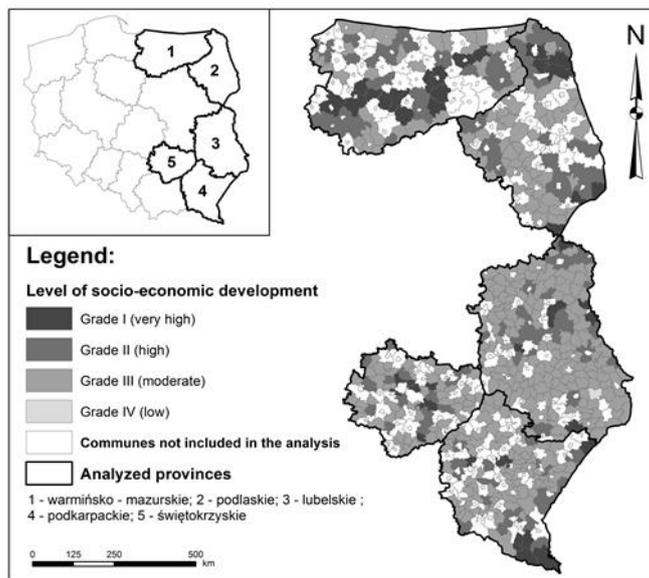
Among many different methods for the development of synthetic variables, which use the appropriately selected, the so-called diagnostic variables, one of the oldest and most frequently employed one is a method developed by professor Hellwig Z. (1968), which was employed in this case.

Diagnostic variables are selected from a set of potential variables which characterise the phenomenon under research. In this case, diagnostic variables were the indicators characterising the socio-economic development of rural communes in the Eastern Poland. A substantive analysis of the available literature on the subject (Bossel H., 1999; Borys T., 2005; Korol J., 2007; Brodzinski Z., 2011) allowed the identification of a group of indicators belonging to spheres relating to demography, social welfare, habitation, activity in the labour market, environmental protection, communal finances, and tourism. Ultimately, 14 indicators were identified, which showed the level of socio-economic development of the communes under analysis: x_1 – population density; x_2 – migration balance; x_3 – total expenditure on social security per capita; x_4 – the usable floor space in new residential buildings; x_5 – the proportion of registered unemployed people to the population of working age; x_6 – the number of economic operators per 1000 inhabitants of working age; x_7 – mixed waste collected during one year; x_8 – the proportion of population using the water supply system per the total number of inhabitants; x_9 – self-generated revenues of the local government per inhabitant; x_{10} – municipal investments per resident per 1 inhabitant; x_{11} – the number of collective accommodation facilities; x_{12} – tourism infrastructure saturation index (beds for tourists / km²); x_{13} – indicator of the tourism function of a particular place (beds for tourists / actual inhabitants); and x_{14} – indicator of the tourism intensity (number of tourists / actual inhabitants).

Diagnostic variables may bear different names, and that prevents them from being directly compared. It is therefore necessary to perform standardisation (elimination of the impact of measurement units), which will provide them with the name allowing comparability. In this case, the unification of variables was performed using the standardisation of variables according to the formula:

$$z_{ij} = \frac{(x_{ij} - \bar{x}_j)}{s_j}, \quad j = 1, 2, \dots, m), \quad \text{where: } \bar{x}_j = \frac{1}{n} \sum_{i=1}^n x_{ij}, \quad s_j = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_{ij} - \bar{x}_j)^2},$$

The performed conversions resulted in obtaining a matrix of standardised values of characteristics, which was used to determine the so-called "development pattern". "Development pattern" is an abstract object P_0 (a rural commune) with the coordinates: $P_0 = [z_{01}, z_{02}, \dots, z_{0j}]$, where: $z_{0j} = \max\{z_{ij}\}$, when Z_j is a stimulant, and $z_{0j} = \min\{z_{ij}\}$, when Z_j is a destimulant.



Source: authors' calculations based on the Central Statistical Office of Poland, 2014

Fig. 2. The classification of rural communes in the Eastern Poland according to the synthetic indicator of the level of socio-economic development

It follows from the foregoing considerations that the "development pattern" is a hypothetical commune with the most favourable variable values. Then the authors calculated the Euclidean distances separating each object P_i under assessment (in this case, a rural commune) from the determined "development pattern":

$$q_i = \sqrt{\sum_{j=1}^m (z_{ij} - z_{0j})^2}.$$

The obtained values q_i were used for the calculation of the value of Hellwig's synthetic measure of development, based on which the authors assessed the communes under research. The value of the indicator takes the following form:

$$S_i = 1 - \frac{q_i}{q_0} \quad (i = 1, 2, \dots, n), \quad \text{where:} \quad q_0 = \bar{q}_0 + 2s_0, \quad \bar{q}_0 = \frac{1}{n} \sum_{i=1}^n q_i, \quad s_0 = \sqrt{\frac{1}{n} \sum_{i=1}^n (q_i - \bar{q}_0)^2}.$$

Hellwig's synthetic measure of development S_i typically takes values from the range of (0.1). The closer the values of the measure are to 1, the higher is the level of development of the object under research. The closer a commune is to the "development pattern", the higher is the level of socio-economic development of the commune.

In the next step, the communes were classified in terms of the value of the measure calculated. The classification was performed while maintaining a principle being analogous to

the classification of the proportion of Natura 2000 sites to the total area of the communes under research. The analysis results are illustrated in Figure 2.

The final phase of the statistical analysis was the determination of the correlation between the independent value, i.e. the rate of coverage of the area under research by Natura 2000 network, and the dependent value, i.e. the level of socio-economic development, which was performed using *STATISTICA 10* software.

Conclusions, proposals, recommendations

Natura 2000 sites are situated within more than 50% of rural communes in the Eastern Poland. The rate of coverage of the units by the sites is significantly diversified, and ranges from 0 to as much as 100% of the coverage of the commune area. The division into grades is provided in Table 1.

Table 1

Rural communes in the Eastern Poland. The areas divided into grades of the rate of coverage of a commune by Natura 2000 network site

Specification	Grade I	Grade II	Grade III	Grade IV	Grade V	Total
	very high degree of coverage of a commune by Natura 2000 sites	high degree of coverage of the commune by Natura 2000 sites	moderate degree of coverage of the commune by Natura 2000 sites	low degree of coverage of the commune by Natura 2000 sites	no Natura 2000 sites are situated within the commune	
	% of coverage of a commune by Natura 2000 network site					
	100%-54%	53%-29%	28%-3%	below 3%	lack	
Rural communes in Eastern Poland	45 (9.2%)	50 (10.1%)	134 (27.1%)	48 (9.7%)	217 (43.9%)	494 (100%)

Source: authors' calculations based on www.natura2000.efort.pl, Access: 20.09.2014

When applying the Hellwig's synthetic measure of development, rural communes in the Eastern Poland were ranked in accordance with the level of socio-economic development, and divided into grades in accordance with the adopted procedure. The division into grades is provided in Table 2.

Table 2

Rural communes in the Eastern Poland. The areas divided into grades of the level of socio-economic development in accordance with the Hellwig's synthetic measure of development

Specification	Grade I	Grade II	Grade III	Grade IV	Total
	high level of socio-economic development	average level of socio-economic development	low level of socio-economic development	very low level of socio-economic development	
	(max-0.123>				
	(0.123-0.008>	(0.008-0.004>	(0.004-min)		
Rural communes in Eastern Poland	41 (8.3%)	109 (22.1%)	344 (69.6%)	0	494 (100%)

Source: authors' calculations based on the Central Statistical Office of Poland, 2014

The degree of development for communes in the Eastern Poland is quite homogeneous, and is at a low level. Based on the analysis conducted, it may be noticed that only over 8% of the communes under analysis are units with a high level of socio-economic development

(Grade I). In Warminsko-Mazurskie province, there are 13 of them, in Podkarpackie province 8, in Podlaskie and Swietokrzyskie provinces 7, and in Lubelskie province there are 6. The communes concerned stand out in comparison to other communes in the Eastern Poland with high indicators showing the tourism character of the area i.e. the rate of tourism intensity, tourism function of a place, and the saturation of tourism infrastructure as well as the large number of business operators functioning within a commune. It is also worth noting that out of 41 Grade I communes, only 7 do not have Natura 2000 sites in their resources. Approx. 22% of them are communes with a moderate development level (Grade II), and nearly 70% of the units under analysis are communes with a low development level (Grade III). Most communes with a low development level are situated in Lubelskie province (80% out of the total number of communes in the province). None of the communes under analysis was classified as a unit with a very low development level.

The major problems of communes with a low level of socio-economic development include low own revenues and investment expenditure, which were below the average as well as the occurrence of few business operators and a high migration index as well as deficiencies in the water supply networks. Most of the analysed Grade III communes were also characterised by low indicators showing the tourism nature of the area. Here, the rate of coverage of a commune by Natura 2000 was very diversified as well, and ranged from 0 to as much as 100% of the coverage rate.

Having analyzed the relationship between variables, where the independent one was “*the proportion of Natura 2000 sites to the total area of the commune*”, it may be concluded that the relationship is not strong. Generally, the correlation indicator in the Eastern Poland amounts to 0.28, with the significance level $p < 0.5$ (Table 3). The presence and size of the surface of Natura 2000 site has an impact on the level of socio-economic development of those communes, although the impact is non-determining.

Table 3

The correlation coefficient for the proportion of Natura 2000 sites, and the synthetic indicator of socio-economic development for rural communes in the Eastern Poland

Areal scope	Eastern Poland	Province				
		Lubelskie	Podkarpackie	Podlaskie	Swietokrzyskie	Warminsko-Mazurskie
Number of cases	494	171	107	78	71	67
Significance level	$p < 0.05$					
Pearson product-moment correlation coefficient	0.28	0.16	0.24	0.47	0.05	0.25

Source: the authors' own work

Where, however, the coefficient is determined for each province individually, it will turn out that this relationship increases significantly for some of them. For Podlaskie province, it amounted to as much as 0.47. In these provinces, communes of grades of a very high proportion of Natura 2000 sites are also situated as well as these for which the authors demonstrated high indicators of tourism functions. These coefficients in provinces such as Podlaskie or Warminsko-Mazurskie are correlated with Natura 2000 sites. Having analysed

those results, the significance of these areas may only be determined in the areas with high quality of the natural environment, e.g. in a form of naturally valuable areas, or as part of tourism activities.

In conclusion, the rate of occurrence of Natura 2000 sites within the territorial units concerned does not currently have a significant impact on the socio-economic development of rural communes situated in the Eastern Poland. On the one hand, this is a conclusion which may mitigate social conflicts arising frequently due to the establishment of new areas being included in the network, and debunking the myth of development barrier as generated by the areas in question. On the other hand, this is a signal for the institution managing the network, which indicates the non-effective pro-environmental policy promoting the establishment of Natura 2000 sites, which do not actually translate into the development of areas within which the areas concerned are being established, and a sort of an incentive generating the favour of the local community with the protection of naturally valuable areas.

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POLITICAL COMPETITION AND DEVELOPMENT IN LATVIA'S MUNICIPALITIES

Janis Ikstens¹, Dr.sc.pol. / professor⁺

¹ University of Latvia

Abstract: A broad strand of research demonstrates a beneficial role of political competition producing more efficient policies and fostering economic development. This paper explores the linkage between political competition and economic development of municipalities in Latvia after the 2009 administrative reform. Empirical data do not support the above claim of the positive role of political competition and rather demonstrate an adverse linkage between political competition and development.

Keywords: political competition, economic development, municipal politics, Latvia

JEL code: A12, H11, O43, P16

Introduction

One of the basic propositions in economics claims that competition drives economic efficiency and development. Oligopolistic or monopolistic markets tend to increase prices and reduce the quality of goods or services.

This line of reasoning is not limited to economics only. Scholars of politics have pointed out that political competition may have various effects on results of the political decision making in that citizens function in politics as consumers do in the markets and politicians have incentives to act in the interest of a plurality/majority so as to avoid their removal from office. Besley, Persson and Sturm (2010) find that lower political competition leads to higher taxes and lower capital spending. Stigler (1972), Wittman (1995), and Besley, Persson and Sturm (2005) indicate that weak political competition can cause inefficient provision of public services. Falkowski and Olper (2014) highlight that fiercer political competition leads to a higher level of agricultural support.

While the enthusiasm about beneficial effects of political competition on outputs of political system appears to be wide spread, there are a few studies that point to the contrary, with comparisons between democratic and non-democratic regimes leading the way. In particular, Przeworski and Limongi (1993) demonstrate that the economic record of democratic regimes not necessarily is superior to that of authoritarian regimes. Mulligan, Giland and Sala-i-Martin

⁺ Corresponding author. Telephone: +371 27331144; fax: +371 67140233;
e-mail: janis.ikstens@lu.lv

(2004) provide empirical evidence that spending on public services in non-democratic regimes is not significantly lower than that found among democratic regimes. Lizzeri and Persico (2000) explain the adverse effect of political competition in the following way: “the tendency to focus on policies that provide particularistic benefits increases with the number of candidates at the expense of policies that benefit the population at large”.

The role of political competition in shaping policies and generating particular policy outcomes in Latvia remains largely unexplored. Cross country comparisons (e.g. Li and Xu, 2004) aside, in-depth studies have focussed on how inter-party competition affects ethnic policy in Latvia (Nakai, 2014). This paper is aimed at reducing this deficiency as it will explicitly focus on the link between political competition and development in Latvia. In particular, the author explores the extent to which there exists a linkage between political competition at the local level and development of Latvia’s municipalities.

The paper builds on the previous strand of research emphasizing the beneficial role of competition in politics. The aim of this paper is to explore the impact of political competition on municipal development. In particular, it is expected that a higher level of municipal political competition is associated with a faster pace of economic development in municipalities.

Variables and operationalization

The administrative reform in Latvia resulted in establishing of 110¹ local municipalities (*novadi*) and nine major cities (*republikas pilsetas*) by 2009. At the time of finalization of the reform, each of these units was run by a council having between 13² and 19 seats, with the capital city of Riga constituting an exception and having a 60-strong city council. The councils are elected by popular vote for a four year term. Party list system with the Saint-Lague formula is used. Only political parties and their alliances are allowed to field candidates in municipalities where the number of residents exceeds 5000 persons of any age.

There are numerous indicators for the level of development of each municipality such as GDP per capita, personal income tax collected etc. This paper will use a composite indicator – the Index of Territorial Development (ITD). It was developed in 2000 to capture aspects of economic and demographic development of each municipality. While scepticism about the usefulness of this index has recently grown (Hermansons, 2012), it remains widely used in public administration (allocation of government funding to municipalities; intensity of co-finance for the EU-funded projects; evaluation of territorial development etc.) and is the only index of municipal development with a time series from 1999. The index is designed so as to reflect the pace of development of a particular municipality in comparison to the national average taking positive values when the municipality develops faster than average, and

¹ Initially, the number of *novadi* was set at 109 but it increased by one after the Mersrags municipality was separated from the Roja municipality in late 2009.

² In 2010, the smallest number of council members was lowered to nine to become operational after the 2013 municipal elections.

negative values when it is falling behind. Annual ITD values for each municipality are endorsed by a government decision.

Although key to many discussions, the concept of political competition has been defined and operationalized in various ways and there is no widely accepted method. One broad approach is to look at elections, the crucial event of vying for citizen support that significantly affects party or candidate prospects for the following term. A simple approximation would account for all players active on the market at a given point in time, i.e. the number of candidates in single-member districts or the number of candidate lists in multi-member districts. This method rests on the assumption that the mere number of competitors provides for competition. However, not all of competing forces stand an equally realistic chance to win a seat and, thus, have a small effect on the actual political competition. Therefore, several scholars have used closeness of elections as a measure of political competition (for example, Fiorina, 1974; Griffin, 2006) but these are more appropriate for majoritarian electoral systems with two main parties contesting the elections. Laakso-Taagepera's index of effective number of parties (ENP) (1979) takes into account both the number of contestants and their support among voters. More recently, campaign funding has been seen as an indication of political competition as higher campaign spending has been taken as an indication of higher political competition (Abramovitz, 1991).

Another broad approach is to consider indicators that apply to competition between elections. Here, the ideological distance between parties in the representative institution has gained some prominence – larger ideological differences provide beneficial circumstances for higher political competition. Weakness of this measure lies in that political organizations at the municipal level may not have well developed ideological profiles or may be groups of followers loyal to a local leader rather than adherents of a political platform. This weakness is addressed by considering changes in political support for a given party over several consecutive elections. Therefore, higher values of Pedersen's electoral volatility index (Pedersen, 1979) may serve as an indication of more intense political competition. However, it may be complicated to trace splits, mergers, and name changes of parties at the local level, which would only obscure the actual competition.

This paper analyses linkage between development and political competition at the municipal level in Latvia. Not only registered political parties but also associations of citizens are allowed to contest elections in smaller municipalities, which renders the between-elections approach inapplicable due to poor ideological articulation of most citizen associations and nearly untraceable organizational shape of followers of some local leaders. While campaign spending limits are tied to each municipality, parties do not provide public accounts of spending per municipality as impractical. Given the multi-party character of most local electoral contests, the effective number of parties will be used as a proxy for political competition – the larger the ENP, the higher the political competition.

Hypothesis, data and method

This paper sets to verify the assumption that higher political competition at the local level is associated with a faster municipal development. To test the hypothesis, the author has chosen the only full term of four years following the completion of the administrative reform in 2009. Results of the 2009 municipal elections will be used to calculate ENP in each municipality at two different stages – (1) at the level of all valid votes (ENP_{votes}) and (2) at the level of seats held by successful contestants (ENP_{seats}). As the electoral threshold of 5 per cent of valid votes was instituted in all municipalities in late 2008, it is important to capture changes in political competition due to this institutional constraint. Election results are retrieved from the website of the Central Elections Commission (www.cvk.lv).

Values of the Index of Territorial Development are retrieved from RDIM database (raim.gov.lv) maintained by the State Regional Development Agency. The level of development is captured by the value of ITD for each municipality in a particular year; the pace of development (PD), in turn, is operationalized as a difference between the 2013 index value and the 2010 index value¹:

$$PD = IDI_{2013} - ITD_{2010} .$$

A negative value of PD would be an indication of a slower development over the four-year period while a positive value would indicate an acceleration of development.

To establish a link between the variables, bivariate correlation function of the SPSS 22.0 software package will be used.

Empirical results and discussion

According to the RDIM database, 52 municipalities out of 118 had a positive ITD value in 2009. By 2013, this figure decreased to 41 municipalities. The average ITD for the two years also saw a decrease from -0.142 in 2009 to -0.178 in 2013. If the year 2010 is taken as a point of reference, the overall picture does not change significantly – 52 municipalities out of 119 had a positive ITD value and the average ITD value stood at -0.146. Thus, one sees a general trend towards a slower pace of municipal development.

Political competition in the 2009 elections has varied widely. While the Naukseni municipality saw only one candidate list, resident of Rezekne city and the Kekava municipality could choose from as many as 17 lists. According to the author's calculations, values of ENP at the vote level varied between 1 and 13.85 but the oscillation of ENP at the seat level narrowed between 1 and 8.26. The average ENP at the vote level reached 3.74 parties while the average ENP at the seat level decreased to 3.20 parties.

The first calculation determined a linkage between the two levels of political competition and the municipal development in the election year of 2009. As depicted in Table 1, a modest yet robust correlation between municipal development and ENP_{votes} exists, while the linkage

¹ The 2010 index value is chosen for calculation because a lag between political decisions and measurable outcomes is assumed.

between municipal development and ENP_{seats} is weaker and of lower statistical significance. These calculations provide evidence that more intensive political competition is associated with a higher level of municipal development at the time of elections.

Table 1

Correlation between municipal development and ENP

	ENP _{votes}	ENP _{seats}
ITD ₂₀₀₉	0.249**	0.186*
ITD ₂₀₁₃	0.207*	0.130
ITD ₂₀₁₀₋₂₀₁₃	-0.164	-0.135

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Source: author's calculations.

The situation changes by the end of the four-year term. There still exists a correlation between municipal development in 2013 and ENP_{votes} but it has lost some of its magnitude and significance. Moreover, a linkage between municipal development and ENP_{seats} has largely disappeared.

As the weakening association between development and competition may be a result of the overall slowdown of municipal development, a correlation was calculated between political competition and the pace of development (PD). This should gauge into the contribution of political competition to the acceleration/deceleration of municipal development. Results in Table 1 show a negative correlation that fails to reach conventional levels of statistical significance hinting that a quicker pace of municipal development is linked to a smaller number of political parties at both levels.

The findings present a puzzle – while the association between political competition and municipal development at the time of elections goes into the expected direction, a more intensive political competition at both levels is negatively (albeit insignificantly) associated with an acceleration of development over a full municipal term of four years. Apparently, political competition as measured by ENP does little to foster municipal development. This needs to be analysed further in light of findings by Lizzeri and Persico (2000) who contend that a higher number of contestants proliferates particularistic projects (pork-barrelling) and, thus, results in inefficiency. The linkage between a more intensive competition and a higher municipal development at the time of elections (as opposed to municipal development after a four-year term) may be related to the office seeking motivation of Latvia's political parties and the role of patronage in maintaining a party organizationally (Ikstens, 2009).

Conclusions

Competition in markets generally leads to greater efficiency and lower prices. There is a broad strand of research in political science demonstrating positive effects of political competition on outputs of the political system. The present paper builds on this literature to explore the linkage between political competition and economic development in Latvia. The

underlying hypothesis is that a more intensive political competition at the municipal level will be associated with a faster pace of development of municipalities.

The hypothesis was tested on a set of 119 Latvia's municipalities. Political competition was measured in terms of the effective number of parties at the level of votes and at the level of seats obtained within each municipality. Municipal development was measured by the Index of Territorial Development. The following conclusions were reached:

1. Political competition is higher in municipalities with higher ITD, and this is likely for office seeking reasons or other factors

2. There is a negative association between the pace of ITD and political competition.

It is the latter finding that needs to be studied in depth.

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IMPACT OF SPATIAL CHARACTERISTICS OF LAND ON THE PRICE OF ARABLE LAND

Siim Maasikamäe¹, Ph.D.+; Kersti Luik¹, bach. stud.; and Kristjan Aasmäe¹, M.Sc.

¹ Estonia University of Life Sciences

Abstract. The price of agricultural land and arable land is particularly low in Estonia when compared to Western European countries. The demand for agricultural land was low during the first decade after the collapse of the Soviet agriculture system. The situation is changing and the demand for agricultural land is increasing at the present time. Yet, simultaneously, the formation of arable land prices is not studied much. There are several factors affecting land prices and spatial characteristics are among them. The aim of the study is to estimate the impact of spatial characteristics of land parcels on the price of arable land in Estonia. Correlation and regression analyses were used in order to find the possible impact of spatial characteristics (e.g. soil productivity, access conditions and distance from cities) on arable land prices. Data about the 86 rural municipalities were used for the study. The results of the study show that the impact of spatial characteristics of land explain about 20 percent of the arable land price variation. Quality of land and the access conditions to land plots had a statistically significant impact on arable land prices. The impact of the distance from cities and the shape of arable land plots on arable land prices were not detected in the study.

Key words: soil productivity, access conditions, distance to cities.

JEL code: R39, Q24

Introduction

The price of agricultural land in Estonia is low when compared to Western European countries. The average price of arable land in 2009 was 981 EUR ha⁻¹ (Eesti kinnisvaraturg 2009, 2010). At the same year the price of arable land in Finland was 6,885 EUR ha⁻¹ and in Denmark respectively 25,919 EUR ha⁻¹ (Eurostat ..., 2014). However, the price of arable land in Estonia is rising and in 2013 it was 1934 EUR ha⁻¹ (Eesti kinnisvaraturg 2013, 2014), which is almost two times higher than four years before. The number of transactions with arable land is also increasing. Land market processes are not properly investigated at the same time. Land prices play an important role in the management of land resources. Land prices can be

+ Corresponding author. Tel.: +372 731 31 20; fax: + 372 731 31 56.
E-mail address: Siim.Maasikamae@emu.ee.

indicators of urban pressure and urban sprawl or warning indicators for environmental degradation (Land in Europe ..., 2010). For example the urban pressure will increase the land price because of the increasing need for land.

The factors affecting agricultural land prices are the subject of study for many researchers. The nature of those factors is manifold. P. Feichtinger and K. Salhofer (2011), for example, distinguished six groups of variables that can be used to explain land value. Some of those factors have a macroeconomic character, for example, the inflation rate, while others are related directly to land characteristics like soil quality. The importance of socioeconomic factors on agricultural land prices can be the focus of the study (Awasthi M.K., 2014). The suitability of land parcels for production export-oriented crops can be an important determinant for land value (Donoso G. et al., 2013).

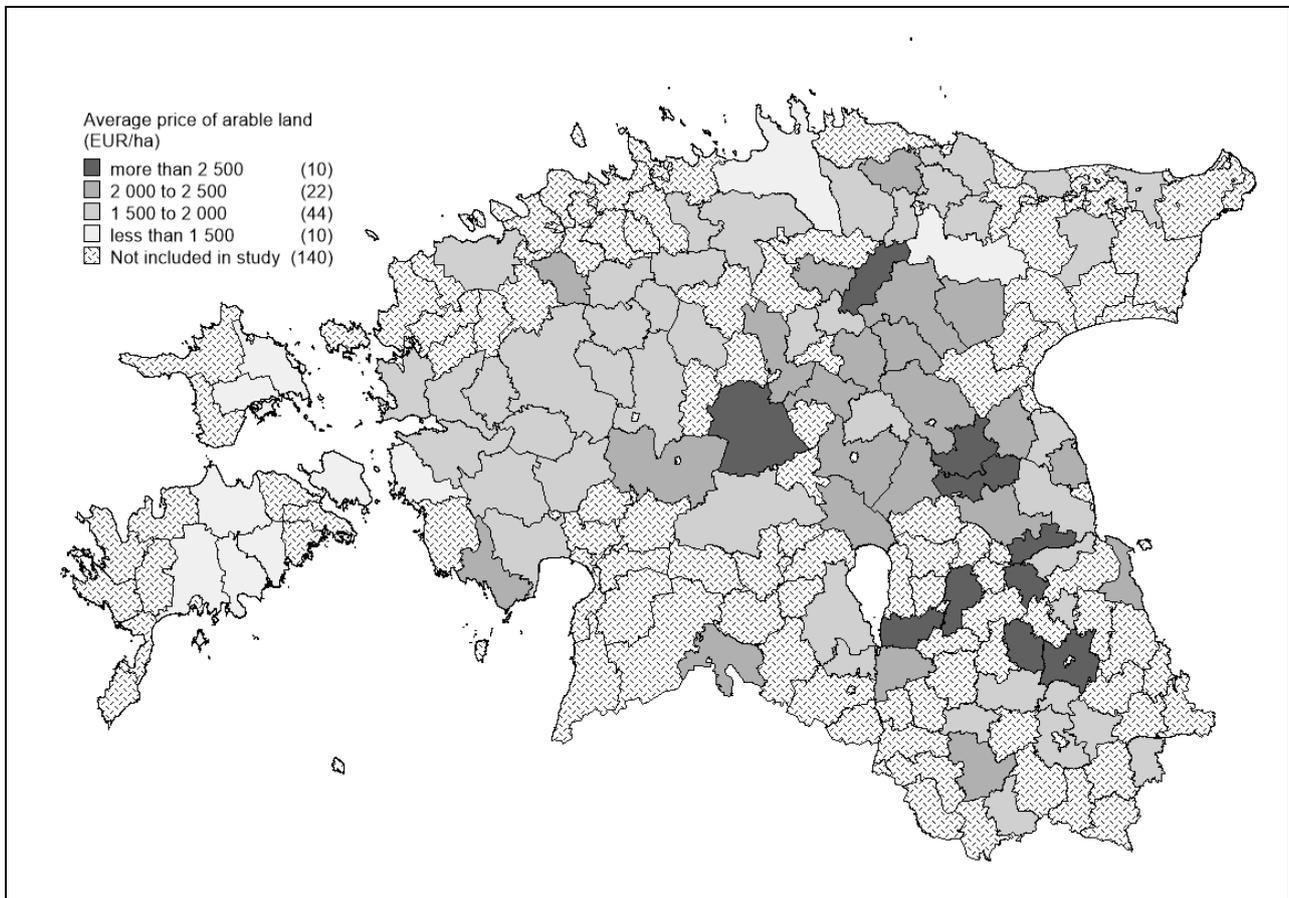
The spatial characteristics of land can be treated as a separate group of factors affecting land prices. The common feature of the spatial characteristics of land is the fact that they are related to the particular plot of land. Among such characteristics are definitely plot location, plot size and plot shape. Plot location can be measured from different objects or points like big cities, local centres or from the closest road. Plot locations can also be determined as the parameter that characterises the surrounding of the plot, e.g. the ratio of arable land in a particular locality. The importance of spatial characteristics of land as a factor influencing land prices was mentioned by several researchers. P. Pyykkönen (2005) "... showed that ignoring the spatial dependence may lead to incorrect results". The role of location determinants on agricultural land prices was pointed out by P. Nilsson and S. Johansson (2013).

The problems of agricultural land prices have not been in the focus of research in Estonia for the last two decades. The EU wide study (Land, Labour ..., 2013) focuses only on the general issues of land market and did not analyse the impact of spatial properties of land on the land price. There was little interest in agricultural land in the 1990s due to the collapse of the old Soviet-type of agriculture. However, the situation is changing and there is increasing demand for agricultural land at present. The changed situation is a clear indicator of the need to research factors that have an impact on agricultural land prices. The aim of the study is to estimate the impact of spatial characteristics of land parcels on the price of arable land in Estonia. The study was performed in two steps. Correlation analysis was the first task of the study. Secondly, multiple regression analysis was carried out in order to find the joint impact of several spatial characteristics on arable land prices. The study is limited only to the spatial characteristics of land. Land market data have been analysed only for that purpose.

Materials and methods

There are three data sources for the study. Data about transactions of arable land parcels by municipalities in 2013 are the first data source. The data are provided by the Estonian Land Board for public use (Eesti kinnisvaraturg 2013, 2014). The average prices of arable land (EUR per ha) for municipalities were published only when there were at least five transactions in the

year. This rule is established due to confidentiality reasons. Arable land parcels are parcels where the ratio of arable land is at least 90 percent. There were available data about arable land price for 86 municipalities in Estonia for the 2013 and all of them were included in the study. The locations of those municipalities are shown in Figure 1. This figure is constructed as a thematic map that also shows arable land price groups for the investigated municipalities.



Source: author's construction based on Estonian Land Board data

Fig. 1. Location of study areas and the groups of average arable land in investigated municipalities

The second data source for the study was the Estonian National Topographic Database and the Estonian Soil Map. Both data sets are in digital form. ArcGIS software was implemented for calculation of average spatial characteristics for all municipalities. The following characteristics were calculated:

- soil productivity grade (hereinafter SPG), which characterises the average productivity of all arable land for each municipality;
- average arable land plot area (hereinafter AvPA). An arable land plot is a contiguous area that is not split into parts by roads, ditches or other linear landscape elements. This is an area that can be cultivated as a whole. This indicator characterises the average land tillage conditions in a particular municipality;

arable land ratio (hereinafter ArLR), which is calculated by dividing the arable land area in a municipality by the total area of the municipality. The indicator characterises the average density of arable land in a particular municipality;

average compactness of arable land plots (hereinafter CC) was calculated to characterise the shape of arable land plots. The compactness of plots is the ratio of perimeter of parcel to circumference of square whose area is equal to area of parcel. The shapes of arable land plots have an impact on land tillage conditions. Preferred are more compact shapes of the plots;

average distance of arable land plots from the state road network (hereinafter DiRd) was calculated in order to characterise the conditions of access to arable land plots. The distance of a particular plot from the road was calculated in the GIS as the shortest line between that plot and the closest road;

the density of road network (hereinafter DeRN) describes a general access condition in a particular region. The density of the road network was calculated by dividing the total length of state roads in a particular municipality by the total area of that municipality.

Finally, the third data source was Statistics Estonia (www.stat.ee), which provided data about the location of municipalities in respect to Tallinn and the county centres. The following indicators were used in the study:

the distances of municipalities' government buildings from Tallinn (hereinafter DiTln);

the distances of municipalities' government buildings from county centres (hereinafter DiCnt).

The correlation analysis of all variables was the first step of the data processing. The next step was the implementation of multiple regression analysis in order to find out the possible impact of spatial characteristics of land on arable land prices. The average price of arable land was a dependent variable and the spatial characteristics of arable land were independent variables. The Statistica software (version 12) was used for all calculations and the statistical significance level was set on $\alpha=0.05$.

Research results and discussion

The results of the correlation analysis are presented in Table 1. Arable land prices were not high but there were statistically significant correlations with five spatial characteristics. The arable land ratio (ArLR) and soil productivity grade (SPG) have the highest correlation with arable land prices. The average area of arable land plot (AvPA) is also correlated with arable land prices. However, the correlation coefficient between the three mentioned characteristics shows that they are also correlated (multicollinearity). The possible explanation of the phenomenon is that more land is used for agriculture in regions with productive soil and it leads to a higher ratio of arable land. The arable land fields are bigger if the soil productivity in the region is higher. The average area of arable land plots tends to include the impact of soil productivity.

The average distance of arable land plots from the state road network (DiRd) and the density of road network (DeRN) have a low but statistically significant correlation with the arable land price. It should be noticed that the correlation between the two mentioned characteristics is not statistically significant and they do not include the impact of each other. The shape of arable land plots (CC) and distance to the cities (DiCnt and DiTIn) do not have a correlation with arable land prices.

Table 1

Correlations between investigated variables

Variables	Prc	SPG	AvPA	ArLR	CC	DiRd	DiCnt	DiTIn	DeRN
Prc	1	0.342*	0.245*	0.433*	-0.144	-0.233*	-0.127	0.126	0.287*
SPG	0.342*	1	0.748*	0.356*	-0.102	0.003	-0.201	-0.339*	-0.142
AvPA	0.245*	0.748*	1	0.500*	-0.130	0.007	-0.150	-0.371	-0.072
ArLR	0.433*	0.356*	0.500*	1	-0.161	-0.090	-0.304	0.132	0.446*
CC	-0.144	-0.102	-0.130	-0.161	1	-0.073	0.019	-0.005	-0.245*
DiRd	-0.233*	0.003	0.007	-0.090	-0.073	1	0.064	-0.302*	-0.116
DiCnt	-0.127	-0.201	-0.150	-0.304*	0.019	0.064	1	-0.037	-0.121
DiTIn	0.126	-0.339*	-0.371*	0.132	-0.005	-0.302*	-0.037*	1	0.422*
DeRN	0.287*	-0.142	-0.072	0.446*	-0.245*	-0.116	-0.121	0.422*	1

Note: * correlation coefficients statistically significant at $\alpha=0.05$

Source: author's calculations based on Estonian Land Board data

A multiple regression analysis was performed on the basis of correlation analysis. Three different linear multiple regression models were found to be relevant to the aim of the study. The main parameters of those models are presented in Table 2. The forward stepwise methodology was implemented to build the models. The soil productivity grade (SPG) average area of arable land plot (AvPA) and arable land ratio (ArLR) were not included simultaneously in the list of independent variables because of multicollinearity problems. All variables in Table 2 are statistically significant at $\alpha=0.05$ ($p<0.05$) except the intercept of Model 1.

The highest determination coefficient is for Model 1 ($R^2 = 0.244$) but because of the high p-value of the intercept (p-value = 0.52) it is not the best model. The soil productivity grade was used in this model to characterise land fertility. The β -coefficients show that the impact of the soil productivity grade on arable land prices is about twice as high as the impact of the location of arable land plots in relation to the state road network.

The average arable land plot area was used in Model 2 to characterise land quality. In this model the determination coefficient R^2 and F-value were the lowest when compared with other models. The impact of different variables (see β -coefficients for Model 2) on arable land prices is more equal when compared with Models 1 and 3. It is necessary to note that density of road network (DeRN) and average distance of arable land plots from the state road network (DiRd) were included both in Models 1 and 2. It indicates that access to arable land is an important

issue for the formation of arable land prices. The access question is obviously a complex and complicated phenomenon.

Table 2

Main parameters of the regression models

Variable name	b	Std.Err. of b	β	Std.Err. of β	t	p-value	Adjusted R ²	F
Model 1								
Intercept	277.86	432.66	x	x	0.6422	0.5225	0.244	10.132
SPG	33.17	8.1456	0.3881	0.0953	4.0724	0.0001		
DeRN	998.24	300.04	0.3192	0.0959	3.3270	0.0013		
DiRd	-0.56	0.2722	-0.1972	0.0949	-2.0770	0.0409		
Model 2								
Intercept	1628.64	211.63	x	x	7.6955	0.0000	0.164	6.557
DeRN	883.83	313.03	0.2826	0.1001	2.8233	0.0059		
AvPA	17.080	6.3750	0.2664	0.0994	2.6792	0.0089		
DiRd	-0.580	0.2862	-0.2024	0.0998	-2.0273	0.0458		
Model 3								
Intercept	1710.58	176.99	x	x	9.6646	0.0000	0.207	12.081
ArLR	16.66	3.891	0.4152	0.0969	4.2815	0.0000		
DiRd	-0.561	0.278	-0.1959	0.0969	-2.0195	0.0466		

Source: author's calculations

In Model 3 were included only two independent variables. The arable land ratio (ArLR) was used to characterise the land quality. The F-value for that model is higher than for the two other models. R² is less than for Model 1 and more than for Model 3. The impact of the arable land ratio to the arable land price is about two times higher than the impact of average distance of arable land plots from the state road network.

The study carried out shows that the spatial characteristics of land have an impact on arable land prices. According to the present study about 20 percent of arable land price variations can be explained with the impact of spatial characteristics. Two types of spatial characteristics resulted from the study: 1) the quality of land; and 2) the conditions of access to land. The quality of land is mentioned by some authors (Land in Europe ..., 2010; Lebedinska J. et al., 2005; Sklenicka P., 2011) as the key factor for arable land prices. Some studies show the opposite results and the author's explanation is that land privatisation processes can influence land prices (Pletichova D., Gebeltova Z., 2013).

However, the impact of spatial characteristics on arable land prices is a complicated phenomenon. The discrimination between true and spurious spatial dependences (Kostov, P., 2009) is an important issue when studying the impact of the spatial characteristics of land on arable land prices. Nickerson C. et al. (2012) came to the conclusion that land productivity was well correlated with agricultural land prices in regions where there was no impact of cities. The impact of urban pressure can misrepresent agricultural land prices (Abelairas-Etxebarria P., Astorkiza I., 2012). Travel time to the centres is not a significant determinant of farmland prices (Sklenicka P., 2011). Similar results came out in this study. The distance to Tallinn or county centres did not have a correlation with arable land prices.

Data quality is also an important aspect for studies of land price formation. The average price and average spatial characteristics for a region, for example a municipality, will hide many important details of particular transactions and the specific features of the plots. In 2013 the average arable land price in the Tarvastu rural municipality was 4161 EUR ha⁻¹, the minimum price was 615 EUR ha⁻¹ and the maximum price 4776 EUR ha⁻¹. This was an extreme example but it is no exception at all that the difference between the maximum price and minimum price of arable land per hectare is about 2000 EUR in the limits of one municipality.

There is a similar situation with spatial characteristics. The exact spatial characteristics (e.g. soil productivity, location with respect to roads) were substituted by the average figures of municipalities whereas the exact location of transactions was not known. The more precise initial data would obviously provide better and more reliable results in further studies of the impact of spatial characteristics on arable land prices. The use of aggregated (average) data instead of initial data is the biggest limitation of this study. This is the reason to continue the investigation of the impact of land spatial properties on arable land prices.

Conclusions

1. It came out from this study that land quality indicators and the possibilities to access land plots were the spatial characteristics that had a correlation with arable land prices. The correlation was not strong but statistically significant.
2. Land quality and the possibilities to access land plots explained about 20 percent of the arable land price variation.
3. There was a medium correlation between soil productivity grade, average area of arable land plot and arable land ratio in a particular region. It is not to the purpose to include all mentioned indicators as independent variables into the regression models simultaneously because of multicollinearity problem.
4. It is recommended to use initial data instead of aggregated (average) data for the study of land spatial characteristics' impact on arable land prices in future.

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SPATIAL PROPERTIES OF LARGE AGRICULTURAL LANDHOLDINGS OF ESTONIA

Kristiin Sikk¹, M.Sc. + and **Siim Maasikamäe**¹, Ph.D.

¹ Estonia University of Life Sciences

Abstract. The fragmentation of landholdings is considered as disturbing factor for agriculture. The aim of this article is to evaluate the extent of land fragmentation of the large landholdings in Estonia. The Januszewski and Schmook indexes were calculated for that purpose. The detailed survey of three agricultural landholdings was conducted in order to assess the possibilities to reduce the land fragmentation and improve their land use conditions. Results showed that Estonian agricultural producers' landholdings are considerably fragmented. The average value of Januszewski index is 0.1486 and the average value of Schmook index is 0.1052 that indicate to big fragmentation. The detailed study of three adjacent land holdings showed that the land exchange and land swap could improve the land use conditions of large landholdings. The Schmook index would increase in interval 1.50 to 2.75 for investigated landholdings. It shows that spatial diffusion of plots of one landholding would be reduced. The average distance from the gravity centre of landholdings to the fields would reduce in interval 1.5 to 1.7 as a result of more compact landholdings.

Key words: land fragmentation, Januszewski index, Schmook index, land exchange.

JEL code: R14

Introduction

The problem faced by many countries in the world, including Estonia, is land fragmentation. Fragmentation is the main problem in rural areas, where land use is poorly organized, and does not take into account the spatial characteristics of the land (Andersson L. and Sundqvist P., 2006; Demetriou D. et al., 2013; Boliari N., 2013). This has led to a situation in which one household consists of several spatially separated plots (Wan G. H. and Cheng E. J., 2001; Hristov J., 2009; You L., 2010). The main problems of land fragmentation are the spatial dispersion of parcels, small and irregular parcels, and lack of access (Lusho S. and Papa D., 1998; Dijk T., 2003; Bizimana C. et al., 2004).

It is said that negative effect of land fragmentation is also decline in productivity (Blakie P. M. and Sadeque S. Z., 2000). Therefore, different surveys are held in many countries which analyse the influence of fragmentation on productivity and connected expenses (Bizimana C. et

⁺ Corresponding author. Tel.: +372 731 31 26; fax: + 372 731 31 56.
E-mail address: Kristiin.Sikk@emu.ee.

al., 2004; Rahman S. and Rahman M., 2009; Tan S. et al., 2010; Falco S. et al., 2010; Austin O. C. et al., 2010; Tan S. et al., 2012; Abdollahzadeh G. et al., 2012). The studies have shown that fragmentation has a negative impact on agricultural productivity, and the distance between the plots and the distance between the households increase production costs. The main source of expenses is the cost of fuel, cost of machinery and labour. Transportation cost mostly depends on average distance between agricultural parcels, machinery and crops (Jabarin A. S. and Epplin F. M., 1994).

Estonia is considered to have a comprehensive land fragmentation due to Land Reform. In the Baltic States, the objective of Land Reform was to restore the ownership like it was before the World War II which meant that large entities were divided into small land units (Mathijs E. and Swinnen J. F. M., 1997). The main disturbing circumstances of using agricultural land in Estonia are small land units and their non-compact shape; land units which belong to one real estate are spatially diffused; there is a lack of access and the borders of land units and natural borders do not match (Maasikamäe S., 2006). That causes interior fragmentation. These problems indicate to the need for the land consolidation.

The aim of this paper is to evaluate the extent of land fragmentation of the large landholdings. The topic is important because the land fragmentation issues in Estonia are not studied much. Correct and actual information about spatial properties of landholdings is needed for making land use decisions. Analyse of current situation is an important part of that information. Research tasks are: a) to evaluate land fragmentation of large landholdings' by calculation of Januszewski and Schmook indexes; b) to conduct a detailed survey of landholding of three agricultural producers as a case study; c) to research how the exchange of land plots improves the land use conditions of large landholdings.

Materials and methods

Data for the study were obtained from Estonian Agricultural Registers and Information Board (ARIB). Among other tasks Estonian Agricultural Registers and Information Board are responsible for delivery of national and the EU subsidies. The digital map of borders of fields on what the subsidy was applied for in 2014 was used for the study. The map covers applied for subsidies areas all over Estonia. The applied by one person (farmer, legal entity etc.) area for subsidies was considered as one landholding in this study. No distinction was made between land in ownership and leasehold land.

The study consists of three steps: firstly, to evaluate the land fragmentation of large landholdings; secondly, to calculate the average distance from the gravity centres of landholdings to the parcels and third step is to analyse actual land use of three landholdings. The study of possibilities to improve the land use conditions by exchange of land among those land users is a part of the third step. Spatial characteristics of landholdings were analysed with the GIS software ArcGIS and MapInfo.

The study was carried out among large Estonian landholdings. The landholding was considered to be large if the total area of application for subsidies was 400 hectares or more. The selection criterion was based on the summary report of farmers' economic indicators of 2013 (Aamissepp et al., 2014). In order to make this selection was calculated the total area of each landholding. The land uses that met the mentioned above criteria of size were selected for the study. 483 landholdings were responded to these conditions. The Summary Statistics tool in ArcMap was used to complete the task. The area of selected landholdings ranged between 400 and 5575 hectares.

The next task was to evaluate the land fragmentation. For that purpose were calculated the Januszewski index and the reciprocal of Schmook index. In further text the reciprocal of Schmook index is called just Schmook index. The Januszewski's index takes into account the division of land into pieces (the number pieces and their area). The Schmook's index reflects the spatial dispersion of land. The Januszewski's index is calculated by dividing the square root of the total area of the land property to the square root of the sum of the areas of the land parcels. Equation 1 shows the formula for calculation the Januszewski index.

$$K_j = \frac{\sqrt{S}}{\sum \sqrt{s_i}} \quad (1)$$

where

K_j is the Januszewski index;

S is the total area of the landholding;

s_i is the area of i -th parcel.

The Januszewski index is one if the landholding consists of only one plot of land and the index value approximates zero as the number of parcels per landholding grows. The Schmook index is equal also to one if the landholding consists of a single compact unit of land. The value of Schmook index will decrease if the parcels of one landholding are more scattered and the distances between them increases. In case of a very scattered landholding the Schmook index will approximate to zero. Equation 2 shows the formula for calculation the Schmook's index.

$$k = \frac{\sum s_i}{S} \quad (2)$$

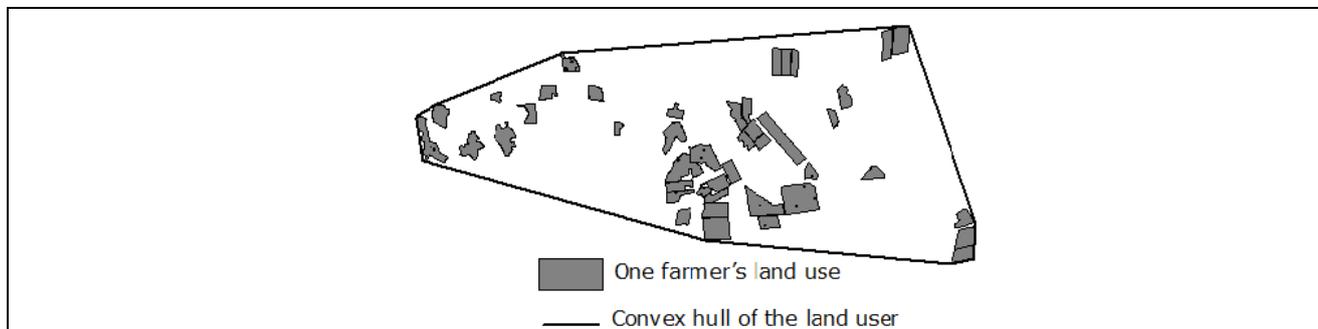
where

k is Schmook index;

S is the imaginary polygon drawn around the area of land parcels (convex hull);

s_i is the area of i -th parcel.

Preliminary work for calculation the Schmook index was to found the area of imaginary polygon (S) surrounding the land parcels of one landholding. In order to do that the Minimum Bounding Geometry tool was used in ArcGIS. The convex polygon was created for each landholding using the command Convex Hull in ArcGIS and then the area for each constructed polygon was calculated. Figure 1 illustrates the convex hull for one landholding.

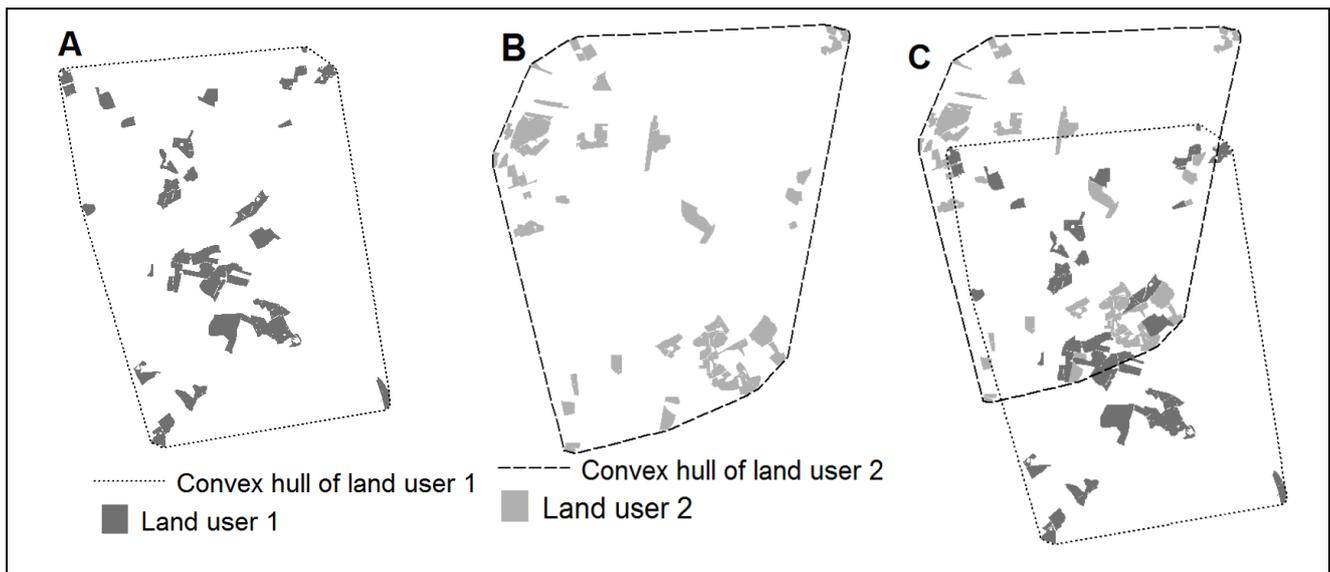


Source: author's construction

Fig 1. **Land parcels of one landholding and surrounding convex hull for it**

The third task was to identify the average distance of used lands of one landholding from its centre of gravity. For that purpose the centres of gravity for all landholdings were calculated by using the Mean Centre tool in ArcGIS. The Pythagoras's formula was used to calculate the distances between the gravity centre and the parcels for each landholding. Then the average distance was calculated from the centre of gravity to the land parcels for each landholding. Based on calculated values was compiled the summary table which contain Januszewski and Schmook indexes, average field sizes and average distance to the centre of the gravity for all investigated landholdings.

The second part of the study focuses on the three large landholdings that located adjacently and their land use regions overlap. Figure 2 shows as example of overlapping two adjacent landholdings. Part A and part B of Figure 1 show land parcels of land user 1 and land user 2 with the surrounding convex hull for them. Part C of the Figure 2 shows real overlapping of two landholdings.



Source: author's construction

Fig 2. **Example of overlapping two land uses**

Figure 2 describes the undesirable situation if the parcels of one landholding are located in between of the parcels of other landholding. Using visual survey, were found out three landholdings that had gravity centres locating relatively close to each other and the parcels of those landholdings were locating between each other. Then the hypothetical land exchange was constructed with the aim to have the parcels of the landholdings to be less scattered. For every landholding the Januszewski and Schmook indexes and the average distances were calculated from the centre of gravity to the parcels before and after the exchange land. The comparison of fragmentation and average distances before and after the exchange of land allows assessing the possible effect of land exchange in order to improve the land use conditions.

Research results and discussion

The area of investigated landholdings varies between 400 – 5575 hectares with the total area of 432328.23 hectares of arable land. The main characteristics of land fragmentation are presented in Table 1. The presented data referred to the high fragmentation of investigated landholdings.

Table 1

Average values of Januszewski and Schmook's indexes, average field sizes and average distance to the centre of the gravity

Indicator	Average	Minimum	Maximum
Januszewski index	0.1486	0.0650	0.6534
Schmook's index	0.1052	0.0002	0.7024
Field size (ha)	13.8531	3.1174	197.6033
Distance of the centre of gravity (km)	6.3265	1.0358	91.2144

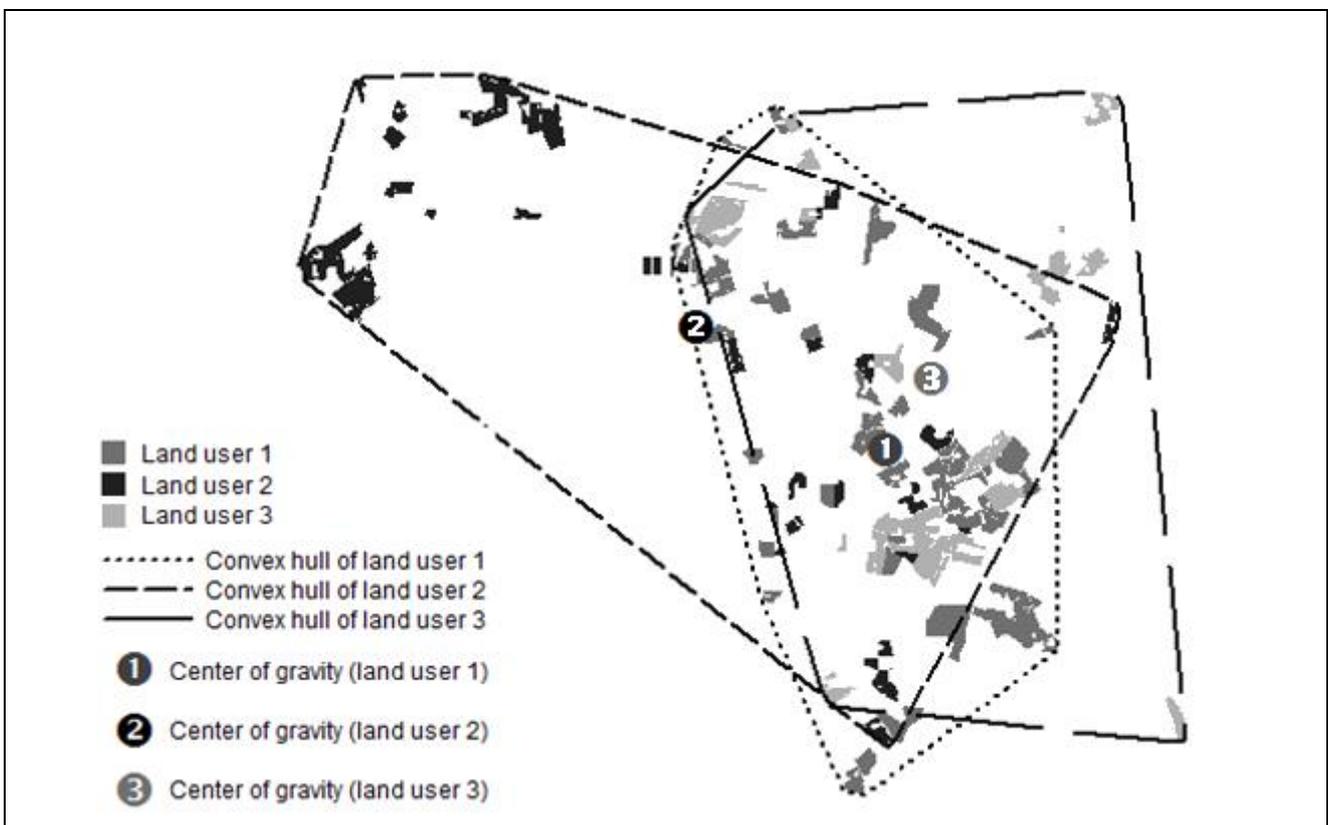
Source: author's calculations based on the author's study

The average value of Januszewski index (0.1486) indicates that investigated landholdings consisted of many parcels. The Januszewski index for the landholding consisting of 40 equal parcels is 0.158. The comparison of minimum and maximum values of Januszewski's indexes shows a high variety of land fragmentation among large landholdings. The difference between minimum and maximum values of Januszewski's indexes is about 10 times.

Schmook index in Table 1 reflects the high spatial isolation and scattering of investigated landholdings parcels. The average Schmook index value (0.1052) means that land users operated on the territory were only 10 per cent of land is used by them. The difference between minimum and maximum values of the Schmook index is very high (more than 3000 time).

The average field size is approximately 14 hectares while the maximum parcel is about 63 times bigger than the smallest parcel. One can see also the big differences between distances from gravity centre to the parcels. The average distance from the gravity centre to the parcels is about 6.3 kilometres while the difference between minimum and maximum distances is about 90 times.

The results of detailed study of three landholdings are presented in the Figures 3 and 4 and in Tables 2 and 3. Figure 3 shows the existing pattern of land use of the investigated landholdings. The landholdings are overlapping and the land use 2 is highly stretched. Almost all parcels of the land user 1 locate between the parcels of the land user 3.



Source: author's construction

Fig 3. Actual location of parcels of users 1, user 2 and user 3

The data of Table 2 (Januszewski and Schmook indexes) describes the spatial properties of actual landholdings. The Januszewski index for all landholdings is similar to the average value (Table 1). The Schmook index of first landholding (land user 1) is also close to the average value in Table 1. The Schmook index of other landholdings (land user 2 and land user 3) is two times less than the average. The average field size of investigated landholdings in Table 2 is similar to the same indicator in Table 1.

Table 2

Spatial properties of three land holdings before the possible land exchange

Indicator	Land user 1	Land user 2	Land user 3
Number of parcels	71	54	37
Total area of land use (ha)	1064.67	668.24	673.63
Januszewski index	0.13	0.15	0.18
Schmook's index	0.11	0.04	0.05
Average field size (ha)	15.00	12.37	18.21
Average distance from the gravity centre to parcels (km)	3.94	6.35	5.22

Source: author's calculations based on the author's study

Figure 4 shows the possible rearrangement of the landholdings spatial structure in the result of land exchange. The parcels of all landholdings are less scattered than before land exchange. The aim of the land exchange was to have the parcels of one landholding as close to each other as possible. The result has been achieved mainly by simple swap of parcels among landholdings. There was not made readjustment of parcel boundaries. The data in Table 3 describe the spatial properties of investigated landholdings after the possible rearrangements.



Source: author's construction

Fig 4. **Hypothetical location of parcels of user 1, user 2 and user 3 after land exchange**

The decrease of spatial scattering of parcels and the decrease of average distance from gravity centre to the parcels of landholdings are the most important results of the possible land exchange. The comparison of Table 2 and Table 3 shows that the Schmook index increases for the land user 1 about 1.5 times, for land user 2 about 2.75 times and for land user 3 about 2.2 times. The average distance from gravity centre to the parcels of landholdings decreases at least 1.5 times (land user 1) and for land user 2 this figure is bigger 1.7 times. The Januszewski indexes did not change in the result of land exchange considerably. For land user 1 the Januszewski index remains the same. This is essential because the total number of parcels and total area do not change.

Spatial properties of three land holdings after the possible land exchange

Indicator	Land user 1	Land user 2	Land user 3
Number of parcels	71	46	45
Total area of land use (ha)	1068.51	662.80	675.23
Januszewski index	0.13	0.17	0.16
Schmook index	0.17	0.11	0.11
Average field size (ha)	15.00	14.41	15.00
Average distance from the gravity centre to parcels (km)	2.62	3.73	3.35

Source: author's calculations based on the author's study

The high fragmentation and the spatial scattering of landholdings refer to the need to improve the spatial structure of landholdings. The study of three adjacent landholdings showed clearly that there are good possibilities to improve the landholdings spatial structure.

FAO (2002) has carried out similar studies on fragmentation of landholdings in Central and Eastern Europe countries, e. g. Bulgaria, Czech Republic, Hungary and Romania. Purpose of the studies was to analyse and to evaluate the impact of fragmentation on land cultivation conditions. According to this study the following land use characteristics can be named: most parcels are very small and spatially dispersed; the size of parcels are typically less than 5 hectares; the parcels are often located far from each other, sometimes even up to 20 kilometres; parcels may be located in the different administrative units and parcels are divided among several owners. In general, small and dispersed plots reduce the efficiency of agricultural production and increase the fuel consumption. The land consolidation is an option to combat land fragmentation. Land consolidation is an important tool for rural development in many European countries, for example Germany, Netherlands, Belgium, France, Luxembourg, Austria, Switzerland, Finland, Norway and Sweden (Vitikainen A., 2004).

This study focuses only on few aspects of the large problem: spatial properties of agricultural landholdings. The question is not only about large landholdings. The investigation of other landholdings is important also in order to get more complex picture about the land use patterns. There is a clear need for continuation of the investigations about spatial properties of landholdings.

Conclusions

1. In this study it is found out that the large landholdings are considerably fragmented. The average value of the Januszewski index for large landholdings is 0.1486.
2. Parcels used by large landholdings are scattered in the space. The average value of the Schmook's index is 0.1052.

3. The land use regions of adjacent landholdings overlap and the parcels they use locate between each other. The overlap of the large landholdings land use regions indicate to the possibilities to improve the landholdings spatial structure.
4. The simple exchange of parcels between adjacent landholdings can reduce the spatial scattering of parcels. The reduction of spatial scattering of parcels of one landholding will reduce the average distance between gravity centre and parcels of that landholding.
5. In order to improve the land use condition the land consolidation activities must be introduced in Estonia.
6. There is clear need for deeper study of spatial properties of Estonian agricultural landholdings. The European countries experiences of land consolidation must be implemented in Estonia.

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ROLE OF PERFORMANCE INDICATORS IN POLICY DEVELOPMENT

Iveta Reinholde¹, Dr.sc.pol., associate professor⁺

¹ University of Latvia, Faculty of Social Sciences

Abstract. More than ten years ago, the system of performance indicators was established in Latvia. During this time the policy makers noticed that they lack a clear approach and guidelines for defining indicators. The idea to bind together performance indicators and public budgeting also failed. Therefore, it is important to see general progress regarding the application of performance indicators for policy development. The aim of the article is to provide an in-depth analysis of problems related to performance indicators and their application in policy development in Latvia. By analysing 46 white papers¹ being into force since December 1, 2014, the author identified major tendencies regarding performance measurement in Latvia. The selected white papers were researched in the following aspects – whether they apply composite index, the established performance measurement system is followed, and if the regional dimension is included in the white papers. The author concludes that the current white papers do not reflect the use of indicators for selecting policy strategies or monitoring policies. Instead, the current white papers are mostly designed to resolve narrow and very specific policy problems; and white papers also lack cross-sectorial coordination, both within one policy field as well as in a wider perspective.

Key words: policy, indicators, performance measurement, public administration

JEL code: D78

Introduction

More than ten years ago, the system of performance indicators was established in Latvia; it was inspired by ideas of the New Public Management (further on – NPM) advocating economy, effectiveness and efficiency as the key public sector values. During this time the policy makers noticed that they lack clear approach and guidelines for defining indicators. Each ministry tried to set up indicators based on their understanding, available capacity and their own vision of policy development. However, instead of complex indicators reflecting long term changes in

⁺ Corresponding author. Tel.: +371 29127742
E-mail address: iveta.reinholde@lu.lv

¹ In this article translation „a white paper” is used for the Latvian term „pamatnostādnes”. In some sources, „pamatnostādnes” is being translated as „guidelines”. The white papers are mid-term policy documents.

policy, civil servants preferred to use simple output measures. The idea to bind together performance indicators and public budgeting also failed. Therefore, it is important to see general progress regarding the application of performance indicators for policy development.

The aim of the article is to provide an in-depth analysis of problems related to performance indicators and application in policy development in Latvia. Since there is a large number of policy documents designed in Latvia, the author will analyse only white papers being into force since December 1, 2014. The analysis will cover 46 white papers in 18 policy fields. The main criteria for qualitative analyses of the white papers was, first of all, whether the respective white papers follow the general system of performance indicators established in Latvia. There was a special white paper designed for establishing the general system of performance measures in 2008 (*Rezultātu un rezultatīvo rādītāju sistēmas pamatnostādnes, 2008*). Secondly, do any indexes, as a complex set of indicators, are applied in the white papers to measure policy progress? The key issues are to find out how policy makers measure the achieved progress over a particular period of time. This is very important, since there was an idea to use performance indicators in both: evaluating policies and policy actions as well as the budgetary allocation to keep off incremental budgeting process. Finally, the third criteria – is the regional dimension included in the white papers and how policy makers perceive the projection of certain national problems in the regional perspective or vice versa.

Research results and discussion

Benefits of indicators

Public sector performance, reporting and accountability have been widely applied and debated over the last two decades as a part of NPM inspired administrative reforms striving to change the public sector (Barzelay, 2001, Hood et al., 2004). Van Thiels and Leeuw (Van Thiels et al., 2002) argued measurement of outputs and outcomes are on the top of the priority list for NPM, assuming that the indicators provide relevant information for policy implementation. However, NPM gradually transformed into more detailed theoretical concepts as New Public Governance, putting public service approach in the first place (Osborne et al., 2013). Osborne, Radnor and Nasi (Osborne et al. 2013, p.141-142) pointed out that public service delivery, in the environment with multiple stakeholders, is providing shift in the inter-organisational cooperation, where the organisational structure, budgeting and performance management of public sector organisations should be looked upon as a part of strategic orientation. Therefore, performance measurements with simple indicators transform into a complex system of measurements where indicators should provide both: direction for development as well as basis for monitoring and accounting.

At the same time, Galera and Bolivar (2011, p.611) claimed that NPM ideas in transitional economies would certainly be perceived differently as it was in Western Europe during the 1990s. The differences in perceptions are related to such issues as accountability and efficiency. These are not just normative values to be included in the laws. These are core

values for the public sector, recognised by Max Weber (1958). Verheijen and Dobrolyubova (Verheijen et al., 2007) debated that the success of performance management system is based on openness where its reports contain indicators on policy, and organisational evaluation is available for public scrutiny. In fact, performance management and indicators is the way to ensure effectiveness of public spending, thus, providing added value for taxpayers' money. Therefore, performance measurement is a modernised version of Weber's ideas of efficiency. Walker (2008) pointed out that governments have a tendency to focus on short term problems, thus, indicators help to identify long-term problems, avoid extra spending and unnecessary regulations.

Gurria discussed (2008) that those countries having a reliable system of performance indicators have more information on their resources, limitations, their directions and actions necessary for achieving objectives. Thus, according to Gurria (2008) measuring progress is a key instrument for policy process. The Organisation of Economic Cooperation and Development (further on - OECD)(OECD, 2012) claimed that the development of indicators requires substantial institutional capacity and resources. At the same time, the indicators for one policy field could not be developed in isolation from other policy fields, since there are no strict borders among policies. On the contrary, policies are in constant conditions of joint interactions. Thus, stakeholders might be interested in understanding the relationship among progress in different policy fields (OECD, 2012).

Policy monitoring provides cross-sectorial coordination and inter-dependability of policies (OECD, 2012). Indicators not only show implementation deviations, but also an extent to which policy objectives have been achieved. Thus, information provided by indicators and system of performance measurement becomes an important aspect of multi-level governance to ensure the stakeholders' interaction, joint efforts and evidence for decision making. At the same, performance management with a core idea of measuring policy progress is still facing many problems in practice, leading to unintended consequences or even a negative impact of performance (Van Thiels et al, 2002).

Performance indicators are necessary to provide information for stakeholders in the complex multi-governance and networking system where multiple stakeholders might be involved in different policies as well as in different stages of a policy cycle. At the same time, the OECD had pointed out two challenges dealing with indicators. According to the OECD (2009) the first challenge is related to the vertical dimension where agents of different levels should receive identical information for decision making. Therefore, indicators help to reduce information gaps among actors at a local, regional and national level. This will ensure that stakeholders operate with the same information, therefore they are able to coordinate their actions in a multi-level governance. The second challenge deals with the horizontal perspective. Based on the OECD (2009) at the horizontal level, there are networks of actors, thus indicators provide information for the members of networks on policy objectives and their progress. The horizontal level also includes interaction among policies.

In the interval, performance indicators will be analysed in the context of the policy cycle or certain steps on how problems are transformed into policies and policy actions. So, Dunn (2007) proposes seven steps in the policy cycle where it starts with agenda setting. The agenda setting stage (the first stage) is characterised by multiple issues competing for the attention of the government and society. However, not all of them are able to go through filters where multiple issues are competing even harder. Issue filtration (the second stage) separates them in many streams by various factors where the most popular are government capacity to cope with an issue, electoral preferences, pressure of interest groups, and expected events (Dunn, 2004). All these factors make some sort of range for issues to be resolved in short run, long term or never. The third stage sets alternatives designed as a solution for the problem. In fact, this stage is very important, since the collection of data to understand the problems, solution, and prior analyses provide background for decisions. All kind of information and indicators collected during this stage are relevant for all stakeholders and help to overcome the first challenges mentioned by the OECD. Information and data collect on alternatives are crucial to make an ex-ante evaluation (the fifth stage) and to choose the most appropriate alternative. Once the decisions (the sixth stage) are made, indicators and all kind of data play a vital role in the implementation of monitoring to see whether the actions are tailored to achieve objectives and if there will be some deviations. Finally, after a certain period of time, ex-post evaluation (the final, seventh stage of the policy cycle) is compulsory to make an overall view on the progress in the policy fields and to see whether the actions taken have improved the conditions in comparison to those before a particular policy programme (Dunn, 2004).

However, one can structure all benefits, produced by the indicators, in several groups. First of all, these indicators help to select policy strategies (OECD, 2009). Indicators and all kind of data related to policy provide evaluation of the designed and selected alternatives. Therefore, before making decisions, policy makers can provide ex-ante evaluation in order to choose an alternative that fits the criteria of efficiency, effectiveness and public expenditures (Christensen et al, 2003). To put it in a simple way – good information substantially decreases the proportionality of quick, politically-driven decisions. Secondly, indicators provide information for monitoring policy results and identification of policy deviations. Finally, indicators provide essential information for setting an accountability system for results achieved (OECD, 2009).

Performance indicators in Latvia

Latvia started its way for performance management more than 10 years ago by approving the regulation at the government. More in details, the system of performance indicators was defined in the White Paper on Development of Policy Planning System (further on – the White Paper on Planning System). In fact, the White paper has two functions – to describe the policy planning cycle and provide some sort of formula on how to take into account the complex

external and internal factors for developing policies. At the same time, the White Paper on Planning System also stated the main problems inherited in the public administration. These problems are related to a lack of indicators to measure policy progress. The White paper on planning system (*Politikas plānošanas sistēmas attīstības pamatnostādnes, 2006, p.11*) expressed: *there is no unified system of indicators and criteria integrated into statistical programmes and providing evidence-based and updated information on development of policy sectors and the country in general.* Therefore, policy makers recognised (*Politikas plānošanas sistēmas attīstības pamatnostādnes, 2006*) that all policy fields apply their own unique approach for measuring progress, if applied at all. Since policy sectors use different indicators and approaches, it is almost impossible to measure progress in the cross-sectorial perspectives. To conclude, policy makers have either limited or no information at all to answer the main question: "What are the tendencies for development in our particular field?"

At the same time, another white paper was developed – the White Paper on System of Performance Measures 2008-2013 (further on – the White Paper on Performance Measures). This White Paper helped to recognise that application of performance indicators in Latvian public administration was complicated, chaotic and challenging (*Rezultātu un rezultatīvo rādītāju sistēmas pamatnostādnes, 2008, p. 6*). In addition, the White Paper on Performance Measures emphasised that there are different approaches define indicators even within frameworks of one ministry. Thus, the indicators defined could not be combined into complex indexes nor one generic system showing progress of the particular policy field. The next relevant problem reflected in the White Paper on Performance Measures deals with the complexity of selected indicators which require public agencies to establish a sophisticated approach for data gathering and analysis (*Rezultātu un rezultatīvo rādītāju sistēmas pamatnostādnes, 2008., p.7*). In reality, public agencies are not ready to invest resources for maintaining complex and composite indicators. Instead, public agencies prefer to have it simple, - easy-to-acquire and easy-to-analyse indicators, expressing more outputs of public agencies, not policy outcomes (*Rezultātu un rezultatīvo rādītāju sistēmas pamatnostādnes, 2008., p.7-8*).

How the ideal performance measurement system of Latvia should look like? The Law on Development Planning requires each development document to be designed according to the certain criteria. These criteria are as follows: the objectives and the results for the policy field will be defined; the problems shall be described along with alternatives proposed; the main actions will be determined (*Attīstības plānošanas sistēmas likums, 2008, Article 4*). In addition, the law requires to use statistical and qualitative data, to describe the volume of the problem, and the major trends in the policy field. The achieved results will be directly linked to the problems identified in the policy sector. Therefore, indicators become very important to measure whether the chosen directions had been right in terms of overcoming the problem.

The ideal system of performance indicators was set as follows. The White Paper on Performance Measures defines the main principles to be applied. These principles are –

indicators have to be precise, general in application, and easy to understand for wider public. They also have to evaluate the cost, benefits, and have to be applied for the measurement of progress (Rezultātu un rezultātīvo rādītāju sistēmas pamatnostādnes, 2008, p.7-8). In the process of developing the indicators, the public agencies are advised to follow a simple model where the first step is to define the objective, activities and financial resources necessary to achieve the objective. The next steps are: to define performance indicators, to achieve those indicators and to measure progress. At the same time, public agencies are obliged to accumulate and analyse data which is a part of monitoring over performance indicators. Finally, public agencies are obliged to re-evaluate indicators and correct them, if necessary. It is worth noting that the White Paper on Performance Measures clearly states that public administration bodies measure outputs more than outcomes. The particular white paper also developed different levels and types of indicators such as output quantity indicators and output quality indicators, policy outcome and efficiency indicators. Such approach follows all the ideas inherited in NPM. In practice, however, it required performance incentives which Latvia could not offer.

However, in reality, to make the whole system of performance indicators work, the public administration shall ensure consistency among different indicators set in the government declaration, policy planning documents and organisational strategies. Thus, the system covers incredible amount of documents. The data base (available at: www.polsis.mk.gov.lv) on policy planning documents includes 2458 documents as it was on December 23, 2014. Many of those documents have lost their force, but some have just been approved. For example, there are 138 action plans, 103 white papers, and 114 programmes in the data base. Such amount of documents requires considerable resources and capacity to follow internal correspondence of indicators, actions and policy outcomes.

Results of the analysis

The analysis covered 46 white papers in 18 policy fields. Indexes were included and applied only to 16 white papers. Accordingly, only in one third of all white papers measurement of progress was foreseen by some composite indicators. The most popular measures mentioned in the white paper were: Latvia's place in the "Doing Business" rating, the World Bank government effectiveness index, consumer price index, the Global Competitiveness index, at risk of poverty rate. There are also a list of measures applied only for certain policies such as: Dow Jones index, Herfindahl index, the Heritage Foundation Index of Economic Freedom, Environmental performance index, Body mass index, Tourism Competitiveness Index, and Territory development index. The rest of the white papers have simple output indicators reflecting only actions and efforts of particular organisational units.

The cross-sectorial connections and coordination foreseen in the white papers are also an issue for research. However, the policy makers prefer to mention policy field, which the particular white paper may impact, but do not discover details in scope and volume of the

impact. In addition, there are policies that have more than one white paper. For example, public administration policy includes three white papers. The White Paper on Planning System and the White Paper on Development of Information Society assume that the World Bank government effectiveness index would be an excellent measure for improvements in these two fields. At the same time, the White Paper on Performance Measures do not have any composite measure: so there is an open question – how to measure the progress achieved regarding the use and application of measures and indicators. The policy makers assumed: if 50% of all policy documents by 2013 will have indicators for measuring outcomes, then it would be a successfully implemented policy (Rezultātu un rezultatīvo rādītāju sistēmas pamatnostādnes, 2008, p. 30). The author found out that 85% of all white papers being into force (out of 46) have set indicators per se including the composite indexes mentioned above. According to the White Paper on Performance Measures, the more indicators policy documents would have, the more informational support would be provided for decision making (Rezultātu un rezultatīvo rādītāju sistēmas pamatnostādnes, 2008, p. 30). However, there is a need to conduct an additional research in order to see to what extent these indicators really provide support in the policy process.

By analysing the white papers, the author discovered a strong tendency – each white paper reflects issues very narrowly, only from the perspective of the respective policy. Even several white papers designed within one policy might have used statistical data in a very narrow focus. There is lack of coordination among different policy makers regarding the incentives in the particular policy. Thus, very narrow focus, specific problems, and lack of cross-sectorial approach results into fragmented policy making process where it is hard to both coordinate incentives to achieve some wider objective and measure progress. This approved the finding stated in the White paper on performance indicators that policy makers lack understanding of the role of performance indicators in policy process (Rezultātu un rezultatīvo rādītāju sistēmas pamatnostādnes, 2008, p.7).

Finally, the author analysed regional dimension included in the white papers – to what extent national and regional level of governance has been perceived as a part of unified system. Data revealed that 65% (or 30) of analysed white papers have either tasks to be implemented at the regional level or data reflecting some problems from regional perspective. eleven of the thirty white papers had defined only tasks and detailed activities to be implemented at the regional level, while sixteen have included data and some activities. However, amount of details regarding data and activities differs. There are white papers with extended and detailed analysis of the policy fields from the perspective of all regions including comparisons among them (e.g. the White paper on Transport Development or the White Paper on Development of Social Services). There are also white papers that have narrow and very specific data regarding regional dimensions in one perspective only. There is also an interesting tendency – there are white papers with regional dimension and also without regional dimension within one policy field. Since ministries are the main authors of all white

papers, this leads to conclusion that even within one ministry civil servants have different level of understanding the necessity of indicators for policy development. Finally, some of the white papers were bureaucratic in their approach to regions by stating that all issues regarding regional policy can be found in the White Paper on Regional Policy.

Jones (2000, p.24) pointed out the main shortcoming related to performance management such as problems in measurement and attribution as well as lack of balance among different types of indicators. These problems can be identified in Latvia as well. Public agencies prefer to state outputs more than outcomes or any other indicator. For example, number of training, number of trainees, and number of letters are quite popular outputs. However, letters or training might differ in their lengths and substance, but bureaucratic logic say to state more letters/training courses, not the changes expressed in those actions that would be more important. Public agencies often define indicators without critical evaluation to what extent these indicators can be attribute to the particular agency, policy or a problem. For example, information campaign is important policy tool, but it could not substitute impact assessment of amendments to laws and changes in citizens behaviour related to corruption or public health issues.

Conclusions

The article was aimed to analyse role of performance indicators in policy development in Latvia. The number of white papers (46) and number of policies (18) included in the analysis show the general tendency – the current white papers are mostly designed to resolve isolated, narrow and very specific policy problems, and there is lack of cross-sectorial coordination among white papers of one policy as well as in wider perspective. In the long term, such approach does not provide the necessary background and capacity for developing “government-as-whole” policies. Therefore, fragmented policy development still continues administrative traditions where each ministry fights for budgetary increase, while, in general, public sector is overspending as it was noticed by Sir R.Mountfield in Latvia (Mountfield, 2000).

The general tendency on the white papers shows that all ministries try to follow the system of performance measurement by developing policy documents. However, white papers do not reflect the use of indicators for selecting policy strategies or monitoring policies. Ministries prefer to apply either internationally recognised and complex indexes or simple performance indicators which reflect the outputs achieved by institutional units, thus, avoiding reveal policy outcomes. Achieving policy outcomes require many organisational units to coordinate efforts, and sometimes it is even difficult to distinguish, which organisation invested more and which less. While outputs can be achieved within one organisation, it is easy to create a link between budget allocations and outputs. At the same time, it is necessary to set performance criteria for each particular organisation (Pastuszkova et al., 2011).

The white papers do not reflect the use of indicators for selecting policy strategies or monitoring policies. Moreover, white papers reveal overconfidence of policy makers assuming

that written policy documents automatically will ensure almost perfect policy implementation (Hood et al., 2004, p. 277). The Latvian case is not an exception. At the same time the government has expressed its will to measure progress by developing system of indicators, while implementation is still pending due to many factors where institutional capacity remains the relevant one.

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INDICATORS OF REGIONAL ENTREPRENEURIAL POTENTIAL

Sarmite Rozentale¹, Dr.oec, Associate Professor; **Agita Livina**¹, Dr.oec, Associate Professor;

¹ Institute of Social, Economic and Humanities Research of Vidzeme University of Applied Sciences

Abstract.

One of the intangible resources influencing successful and sustainable entrepreneurship is entrepreneurial potential. The primary **objective** of this study was to justify capital theory approach for selection of regional entrepreneurial potential indicators. The secondary objective was to analyze the achieved results and on the basis of in-depth interviews elaborate an indicator set that would suit as a regional entrepreneurship potential descriptor.

Methods: This research used: 1) focus-group interviews with seven operators in Madona counties, the people who had developed a business, or participated in the preparation of project applications for the EU LEADER programme during the period of 2009-2013, 2) statistical analysis of the data.

Results: The authors have used capital approach, including economic capital, human capital, social capital, culture capital and quality living environment capital. Each capital has a set of characteristic indicators which may serve as descriptors of the regional entrepreneurial potential for further research as well as a governance tool. Some of these indicators are individual: family situation, education, age, personality traits. Other indicators are contextual in nature, for instance, living environment, culture, resource availability to ensure business.

Key words: entrepreneurial potential, capital availability, quality living environment, entrepreneurial personality.

JEL code: R1

Introduction

Policy makers have always devoted considerable attention to the development of entrepreneurship with the help of the EU funds and support programmes, subsidy and credit programmes which mainly are material tools. Although economy undeniably is an important factor for regional development, the term 'economic development' in rural development studies is increasingly often substituted by the term 'rural space development' which includes a more integrated vision of the site sustainability – an understanding of 'a good life' which is the aim

⁺ Corresponding author. Tel.: + 371 29485435;
E-mail address: sarmite.rozentale@va.lv

of human cohabitation. To make the material tools achieve the desired result and have a lasting impact, a combination and interaction of tangible and intangible resources is necessary. One of the intangible resources influencing successful and sustainable entrepreneurship is entrepreneurial potential. From June to October, 2014, the Institute of Social, Economic and Humanities Research of Vidzeme University of Applied Sciences carried out a research of the situation created by the LEADER projects in Madona, Varaklani, Cesvaine, Ergli and Lubana Counties of Latvia. The interview results are used for the National Programme EKOSOC_LV 5.2.3., a subproject for Latvian rural and regional development processes and opportunities in the context of the knowledge economy regarding development of rural areas and affecting indicators. On the basis of the previously completed research a hypothesis has been proposed that regional entrepreneurial sustainability depends on the entrepreneurial potential in the area. To test the hypothesis, initially it is necessary to define the indicators characterizing entrepreneurial potential of the area, then measure how these indicators affect the rural entrepreneurial sustainability (result). The aim of this research was, by using capital theory, to develop an indicator set characterizing the regional entrepreneurial potential. The objectives of the research were: 1) to justify capital theory approach for selection of regional entrepreneurial potential indicators; 2) on the basis of in-depth interviews to analyze the achieved results and elaborate an indicator set that would suit as a regional entrepreneurship potential descriptor and a management tool.

Capital theory approach for selection of regional entrepreneurial potential indicators

Some authors view entrepreneurship regardless of existing resources (Stevenson Robert Grousbeck, 1989), and the entrepreneurs taking the opportunity are viewed separately. The entrepreneurship does not happen in vacuum. It is affected by deeply rooted cultural and social traditions (Reynolds, 1992). It leads to the conclusion that the group may have an entrepreneurial potential. Environment should not necessarily be rich in entrepreneurs, however, it may have a potential to enhance entrepreneurial activity. This type of a potential characterizes economically self-generating communities and organizations. Maintenance of this potential in the long-term is far more important than enumeration of newly created workplaces or newly established businesses (Shapero,1981). Entrepreneurship is a quality of an entrepreneur determining the ability and the courage to do business, and readiness to take respective risks, mainly financial ones. Many economists consider this as one of the manufacturing factors alongside earth, labour force and capital (Glossary of EU Terms, 2004). Is the entrepreneurial potential an economic category? On the one hand, it is a quality, which is a sociological or psychological category, however, this quality is applicable when resources (capital) are available to the individual, thus, it is an economic category. Consequently, the spheres are inextricably linked, yet such an approach makes it difficult to study the issue with the help of mathematical models, based on the supposition that that people are rational as it

allows to simplify the calculations. The conventional view of success is based upon the economic growth which is understood as a profit increase and the GDP increase, however, it ignores entrepreneurship as a possibility of self-expression and the social objectives. This refers to the term 'rural entrepreneurship', and one must admit that Professor A.Cimdina is right that 'neither 'countryside', nor 'country people' or 'townspeople' are unambiguous, always tangible and easily measurable values. Rather they are thinking categories or tools encompassing interaction of ideals and material aspects, subjective and objective capacities, observations, considerations and actions.."(A.Cimdina, I.Raubisko, 2012). Professor Stephan Mueller attaches great importance to culture as a creator of business opportunities. He maintains that support to national culture increases the national entrepreneurship potential. This proves that in addition to support from the political, social and business leaders, it is essential to have supporting culture developing the mind and character of the potential entrepreneur. To find motivation to act, the potential entrepreneur should perceive oneself as able and psychologically prepared to meet the challenges of globalization and market competition. Business education in this respect may play an important role by offering not only technical means (like accounting, marketing, finance etc.) but also by helping redirect people to self-reliance, independence, creativity and flexible thinking (S. Mueller, S. Anisya, 2001). To combine both economic, sociological and psychological aspects in the indicator set , capital approach was chosen for this research. The inspiration to apply the capital theory for illustration of entrepreneurship came from the French sociologist Pierre Bourdieu (1930-2002) and the American sociologist James Samuel Coleman (1926-1995). The general theory of the economy of practices assumes that people perpetually transform tangible and intangible forms of capital according to certain 'laws of conversion' (P. Bourdieu, 1986). Bourdieu has used two approaches for studying social reality. The first approach is structuralism which is viewed by the author as the principle of double structuring of social reality: a) within the social world there are objective structures independent of the consciousness and will of people, capable to stimulate various human activities and social orientations; b) structures are formed by social practices of agents. The second approach is constructivism which is based on the cognition that the human activity is determined by life experience, socialization process and the acquired ability to behave in different ways, in total they form peculiar matrices of social activity, thus, constituting the social agent in his true role as the practical operator of the construction of objects (P.Bourdieu,1987). People's access to capital is uneven which affects the essence of their social activities. Agents' action is largely dependent on the resources they possess. In order to define the resources that are at the disposal of the agents, Bourdieu introduces the notion 'capital'. According to Bourdieu, the agents who differ in the available volume of capital determine the space structure (e.g. the structure of economic space) in proportion to their specific weight which depends on the specific weight of other agents. Capital becomes 'the leading structure' allowing individuals and regions to achieve their objectives. The bigger the volume of capital, the more diversified they are, the easier for their owners it is to achieve

their objectives. In his work "Social Space" P. Bourdieu distinguishes four capital groups: economic, cultural, social, and symbolic capital (P. Bourdieu, 1993). Economic capital consists of material resources having direct economic effect, including money. Cultural capital comprises all resources having cultural value e.g. prestige of an educational institution of the graduate, demand on diplomas and certificates on the labour market as well as the cultural level of the individual. Social capital refers to resources related to belonging to a group, like, cooperation network on the basis of mutual trust and continuous interaction. Bourdieu regards social capital as a property of an individual, as a resource enhancing or limiting one's possibilities. A slightly different understanding of social capital is offered by an American sociologist James Samuel Coleman (1926-1995), who characterizes it as an aspect of social structure. It promotes individual or collective action based on mutual trust. So it becomes a resource of a social structure or a group, and not an individual resource as it is defined by P. Bourdieu. The individual's benefit depends on how the resource is applied. The social structure may be an organization, a society, a family. In his work "Social Capital in the Creation of Human Capital" James Coleman endeavours to combine the grounds of the economic (rational) and sociological (context meanings). He treats social capital as the binder (glue) between micro and macro levels. On the micro level social capital is a resource of an individual but on the macro level it depicts the structure quality. In his research "Coleman Report" J. Coleman uses the social capital concept to explore factors influencing students' academic achievements. In this research he comes to the conclusion that the students' academic achievements are mostly influenced by social environment of the school and the family, and the students' feelings in the environment rather than financial investments in the school and its programmes. American politologist R. David Putnam has also focused on social capital issues (R.D. Putnam, 1993). According to his concept social capital has three component parts: moral obligations and norms, social commitments and social networks. Social capital can be measured by mutual trust in a community or between individuals. Symbolic capital is the one that legitimizes mediation between economic, cultural and social capital and makes these three resources socially effective. This capital exists only 'in the eyes of the others' and has an ideological function. Capital theory has been researched by Vladimir Menshikov, Professor of Daugavpils University of Latvia. He combines the various types of capital, which in essence are valuable resources, able to bring benefits to the individual, into one concept 'total capital', which in its turn combines the following types of capital: economic, cultural, human, social, administrative, political, symbolic, and physical capitals. V. Menshikov uses the concept of 'total capital' in research of economic-social process, e.g., impact of 'total capital' on labour migration (V. Menshikov, 2011). A group of researchers from Bocconi University in Italy also use capital approach for a cross-regional research. "We combine the cross-regional analysis of geographic, institutional, cultural, and human capital determinants of regional development with an examination of productivity in several thousand establishments located in these regions" (N. Gennaioli et al, 2011). On the basis of theoretical research the authors conclude

that the capital approach may be applied for analysis and management of a regional entrepreneurship potential. Within the framework of this research entrepreneurship potential is affected by the following types of capital: *economic capital, human capital, social capital, cultural capital, and quality life environment capital*. In the course of the research the indicators characterizing each capital form will be identified.

Methods

Case Study

Research area is located in Latvia, in Vidzeme region. At the beginning of 2014 the population in the research area was 35 689 or 1,75% of Latvian population, however, it should be noted that in four of the region counties (Lubana, Cesvaine, Ergli and Varaklani) the population is from 2500 to 3400 whereas Madona county alone accounts for 24 134 residents, which is twice as many as in all the other counties taken together. The area includes a town of regional development significance – Madona.

To select capital types and respective indicators characterizing the entrepreneurship potential of the region, the researchers conducted focus-group interviews with seven operators in Madona. Kalsnava, Laudona, Varaklani, Murmastiene, Cesvaine and Ergli (towns and villages in Vidzeme region); the researchers also carried out in-depth interviews with entrepreneurs clarifying the start-up time and conditions, generation of the business idea, its development, the acquired experience and expertise in the entrepreneurial sphere, requirements of the LEADER project activities, submitted projects, conditions of project rejections and termination and other specific entrepreneurship and LEADER project related conditions, project ideas and readiness for the next planning period of the LEADER project. All in all 45 in-depth semi-structured interviews with entrepreneurs took place (Services- 33 interviews, food production and processing in domestic conditions, incl. beekeeping- 12 interviews), 35 of these were face-to-face interviews and 10 telephone interviews. If any differences of opinion occurred, the researchers conducted fine-tuning interviews and telephone interviews or correspondence in order to clarify the issue under consideration. As the types of capital were defined, the interview questions were formulated so that the authors could find the indicators that leave the biggest impact on entrepreneurship potential of the area in each capital group.

In order to clarify the characteristics of social capital indicators, it was important to establish the impact of submitted projects by cooperatives, production organizations and associations on rural entrepreneurship. Five interviews were conducted with association project applicants. Social capital is characterized by cooperation between entrepreneurs and other organizations, thus, the researchers conducted focus-group interviews not only with entrepreneurs but also with representatives of non-governmental organizations (NGO) and analyzed group viewpoints in each county or parish territory concerning creation of new services, cooperation between local authorities and NGO, projects submitted by NGOs, project rejection conditions and other specific NGO conditions and project ideas. Altogether 33 in-

depth semi-structured interviews with NGO representatives were conducted, 27 of these were face-to-face interviews and six were telephone interviews. For a better study of the situation the researchers carried out a survey of heads of local governmental and parish authorities. The survey included the following issues 1) a question regarding understanding of quality life environment; 2) a question about achieving and implementation of strategic objectives; 3) a question of strategical operation priorities from the viewpoint of one's county/ parish situation. Thirty-nine individuals participated in the face-to-face survey. The information obtained in the interviews was analyzed using the case study method, logical constructive analysis and logical deductive method; as the result the indicators characterizing the space entrepreneurship potential were selected.

Analysis of statistical data

Overall, the entrepreneurial activity in the research area regarding counties may be characterized by the number of newly registered and closed companies within the period of 2009-2014. See Table 1

Table 1

Number of registered, shut down and active businesses in the research area in 2009-2014

No.	County	Reg.	Shut down	Shut down/ reg.	Active	Number of businesses per 100 popul.
1	Cesvaine	82	12	15%	192	7
2	Ergli	94	20	21%	222	7
3	Lubana	49	4	8%	116	5
4	Varaklani	74	10	14%	202	6
5	Madona	991	166	17%	2056	9
6	Total 5 counties	1290	212	16%	2788	8
7	Vidzeme	14915	2335	16%	15254	7

Source: authors' calculations, Republic of Latvia, Lursoft database, 2014

Table 1 shows that the largest number of newly registered businesses in 2009-2013 is in Madona county which is also the largest area by population. The smallest number of newly registered businesses is in Lubana county, the smallest area by population. Regional entrepreneurship potential is characterized by businesses per 100 population. This indicator is the highest in Madona county with 9 businesses per 100 population, which is more than the average in Vidzeme but the lowest is in Lubana county. Overall, there are more active enterprises per 100 population in the research area than in average in Vidzeme Region taken

together. The largest number of shut down businesses in relation to new businesses in this period is in Ergli county, namely 21%; but the smallest number is in Lubana county – only 8%. The average indicator is 16% in Vidzeme. One of the most important indicators of economic capital is the company share capital and the shareholders' equity.

Table 2

Enterprise total and average share capital in 2014 by counties

County	Number of active companies	Total share capital EUR	Average share capital EUR
Cesvaine	192	1838157	9574
Ergli	222	2589862	11667
Lubana	116	1368659	11799
Madona	2056	30282586	14729
Varaklani	202	2531118	12530
Total	2788	38610382	60299

Source: authors' calculations, Republic of Latvia, Lursoft database, 2014

Table 2 shows the total and average share capital in 2014 by counties. The highest total share capital is in Madona county, the lowest in Lubana county. The average share capital is quite similar in all counties. The highest average share capital is in Madona county, the lowest in Cesvaine county. This shows that the largest proportion is constituted by companies with low share capital which is still higher than the minimum. 94 % of all businesses in Vidzeme are micro-enterprises (Central Statistical Bureau, Republic of Latvia, 2014). Entrepreneurship potential is also characterized by turnover and its growth rate.

Table 3

Largest turnover of businesses by counties in 2013

No	County	Company largest turnover in millions EUR
1.	Cesvaine	9.3
2.	Ergli	5.5
3.	Lubana	5.2
4.	Varaklani	3.5
6.	Madona	8.7

Source: author's calculations, Central Statistical Bureau, Republic of Latvia, 2014

In Madona county the largest turnover of a company is 8.6 million EUR. These companies have the largest turnover growth rate from 2012 to 2013. The highest turnover of 9.3 million EUR is seen in a company in Cesvaine county. The company operates in dairy sector. There is no strong tendency that companies with higher share capital have the largest profit and turnover growth.

Table 4

Economically active units in 2013 by counties

No.	Counties	Ec. active units per 1000 pop.	Self-employed %	Sole proprietors %	Commercial companies%	Farms and fisheries %
1.	Cesvaine	67	48.8	3.3	24.5	23.4
2.	Ergli	73	51.8	2.7	26.1	19.4
3.	Lubana	51	49.2	8.7	27.0	15.1
4.	Varaklani	82	57.9	1.8	17.3	23.0
5.	Madona	81	46.3	3.4	31.7	18.6
7.	Vidzeme	75	44.4	5.4	33.3	16.9
8.	Latvia	78	32.6	5.1	55.0	7.3

Source: author's calculations, Central Statistical Bureau, Republic of Latvia, 2014

The research area and Vidzeme region account for the largest number of self-employed people while in total in Latvia commercial companies account for 55 %, and self-employed people make only 33 %.

Research Results and Discussion

The analysis above shows that counties with a greater number of people have better economic performance indicators. All figures are too small in absolute numbers for studying mathematical relationships among them, therefore the authors applied case study for better understanding the reasons for opening up or closing down businesses.

On the basis of in-depth interview study and analysis the researchers have come to the conclusion that the interviewees belong to two types of entrepreneurs. One group has developed their businesses in a motivated and prudent way, while the others are enthusiasts who have had more success with an entrepreneurial spirit. Both groups can be successful entrepreneurs. The best results in entrepreneurship and implementation of the LEADER projects are reached in cases when participants have adequate education and/ or experience, when entrepreneurial ability is inherited from parents, or in cases of foreign experience. Entrepreneurs are motivated by the hope that children will take over their business. An important role is played by an entrepreneur's wish to learn new things, to educate oneself. For small businesses, especially start-ups, it is difficult, sometimes impossible, to get a bank loan against property as they do not own a property, or it is the only one and it is too risky to pledge the only property. Other obstacles for a start-up are: the high cost of land use planning and surveying works for the land register and complying with the requirements of the LEADER.

Young entrepreneurs sometimes have insufficient skills in drawing up a realistic long-term cash flow, while the consultants of project writing are not familiar with the specifics of the business, for instance, that newly planted black currant bushes start producing only in the second year, so there will be no revenue in the first year. In most cases the entrepreneurs have no experience in cooperation, they are scared or have no cooperation skills, or do not

understand the benefits of collaboration. The issue is more often considered in the family circle. The researchers have learned that in most cases it is family businesses that venture to apply for the LEADER programme. When the companies involve their children in the business, they create the next generation in the area who have seen entrepreneurship in real life and inherited the entrepreneurial potential from their parents. The entrepreneurs admit that the future generation is one of the most motivating factors for entrepreneurship; thus, stimulation of business development is closely related to safe and encouraging place for the entrepreneurs' children, access to education, culture and sports services, arranged infrastructure and safe environment. Clean environment is an important factor for entrepreneurs' choice to live and do business in the rural area. From the interviews it may be concluded that entrepreneurship is more successful in areas with young and active people having good knowledge in entrepreneurship, as knowledge plays a significant role in starting an entrepreneurial activity. It does not mean only a classical degree in economics, but also learning by doing, learning from each other, cooperating with scientists in the development of new projects. In total the respondents have evaluated their knowledge as adequate for starting a business. A great part of them have obtained it in practical work or inherited business from the older members of the family; or by attending specialized training courses e.g. courses organized by the beekeeping association. As regards the choice of the specific field, the respondents have given logical and reasoned replies e.g. location of the farm in the bird migration route or topographic relief. A respondent admits that the necessity for knowledge begins when management problems or non-standard situations occur. Another respondent has started higher education studies in agriculture, or otherwise he will not be entitled to manage the EU agricultural aid projects. Many of the interviewees have admitted that they visited other agricultural farms in the neighbourhood and in Latvia before applying for the LEADER programme; their motivation was to learn other people's experience, to take informed decisions and consider recommendations. Seeing a successful business, one comes to the conclusion that it is worth trying and developing home production. Only one respondent has indicated the use of social networks like *Facebook* and *Draugiem.lv* for product sales, while another one has said that with the development and enhancement of business new skills have become topical which were not necessary in the initial stage e.g. advertizing, computer skills, etc.

Conclusions

1. From the statistical data analysis and in-depth interview analysis it may be concluded that the most significant indicators of economic capital are: *real property, money savings, company share capital, company profit, subsidies, and support programmes.*

2. Culture capital, which by the opinion of many theoreticians is one of the most essential preconditions, proved its significant influence in the practical study as well; its indicators are: *the desire to learn new things, to study, foreign experience, willingness to cooperate, ability to*

trust, social responsibility, ability to get up after failure, risk appetite, and willingness to take responsibility.

3. Human capital indicators, most characteristic for entrepreneurs in the research area are: education, profession, talent, leadership, resource mobilization skills, visionary ability, foreign language skills and communication skills.

4. Social capital is the binder between micro and macro levels, being an individual resource and reflecting the quality of the structure at the same time. Social capital may be measured by mutual trust in a community or among individuals. It is characterized by the following indicators: *family support, family business, business has been inherited from parents/ grandparents, the entrepreneurs have children who will take over the business, good relationships with neighbours, skilful use of social networks, involvement in social activities, cooperation with/ participation in NGO, and cooperation with other businesses and local government.*

5. The study suggests that in order to develop entrepreneurship in a region, the quality of living environment is an essential precondition; it becomes a peculiar form of capital. In-depth interview analysis indicates that the most important quality life environment indicators are: *beautiful scenery, clean environment, culture and sports-operational services availability, access to education, access to health services, infrastructure availability and quality, and housing availability.*

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SOCIAL SUSTAINABILITY AND SOCIAL SECURITY OF TERRITORIES: METHODOLOGY OF ANALYSIS AND RELEVANCE FOR DEVELOPMENT

Baiba Bela¹, Dr.sc.soc⁺; **Līga Rasnača**¹, Dr.sc.soc

¹ University of Latvia

Abstract. The aim of this article is to examine the importance of the social sustainability in the development of territories, to examine interconnectedness of social sustainability and social security and to initiate a discussion about the methodology for analysing the social sustainability of territories. The authors of this article want to find the appropriate methodology for the measurement of social sustainability which would include complex indicators and would be useful for analysis of different types of territories. The innovative aspect is to include in the measurement of social sustainability the indicators of social security as this is the most direct tool a government has in order to enforce social sustainability. To include both – social sustainability and social security, Index should cover megatrends, tendencies and emerging signals in all spheres important to demography; health and availability of healthcare; employment and income levels; education and access to education; inequality and availability of welfare; housing and availability of housing; safety; integration and participation.

Key words: social sustainability, social security, territories, development

JEL code: I39

Introduction

The aim of this article is to examine the importance of the social sustainability in the development of territories and to initiate a discussion about the methodology for analysing the social sustainability of territories which would be easy to use for the evaluation and planning of development in Latvia and would also take into account the newest theories in development research. The development of the territories in Latvia can be described as uneven. The 2009 administrative reform created new administrative divisions of territories, which did not copy the small fracturing of the between war period and changed the division into large territories inherited from the Soviet Union. This, however, did not let to create an environment for a more successful and equal development of the territories. In theory, the territory development index is being used in the planning and evaluation of the country's development but from a

⁺ Corresponding author. Tel.: + 371 29447405
E-mail address: baiba.bela-krumina@lu.lv

recent development theory perspective it can be viewed as too robust and too focussed on the economic aspects of development without paying enough attention to the long term sustainability of development and social and environmental factors. Research shows that, while political planning documents contain many noble and declarative aims, they lack the indicators to be used to measure the results and speed of attainment of these aims (Supule, 2014).

The authors of this article are carrying out the analysis of the social sustainability of territories as a part of the project "Elaboration of Innovative Diagnostic Instruments for Regional Development", co-funded by the European Social Fund (No 2013/0057/1DP/1.1.1.2.0/13/APIA/VIAA/065). So far in Latvia there have not been created differentiated diagnostic instruments that would be specific for the analysis of certain aspects of social life and the attainment of certain goals, such as analysis of social sustainability and social security. There is also a lack of diagnostic tools that would allow the analysis of the situation not only at a national but also a regional and municipal level. The lack of specialized indicators is disrupting a more effective use of regional support both the national and the regional level. The authors of this article want to find the appropriate methodology for the measurement of social sustainability, with particular focus on social security as the most direct tool a government has in order to enforce social sustainability, which would also include complex indicators and would be useful tool of analysis in different types of territories (regions, municipalities, in rural and urban areas).

At first the authors will be looking at the theoretical background of social sustainability, paying attention to the recent tendencies in the research in development and the evaluation of the social sustainability of territories. Then the authors will look at the most problematic questions in the context of social sustainability in Latvia from a regional perspective. At the end authors will discuss the methodological problems which need to be solved in order to create an evidence based evaluation of social sustainability and social security.

Social sustainability of territories

The concept of territorial social sustainability is a relatively recent addition to the social sciences literature and discussions. At the core of it is the simple idea that social concerns are particularly important because the development and growth of territories are done by the people who live there (Zobena, Mezs, 2013). The concept of sustainability has appeared in discussions since the year 1987, when the UN released the Bruntland declaration (WCED, 1987); when it emphasized that it is vital to enforce economic growth that would be in balance with the environment and would not reach a level where the ecosystems and the biosphere could not cope with the results of human activity. In Johannesburg (2002), in the UN summit on long term growth a wider view on sustainability was adopted, including all three dimensions – the economic, social and environmental as equally important cornerstones (ANO, 2002). It took another ten years for greater attention to be shown to social sustainability and for it to be

shown that long term growth cannot be attained without equality, better quality of life, extension of human freedoms, which include long, healthy, creatively fulfilled life and attainment of personally important goals (UNDP, 2010; UNDP, 2011). Still there is no a consensus on the concept of sustainability and different people attach different meaning to the idea (Clémenton, 2012). Social scientists underline that a more equal and fair society is also more socially responsible and stable in the long term. A less fair and less equal society, however, shows slower economic growth, lower GDP, less stability and a lack of trust (Stiglitz, 2012; Vilksinsons & Pikita, 2009). The elimination of inequality and poverty has always been an important aspect of the analysis of social sustainability because inequality and poverty cause a lack of trust in the fairness of societal structures or in the belief that one's own actions can make a difference (Rasnaca, Niklass, 2013).

The idea of a fairer society only somewhat explains the core of social sustainability. The Oxford Institute for Sustainable Development researcher's definition of social sustainability echoes the explanation included in the UN's development programme, which states that social sustainability includes the relations between the individuals, communities and the society and the ability to attain personally important developmental aims taking into account the limitations caused by the particular location and the environment of the planet. In defining social sustainability in specific operational terms and paying attention to the social sustainability of particular territories, research draw attention to abilities, qualifications, spatial and environmental inequalities, equity and health cooperation, needs, social capital, happiness, wellbeing and the quality of life (Colantonio, Dixon, Ganser, Carpenter and Ngombe, 2009). The most important difference between social sustainability and territorial social sustainability is the scope in which particular factors are measured – it is not national but local, based in particular territories.

The importance of social sustainability in Latvia

In the context of territorial development the dimension of social sustainability is only one of the important dimensions alongside the economic and environmental dimensions. However, it is only the social sustainability dimension that looks at the lives of the individual, the community and the society as a whole, at their ability to recover from crises and respond to further challenges. Social sustainability is particularly important in Latvia in relation to the decrease of population; in the last 20 years 107 out of 119 districts have experienced a decrease in population of 10-40% (Zobena, Mezs, 2013). Almost all districts (the first level local government in Latvia) contain areas where were small villages of 50-100 inhabitants, that are now abandoned. The theme of social sustainability is also closely connected to social security. Researchers have shown that social crises are more difficult to overcome and tend to last longer than economic ones. Latvia is among the EU countries with the greatest income

inequality and number of people at risk of poverty and social exclusion. In 2013 only 23.4% of Latvians felt secure about their future prospects, while 64.3% felt unsecure(it is also notable that in 2010, at the time of the economic crisis, fewer people (56.7%) felt unsecure about their future prospects) (Brigsa et al., 2014).

Situation in the labour market (if people have access to employment, which pays enough to cover all of the basic needs a person has), demonstrates income equality as well as is the first step for social security. The budget of the social security system, which provides the welfare payments, is also created in the labour market. Eurobarometer - Public Opinion Surveys conducted on a regular basis in the EU Member States two times a year, show unemployment as the most significant problem in Latvia (Eurobarometer, 2014 (Autumn)). This is why the authors will briefly explain the changes and the regional differences within the Latvian labour market in the last five years. The impact of the crisis was uneven in different regions and sectors (raising serious consequences for employees and employers in finance, real estate sectors, construction and public services and affecting small entrepreneurs clients and owners as well as the society overall). The analysis of the labour market shows differences in employment and unemployment flows in urban and rural areas.

During crisis, the insufficient number of workplaces resulted in unemployment. The possibility for regional centres to become employment providers for surrounding area is limited by the level of salaries and poorly provided public transport in the regions.

Table 1

Economic Activity of Population by Latvian Regions: Unemployment rate (job-seekers) (15-64, %)

	2009	2010	2011	2012	2013
Riga region	14.9	17.3	13.1	11.1	8.4
Pieriga region	11.2	13.1	10.7	9.3	6.4
Kurzeme region	11.0	11.6	10.7	9.6	7.5
Latgale region	12.4	13.4	13.0	14.8	12.1
Vidzeme region	13.7	10.8	8.9	11.3	9.5
Zemgale region	14.7	16.4	13.8	13.2	11.6
Urban	14.1	15.4	12.5	11.5	8.7
Rural	11.3	12.5	10.9	11.3	9.6
Latvia	13.2	14.5	12.0	11.4	9.0

Source: author's calculations based on CSB data about economically active population (CSB, 2014b)

The Statistics Bureau of the European Union defines unemployment level according to the methodology focusing attention on the number of jobseekers rather than the registered unemployed persons as an indicator of the unemployment situation in different European countries; this allows to find out the current situation in labour market (including people who are actively seeking employment and are able to start work within the next two weeks). This is why the authors of this publication have chosen this indicator. The proportion of jobseekers during the 2008-2010 socio-economic crisis was the highest in Riga and Zemgale, it was also higher in urban rather than rural areas. In the after crisis period (2012-2013), however, the

proportion of jobseekers in urban areas was lower than in the country overall but it was slightly higher in rural areas. Towns and cities, in particular the capital, Riga, show the highest variations in the proportions of jobseekers (15.4/8.7; 17.3/8.4). If the highest impact of crisis on employment in Latvia was in the year 2010, then in the region of Latgale, which is characterised by the highest levels of registered and long term unemployment in the country, the number of jobseekers increased in the year 2012. This can be explained by either a delayed effect of the crisis or other regionally specific factors. This shows the importance of including in depth analysis of regional differences in the methodological approach alongside the wider monitoring.

The other indicator which shows both the direction of social development and the sustainability and ability to improve social security provision, is the amount of the average pay. The authors chose to illustrate the situation using the average monthly salary of employees.

Methodological importance is not only in the overall comparison between the levels of pay in urban and rural areas but also the principle of selection of the regions compared. The authors chose to include the most contrasting cases: three cities with the highest and the lowest levels of income and five districts with the highest and the lowest salary indicators.

Workers average monthly salary in cities differs 1.6 times between the highest and the lowest payment in the area in rural areas this difference is even higher at 2.2.

The differences are more dramatic as when comparing income differences between genders and show the lack of resources in lower income groups, inadvertently affect the attainment of social services and social security by this group. The capital city Riga is the only place with more than half a million inhabitants in the country. It is not surprising that the level of pay in Riga is higher, taking in mind its status as a capital city, a cultural and economic centre as well as the potential provided by its status as a harbour city. The place with the second highest incomes is Ventspils, which, again, is not surprising as it is also a harbour city, has direct access to the Baltic Sea, an infrastructure inherited from the Soviet period and a successful local government. The success of Valmiera, which has the third highest levels of income in the country, is less easy to explain. It is not placed near the sea or international trade routes and has only 30 000 inhabitants. The success of Valmiera may be useful for other similar places in Latvia as an example of social development success. The lowest rates of pay can be found in the second largest town in Latvia, Daugavpils, which is followed by Rezekne. Both towns are placed inland, have no harbours but are crossed by international railway lines and contain food and metal factories inherited from the Soviet period. The place with the third lowest rates of pay is Jelgava, which is located an hour's drive away from Riga, and thus, its income levels are affected by the many people travelling to work in Riga every day. The town has successfully managed to restructure the now bankrupt factories built in the Soviet period by attracting

foreign and local investment but the pay received by its factory and service workers puts it at only the sixth place out of the nine major towns and cities in Latvia.

Table 2

Average Monthly Wages and Salaries in Cities under State Jurisdiction and districts of LATVIA 2009-2013 (euro).

	2009	2010	2011	2012	2013	
Riga	586	555	576	597	629	Highest
Ventspils	543	526	553	570	602	
Valmiera	449	415	443	478	503	
Jelgava	395	394	417	426	444	Lowest
Rezekne	377	368	379	372	396	
Daugavpils	354	349	366	376	388	
Five districts with highest average monthly salary						
Salaspils district	522	497	531	557	673	I
Marupe district	581	575	602	634	650	II
Jaunjelgava district	460	510	527	553	637	III
Stopinu district	625	620	608	600	618	IV
Garkalne district	642	597	592	557	589	V
Five districts with lowest average monthly salary						
Baltinava district	370	353	332	359	335	I
Roja district	294	289	282	298	325	II
Varaklani district	286	291	293	304	314	III
Dundaga district	287	308	298	287	297	IV
Rucava district	291	359	382	317	295	V
Latvia	509	488	506	525	554	

Source: author's calculations based on data about salary in cities, towns and districts (CSP, 2014a).

Four out of the five highest salary districts are placed next to Riga, thus, most of their inhabitants' income comes from working in Riga. The second highest earning district is Jaunjelgava, which is not located next to Riga, and thus, provides an interesting example that should be studied further. The lowest average wages are in districts located far away from Riga. The distance from capital city Riga impact not only salary level but also possibility to receive social security, availability and accessibility of social services, the overall development of territory.

The authors' analysis of the current situation points out that the location of a territory has a definitive importance for equal possibilities of inhabitants in territories.

How to measure social sustainability and social security – a discussion on the methodology

As a part of the project "Elaboration of Innovative Diagnostic Instruments for Regional Development" authors are going to produce a territorial social security index, the aim of which will be to indicate the social security cover in different territorial units. Social security is the most direct tool a government has to enforce social sustainability, although social security includes a smaller number of factors than social sustainability. In analysing social security

authors can see the results of the existing social policies and the need for anywhere they are not in place. Authors propose that regular monitoring of factors connected to social security would lead to identify the effects of different changes, such as the economic crisis and changes in policies as well as plan a social security system which not only reacts to the effects of crises but also tries to outrun them (pre-emptive arrangements) (Hiltunen, 2013).

A serious issue is the lack of a tool for precisely measuring the level of social sustainability and social security. There have been various indexes used for measurement of social issues, some of which authors will look at here, trying to find the best fit for Latvia. Authors will look deeper at indicators which are used in Social Progress Index (Porter, Stern and Green 2014), which was created by a group of specialists from different disciplines; the Socially Sustainable Urban Regeneration index created by the Oxford Institute of Sustainable Development (Colantonio, Dixon, Ganser, Carpenter and Ngombe, 2009) as well as the social indicators from the Small Town Sustainability Index, which was made by a group of researchers from the ESPON network KITCASP project (Valtenbergs, González, Piziks, 2013).

The methodology of all these indexes includes certain core principles – groups of indicators are made around certain social stability and social security indicators – such as: demography, education, health, home, income, participation et cetera. The aim of makers of Social Progress Index is to make these parameters to be as important as signs of the country's development as GDP (Porter, Stern and Green, 2014). In their opinion, GDP is only a portrayal of the country's economic achievements, while social index show the level of human wellbeing. The Social Progress Index is made up of 54 indicators, which are grouped in three large blocks – basic needs, wellbeing and opportunities. They include the life expectancy at birth, the mortality of new-borns and mothers, suicide rates, the availability of food and water, availability of housing and sanitation, different educational criteria, alongside the access to information, freedoms of press, speech and political beliefs as well as other indicators. The basic idea behind the index, however, is aimed at indicators of social progress, many indicators important for social sustainability are not included at all (for example, the demographic indicators block: indicators of population growth and the proportions of different age groups are not included).

The Socially Sustainable Urban Regeneration index made by researchers from the Oxford Institute for Sustainable Development was made with the aim to evaluate the effectiveness and long term social impacts of projects for urban regeneration (Colantonio, Dixon, Ganser, Carpenter and Ngombe, 2009). While certain criteria used in this index can only be used for research into urban areas (such as if the distance from the nearest school, shop, medical centre, work place et cetera can be crossed via foot in 15 minutes), it is worthwhile looking into the logic behind the choices of indicators and how they are grouped, which is slightly different from the previously mentioned Social Progress Index. The indicators are more related to criteria which are important for the theoretical discussion of social sustainability and are

spatially connected to certain territories. This index is also very large in size, the indicators are divided into ten thematic groups – demography, education and skills, employability, participation and access, health and safety, home and environmental health, identity and heritage, social inclusion and cohesion, social capital, well-being. Each group contains about 10-15 criteria and includes both objective and subjective evaluations (for example, the proportion of income spent on rent for housing and subjective evaluation of housing).

The example of ESPON network KITCASP is instructive from methodological viewpoint. Researchers eventually selected 15 (5 on the social sphere) out of 108 indicators (Valtenbergs, González, Piziks, 2013). Indicators need to be connected to aims of policy planning and development priorities, only then they will be useable for evaluation of the developmental progress and the carrying out of policies; indicators need to show the dynamics of social processes in territories during a certain period of time; indicators need to be measured regularly and to be available from trustworthy and regularly updated databases (otherwise these databases and trustworthy measurements would need to be made, which would be very expensive); it is also important that the indicator is understood by planners and public administration as only then it will be easily communicated and useable. Here social indicators include criteria on demography, education, poverty, inequality, unemployment, cooperation, and life satisfaction.

Developing index appropriate for measurement of territorial social security in Latvia it is most likely that authors would follow a similar principle when creating an index suitable for social sustainability and social security evaluation in rural and urban areas in Latvia – to choose a list of all wanted criteria and then select the ones that are most vital.

In creating a territorial social security index authors will take in mind also the theory of John Naisbitt, which states that in every sphere authors can observe three types of tendencies: 1) megatrends, which are influencing many societies over long periods of time (for example, changes in rural employment structures, urbanisation); 2) tendencies which are characterised by particular situations at a particular point in time (e.g. average wage, the proportion of women and men in employment et cetera); and 3) emerging signals which are not reflected in megatrends and tendencies but which can be observed in observations, publications, conversations with experts et cetera (Naisbitt, Aburdene,1990).

As social security is a narrower field than social sustainability, authors will be focussing on criteria, which are important, in particular, for social security in Latvia. In theory social security includes four core principles: 1) guaranteed health care; 2) guaranteed replacement of income in case of job loss; 3) guaranteed basic income; 4) guaranteed employability and a chance to change professions. These can be ensured using various core systems, from which of particular importance are social services – health care, employment, social care and rehabilitation, education, housing. Territorial social security index need to be able to capture megatrends, tendencies and emerging signals in all spheres important to social security. Taking in mind international examples in creating similar indexes and the core principles of social security,

indicators need to reflect criteria in the following spheres: demography; health and availability of healthcare; employment and income levels; education and access to education; inequality and availability of welfare; housing and availability of housing; safety; integration and participation. Each sphere should not include more than 3 to 5 criteria, which would still make the index quite large (it would include 24-40 criteria). It would be necessary to include the subjective evaluation by individuals as one of the criteria in each sphere. While this is expensive and difficult to do, particularly in smaller territories these data would show how people themselves evaluate the resources available to them and their own wellbeing.

Conclusions

With the current levels of aging and decrease of population, large regional differences in employment and income, researchers need to provide help in identification of particular problems, developmental tendencies and solutions in Latvia. The task to create an innovative territorial social security index, which would be easy to use in evidence based planning and evaluating of social policies is a great challenge. The lack of a single global example shows that this is a challenge shared by researchers and planners in many countries. Even more – authors argue that the broader and more elusive field of social sustainability can be captured through the measurement of more narrow and precise indicators of social security. Territorial social security index need to be able to capture megatrends, tendencies and emerging signals in all spheres important to social security– demography; health and availability of healthcare; employment and income levels; education and access to education; inequality and availability of welfare; housing and availability of housing; safety; integration and participation, taking into account also sustainability issues.

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YOUTH CAPABILITY IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

Dina Bite¹, Dr.sc.soc.+; **Ginta Kronberga**¹, Dr.sc.soc.; **Zenija Kruzmetra**¹, Dr.geogr.; **Lana Janmere**¹, Mg.sc.soc.

¹ Latvia University of Agriculture, Faculty of Economics and Social Development
Institute of Social Sciences and Humanities

Abstract. Youth is viewed as a significant agent of sustainable development of the society. It is included in international programmes and regional and national planning documents. Simultaneously, youth activity, responsibility, and involvement in the solution of substantial issues are inadequate. The aim of this article is to investigate the aspects of youth capability that is linked to sustainable development of the society.

In the article, the authors analyse the quantitative data gathered during the research "Solidarity Schools in the Baltic States" (2014)¹ about the attitude of Latvian, Estonian and Lithuanian school youth towards the aspects of sustainable development and their actions in promoting of sustainable development. Considering the common historical and socio-cultural experience of the Baltic States, it can be assumed that the influence of the present transformation processes on the youth is similar.

The results of the research show that in contrast with the assumption the study of youth capability reveals both the similarities and statistically significant differences in the values and actions of the young generation in Latvia, Estonia, and Lithuania. In the area of values, youth are aware of the importance of sustainable habits but their actions do not always correspond with the principles of sustainable development. Considering that the compliance of values to actions is the measuring stick of responsibility; the youth of all three Baltic States demonstrate rather low level of responsibility. It is necessary to promote the implementation of the ideas of global education and sustainability into the everyday life, real social practices, since youth values and views comply with the principles of sustainable development.

Key words: capability approach, responsibility, youth, sustainable development

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⁺ Corresponding author. Tel. +371 29729356, E-mail address: dina.bite@llu.lv

¹ More information about the project see: <http://www.humana.org/785-solidarity-schools-in-the-baltics>

Introduction

In the recent years, the research community has demonstrated growing interest in youth as the makers of future society, especially considering the substantial transformations and social changes on global and local levels. Youth mirrors changes in the society, and by analysing its actions, attitudes and values, it is possible to foresee the further development of the society (e.g. Szafraniec K., 2011). The role of youth is emphasized in different international documents, e.g. according to the European Commission "Europe's future prosperity depends on its young people and thus deserve particular support and consideration as well as seeks to strengthen people's current and future capacities, and improve their opportunities to participate in society" (EC European Policybrief..., 2014).

At the same time young people are labelled as the part of today's consumer society (Szafraniec K., 2011) that are not concerned with either the consequences of their actions and/or the balanced, sustainable development of society. Actual participation of youth in social, political and economic processes is often limited. Therefore, it is necessary to study how youth capability expresses itself in the creation of viable society. The aim of this article is to research those aspects of youth capability that are associated with sustainable development of society. The object of research is school youth (ages 13-19) in Latvia, Lithuania and Estonia. The objective of research is to study theoretical aspects of youth capability and sustainable development as well as analyse empirical data about youth capability in the Baltic States within the context of sustainable development. Considering the common historical and socio-cultural experience and geographical location of the Baltic States, it can be assumed that existing transformation processes are also similar. Concurrently youth capability can be viewed as one of the indicators that allow revealing both similarities and possible differences in the processes taking place in the Baltic States.

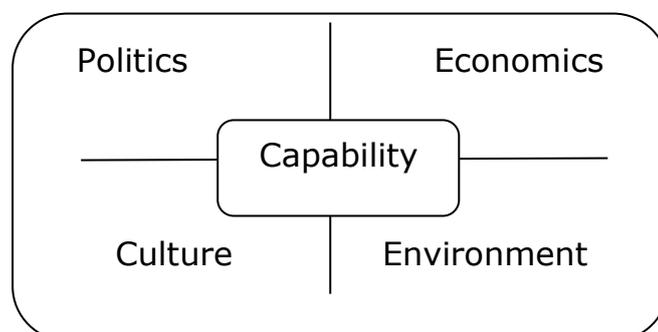
1. Theoretical framework of the paper

Sustainable development and youth capability are closely interrelated concepts. The accepted view is that youth is a generation of people with active lifestyle that is in the stage of development of social roles, learns it's educational, professional and other functions, and is prepared for securing and fulfilling their roles (Usinina N., 2013). Youth is a stage of life, and is as much a social construct as a term of science to discuss, evaluate, and assess a heterogeneous population group that shares characteristics of „transition“. The transitions include significant physiological, cognitive, social and economic changes when young people come to be recognized – and recognize themselves as adults (Goldin N., 2014). Youth has demonstrated both their ability and potential to be positive agents of changes who can help address and solve the problems that surround the planet's present and future. Youth has contributed fresh ideas and has been proactive in identifying solutions to development challenges. They have also shown their ability to build bridges of dialogue across cultures. Achieving sustainable human development would remain an aspirational concept without the

inclusion of all segments of society in a holistic, consultative and participatory way. Young men and women need to play a key role in this process (UNDP Youth Strategy, 2014). Youth is considered as main agent to achieve sustainable development both in individual and society level. According to the UNDP Strategic Plan 2014-2017, sustainable human development is the process of enlarging people`s choices by expanding their capabilities and opportunities in ways that are sustainable from the economic, social and environmental standpoints, benefiting the present without compromising the future (UNDP Strategic Plan, 2014). Thus youth activity is considered to be positive agent of social changes and sustainable development.

Considering and balancing environmental, economic and social aspects, sustainable development is viewed as a goal of development of present-day societies and nations. Sustainable development has various definitions; but the most adequate interpretation in connection with the current paper is the following: "Sustainable development is the ability of a community to develop processes and structures which not only meet the needs of its current members but also support the ability of future generations to maintain a healthy community" (Social sustainability..., 2014). This definition emphasizes social nature of sustainable development – it is unattainable without individual and collective participation. Desire and ability of members of society to participate is critical condition that ensures maintenance of environmental resources, improvement of life quality, facilitation of social integration etc. and other activities related to sustainable development. Members of community are responsible for its wellbeing and growth: "social sustainability is an ability acquired and held by communities over time, to initiate and control development, thus enabling communities to participate more effectively in their own destiny" (Lyons, M., Smuts, C., Stephens, A., 2001).

Necessity for society members to take responsibility for societal and environmental wellbeing as well as current social processes emphasizes the problem of capability. The human capability of an individual means the ability to use the opportunities offered by society. Human development is the expansion of human capability in the economic, political and cultural life of society (Figure 1).



Source: authors' construction based on theoretical statements

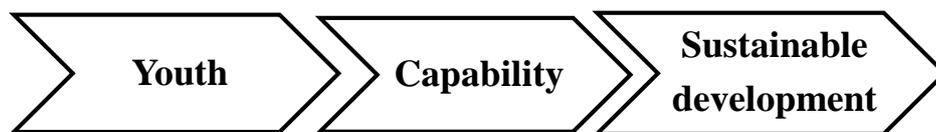
Figure 1. Dimensions of sustainable development

Several factors determine the human capability. Theoretically, they could be grouped into objectively given (living environment) factors independent from the activities of an individual and other social agents, such as the geopolitical position of the state, natural resources, cultural and historical development, demographic potential etc., and subjective factors (life-activity opportunities) such as purposeful action by the state, local governments, interest groups and other social actors, which create preconditions for the realization of the capability of individuals. The social capability of an individual expresses itself as the freedom of choice of action. In implementing one's capability in all areas of public life, people create the conditions for the free development of future generations. By realizing their abilities through action, individuals change the social environment and create new conditions for their own activities and activities of their peers. Security in an individual's economic activities, broad social networks, the ability and willingness to assume responsibility for what is going on in the neighborhood and society, a creative approach to one's own life-activity, maintenance of a healthy microclimate within the family etc. – these are new opportunities for action (Latvia Human Development..., 2005).

The Capability Approach developed by Amartya Sen and reworked by a range of European projects such as Eurocap, Capright, WorkAble, SocIEtY, for the evaluation of social policies in post-industrial societies provides an extremely fruitful framework for addressing youth inequalities that goes beyond current European and national level approaches. As such the Capability Approach focuses upon the individual's potential ability to achieve an outcome (e.g. having a job) that they value in the wider context, rather than solely looking at outcomes that have been achieved. Capability is a potential or substantive freedom to achieve alternative combinations of states or activities he or she has reason to value (EC European Policybrief..., 2014). The Capability Approach developed by Amartya Sen particularly emphasizes individual responsibility and freedom to choose for oneself such life trajectory that corresponds with one's system of values (Sen A., 1999). That way the capability approach provides theoretical grounds on which young people's voices have to be taken seriously. The concept of capability accentuates youth as independent agents that can actively influence objective circumstances. In the context of capability, an individual is not a passive observer but an active participant and driver of events. Thus one of the important research questions is readiness and willingness of youth to influence current processes.

Often capability is linked to youth participation or integration in processes taking place in society (EC European Policybrief..., 2014), as well as responsibility. Responsibility is the capacity of individuals to acknowledge their moral obligations towards themselves, their families, their local community, their profession, their country, society at large, future generations. Responsibility has meaning only if people's attitudes and value orientations are also reflected in their behaviour: responsibility cannot be simply a wish to do something, we must talk about real assumption of responsibility, activity that is carried out to exercise responsibility, with an awareness of and a readiness to face the consequences (Latvia Human

Development., 2009). Here we see actualization of problems of contemporary society when in theory youth is acknowledged as agents of social change but in practise social system provides limited opportunities to participate in decision-making. Thus youth becomes passive observers or alienate themselves from current social processes. Polish sociologist K. Szafraniec states that post-Soviet society demonstrates "citizenship deficit" – the unwillingness to co-decide about the future of the country where young people are the group with a particularly low level of involvement and low political activity (Szafraniec K., 2011). For this reason nowadays it is very important to convert "consumer" into "citizen" where the capability approach provides theoretical grounds on which young people`s voices have to be taken seriously (European Union's Seventh..., 2013).



Source: authors' construction based on theoretical statements

Figure 2. **Youth capability as a precondition for sustainable development**

Summarizing the issues mentioned in theoretical materials (Figure 2); the authors want to emphasize that youth capability is crucial condition for assisting sustainable development.

Research results and discussion

Methodology

Comparatively descriptive research design has been chosen for measuring youth capability, and it permits to gain fairly expansive and detailed information as well as creates chances for comparison of different capability aspects in all Baltic States. The research uses data from international project „Solidarity Schools in the Baltic States” (2014) where by using quantitative research approach school youth (ages 13-19) from elementary and secondary schools of Latvia, Estonia and Lithuania were interviewed in order to discover their role in society as active acting subjects, their willingness to influence social, economic and ecological processes and their attitude towards global educational and sustainable development goals.

In the context of this survey, capability is conceptualized in two directions. One of them reveals youth's conviction of their chances to affect and alter social, economic and ecological processes in society. Eight indicators that include processes from youth micro environment to global phenomena are used in its operationalization: planning of family budget, clean and orderly class and school vicinity, cultural and sport activities within local community, national unemployment, ethnic conflicts in Europe, poverty and food accessibility in Africa and melting of glaciers on North Pole. The other direction of capability conceptualization is youth actions that display real social practices of youth in actual life situations. Eleven indicators have been used in its operationalization (Table 1). In order to understand youth's attitudes and actions

they were asked to assess the main life values: family, friends, free time, politics, career, religion, clean environment, cooperation, social networking and relationships, and health.

The research basis is made of 1413 youths from the Baltic States that go to primary and secondary schools: 555 are from Latvia, 449 – from Estonia, and 413 – from Lithuania. Even though one of improbable sample methods – accessibility sampling was used for the selection of respondents, since the questionnaire was filled in by the students of schools involved in the project „Solidarity Schools in the Baltic States”, sample realization adhered to the principles of territorial sampling as well. That way the sample includes youth from cities, towns, peri-urban areas and rural areas. Sampling was limited by project requirements, so in order to obtain representative results it would be necessary to broaden the sampling. Mostly relative indicators and central tendencies and dispersion parameters have been used for processing of quantitative data obtained in the survey and displaying of division of youth opinions. Although data do not comply with normal division, the arithmetical mean and standard deviation have been used for comparison in the interstate context. Such exception was allowed in order to discover insignificant differences in youth attitudes that are not revealed by other central tendency indicators. Besides, nonparametric Mann-Whitney and Kruskal Wallis tests were used for statistical assessment of differences in youth opinions where p-value method was used for result interpretation (significance level 0.05).

Analysis of empirical data

Youth capability directly depends on their conviction of the influence of their actions on environment from local to global level. Youth mostly feel their ability to affect their microenvironment – the processes taking place in family, school, local community; less often they see themselves as active subjects in activities that relate to the state, Europe or the world. These tendencies can especially be observed in two Baltic States considering the fact that half of the interviewed youth in Latvia and Estonia believe themselves able to affect planning of family budget and tidiness and order in the class and school vicinity. Whereas statistically significant differences ($p=0.0$) were observed in the answers of interviewed youth in Lithuania; they are not so convinced of their effect on the planning of family budget. As the survey results show, relatively smaller number of the interviewed Lithuanians (31%) believe that they affect planning of family budget. The corresponding numbers in Latvia and Estonia are respectively 60% and 53% of the interviewed.

Attitude of youth towards cultural and sport activities in local community cannot be assessed unambiguously. Although these processes take place within youth microenvironment, approximately half of the interviewed youth believe that they are not able to affect them and for this reason do not participate in them. Situation is comparatively better in Latvia where 43% of the interviewed youth believe that cultural and sport activities in local community are linked to their actions, while in the neighbouring states of Estonia and Lithuania the number of

thus thinking youth is considerably smaller – 34% and 13%, respectively. Besides, the observed variations in relative indicators are statistically insignificant.

Youth in all three Baltic States are aware of their capability in the area of environmental problems; more than 50% of youth acknowledge their influence in this field which is one of the highest rates after tidy and orderly class and school vicinity and planning of family budget (the latter relates to Latvia and Estonia). Although in this matter answers of youth have been relatively homogeneous in contrast with assessment of microenvironment processes, their opinions demonstrate statistically significant differences among the states ($p=0.043$): their capability is recognized by 55% of Latvians, 60% of Estonians and 51% of Lithuanians. Answers about such aspect of ecological environment as melting of glaciers on North Pole or social processes in Europe and the world in connection with ethnic conflicts, poverty and accessibility of food show a different picture. The smallest number of youth (about 15-20% of respondents) views them as being modifiable and changeable, so they are not ready to make an attempt at their solution. Answers show a slightly stronger conviction of interviewed Lithuanian youth; over 20% of them believe that they are able to affect the mentioned processes but at the same time they demonstrate the highest disinterest among three Baltic States. Around the third of interviewed Lithuanians (33%) show indifference towards ethnic conflicts in Europe, which points to a rather diffuse views and heterogeneity of youth as a social group in Lithuania. For comparison, there are 18% and 17% of youth with that type of opinion in Latvia and Estonia respectively; more than two thirds of youth in these states do not show indifference but rather feel their inability to affect processes. Interestingly enough that absolutely the smallest number of surveyed youth is convinced that they are able to affect solutions of unemployment problems in their state. There are 12% of them in Latvia, 11% - in Estonia, and 7% - in Lithuania. Youth is more convinced of the influence of their actions on ethnic conflicts in Europe, melting of glaciers on North Pole and poverty in Africa than mentioned issue (unemployment) that is physically closer to them – in their own country. Besides some of the interviewed youth reveal that they are not able to affect unemployment because it does not interest them. This type of indifference is demonstrated by 9% of young people in Estonia, 14% - in Latvia and 21% - in Lithuania. Therefore, it is possible to argue that interviewed youth in the Baltic States are more sure of their ability to influence social and ecological processes on different levels, and less sure of their ability to influence economic processes. These results testify of lack of economic capability of youth, but more particular conclusions require further research.

Table 1

Youth actions in different social situations

What do you do in different social life situations?*	Latvia		Lithuania		Estonia	
	Mean	SD	Mean	SD	Mean	SD
Sorting the waste	3.61	0.94	3.10	1.45	3.05	1.24
Buy only the products which have eco-friendly packaging	3.26	1.16	4.03	1.08	3.17	0.99
Take free plastic bags from shops as few as possible	3.35	1.24	2.67	1.19	2.31	1.14
Buy products which are produced in my country	2.85	0.82	3.47	1.26	2.76	0.92
Try eating healthy food	2.40	0.88	2.79	1.10	2.60	0.93
Try avoiding bad habits (smoking, using drugs)	2.25	1.08	2.71	1.80	1.62	1.13
Take interest in activities in my city	2.43	0.98	3.21	1.14	2.65	0.96
Take interest in developments in my country	2.46	1.02	2.52	1.10	3.44	1.00
Take interest and support global development	2.40	1.01	3.01	1.15	3.00	1.08
Donate money to charity or help socially disadvantaged people in another way	3.04	0.98	3.36	1.15	3.41	0.91
Express my opinion even if it differs from others	2.39	1.09	2.51	1.20	2.51	1.02

(*Question categories: always – 1, almost always – 2, sometimes – 3, hardly ever – 4, never – 5)

Source: authors' calculations based on survey results of the study "Solidarity schools in the Baltic states".

Indicator of youth capability in the context of sustainable development is not just their conviction or their subjective perception of their actions and its effect on environment; it implies also real actions in various everyday situations that influence both their own health and the health of others and broader ecological and social environment. Interviewed youth in Latvia on most occasions attempt to give up bad habits, express their opinions despite the opinion of majority, are interested in global processes and try to have healthy diet (mean 2.25–2.40), although their opinions show slight dissipation and existence of different assessments. Overall, their capability relates more to their health and attitude towards social environment (Table 1). Whereas they are less active in waste separation, try not to use plastic shopping bags and purchase products in ecological packaging (mean 3.61–3.26). Considering that the biggest dissipation exists in the opinions about plastic shopping bags and eco packaging, the results testify of youth dissent and different practises in their everyday life. Small differences are observed in actions of interviewed Latvian and Estonian youth but overall averages signify of fairly similar habits. Youth in Estonia more often try to give up bad habits,

use less plastic bags and express their opinions despite the ideas of the majority (mean 1.62–2.51). But the data show that not all youth act like that, because there is significant dissipation of opinions similar to what was seen among the interviewed youth in Latvia. Opinions of interviewed youth in Lithuania are even more dissipated and averages demonstrate differences among three Baltic States. Lithuanians more often try to express their opinion despite the views of majority, are interested in happenings on national scale and avoid using plastic shopping bags (mean 2.51–2.67) but rarely buy products in ecological packaging, local produce and give money for charity or otherwise help the poor (mean 4.03–3.36). Dissipation and differences of opinions are observed not only among the respondents in each country but also among countries; besides they are statistically significant in most criteria ($p < 0.05$). It is interesting that interviewed youth in all three countries have been on one mind in relation to only one criteria “express my opinion even if it differs from others” ($p = 0.096$).

In general youth is more active in relation to the improvement of their health and interest about different social events and less active in the area of environment-friendly habits. Although more than a half of interviewed youth understand that they are able to affect problems of environmental pollution, their actual actions do not always comply with that understanding. It is an incongruity between the meaning of ‘yes’ or what one should do and what youth would like to do and their everyday habits that is essential and often missing link in the context of sustainable development.

Another paradox of the situation is that socio-cultural, environmental, economic and political values which are the main driving force of capability are important to youth. Survey data testify to it, since all values presented to youth on average are considered very important or rather important. But they are not always reflected in their everyday life habits. Even such values as religion and politics that received the lowest assessment in the opinion of youth of three Baltic States are considered fairly important, since only about 15% of interviewed youth (mean 2.65) see politics and 25% (mean 2.75) see religion as totally unimportant which in these countries make up less than third of the sample scope. The most significant values to all interviewed youth are family, health and friends (mean 1.10–1.55), and there is relatively slight opinion dissipation among youth of each country which signifies of their consensus on these issues; also there are no statistically significant differences among countries ($p > 0.05$). Essential to interviewed youth in Baltic States are such values as clean environment and cooperation (mean 1.70–1.90) which are essential in the context of sustainable development but, as it was mentioned earlier, only partially express in the actions.

Conclusions, proposals, recommendations

1. In contrast to the original assumption about similarity of Baltic development path, the study of youth capability reveals both similarities and statistically significant differences in values and actions of the young generation in Latvia, Estonia and Lithuania.

2. On the value level youth acknowledges importance of sustainable habits but their actions are not always consistent with principles of sustainable development. Considering that consistency between values and actions is the measurement of responsibility, youth of all three Baltic States demonstrate rather low level of responsibility.
3. It is necessary to encourage implementation of ideas of global education and sustainable development in real social practices, since values and opinions of young people agree with principles of sustainable development.
4. In the context of capability youth of the Baltic States realize their freedom to choose values and express opinions. It agrees with capability concept that involvement in facilitation of sustainable development cannot be forced. Participation should not be a duty but a real option.
5. Further research can analyse factors that create gaps between values and actions of youth. It is significant for future perspective to gather data on youth capability indicators to explore how young people live in different European countries today and to examine what can be done to create social and institutional opportunities which will better enable them to live the lives they have reason to value.

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NATURE AS INDICATOR OF PLACE ECONOMIC SUSTAINABILITY

Agita Liviņa¹, Dr.oec/Director⁺, Associate Professor; **Sarmīte Rozentāle**¹,
Dr.oec./Researcher, Associate Professor; and **Juris Smajinskis**¹, Mg.biol./ Lecturer

¹ Vidzeme University of Applied Sciences

Abstract. This article analyses the role of nature as an ecosystem in economic sustainable development of rural environment. The analysis is carried out using direct face-to-face interviews and focus groups with active people in rural areas who during the period 2009-2013 have developed or participated in the preparation of project applications in the EU LEADER programme in the territory of Madona Region Community Foundation including 5 local municipalities in Latvia. The operation strategy of the Foundation aims at developing a quality living environment in the area. The following secondary source was used for the analysis of interrelationships on the importance of nature in place economic development - Latvian Country Tourism Association survey of tourists about the factors that affect the choice of destination for the holiday in a rural area in Latvia. Primary and secondary results of the study showed that in general the nature has an important role in place economic sustainable development, because that is why people choose these places for living, working and leisure.

Key words: nature, place development, place attractiveness, green development.

JEL code: Q5

Introduction

The authors focus on nature significance as one of the indicators of place economic sustainable development in rural areas. For many years the most common indicator for estimating development of a country or a region on the global scale has been Gross Domestic Product (GDP) per capita. Nowadays different types of indexes are used to describe poverty; if the index of poverty is lower, it indicates higher level of development. Another set of indexes is about footprint or environmental performance (Yale University, Columbia University, 2012). These indicators or indexes are mainly used for global or national comparisons to evaluate the level of pollution or area covering with forests etc. Elgert and Kreger argue that sustainable development indicators on the global scale such as Rio, and also on local scale such as local Agenda 21 do not work by political and rational reasons (Elgert, Kreger, 2012). The aim of the

⁺ E-mail: agita.livina@va.lv

research is to look at how significant the nature is in terms of visual, audio and scent value for local inhabitants and travellers to choose a place for living or place for spending their leisure time. The object of the research is nature role in place development nowadays. The authors assume that the value of nature as an indicator for place of living and working will increase in the future because eco or green lifestyle becomes more popular every year. In the authors' view, nature is a significant pre-condition for economic sustainable development of a place because it attracts people to the place, and at the same time it is a resource for economic development in such sectors as bio-agriculture, forestry, fishery, tourism, efficient and smart production of nature based resources. Rural areas are characterized mainly by traditional economic activity as well as there are just a few sectors of the economy (Weber, 1999). Zaluksne in her study of cities confirms that the micro-towns are part of the rural environment, and according to the economic diversification on the basis of NACE classifier, there are mainly up to four economic activities there (Zaluksne, V. 2014).

Herriman et.al look at sustainability as a relationship. They consider that the social dimension of sustainability is about connections between people, and the environmental dimension of sustainability requires to work together to make change (Herriman, 2012). The social dimension is taken into account in this study to make connection with local people during the investigation by personal interviews.

It is a qualitative research based on a written survey and face-to-face interviews with local inhabitants of Vidzeme region in Latvia from five local municipalities around Madona town which is a centre of regional development significance. At the same time the number of population in urban areas in the world is increasing but there is a certain number of people who prefer to live in rural areas. In case of Latvia, the authors consider that the whole country is a rural area, excluding capital and 8 other cities where the population varies from 643 368 in Riga and 23 269 in Jekabpils. The authors asked the respondents why they prefer to live and work in this area. From this point of view, nature values are not estimated or included in the global sustainable development indexes because places are local areas for individuals. In the European Union, Green development policy becomes more significant as the EU Green Infrastructure report is being implemented, including evaluation of various development projects.

Another study the results of which are used in this article is the Latvian Country Tourism Association "Lauku celotajs" (Country Traveller) survey conducted in the spring 2014, when local and foreign travellers were polled on the website of the organization to find out the criteria and attraction of travellers for choosing their destination in the countryside of Latvia.

The acquired results from both practical studies show the significant role of the component of nature in the economic development of rural areas, both for people who permanently live and work there as well as for those who prefer countryside to relax from the daily life in the city.

1. Diversity of indicators for sustainable regional development

A perception of a place development is changing over the time in different parts of the world. One of the most used indicators is GDP per capita used when national governments and global organisations want to describe the level of development and achievements by a country or a region. Now the authors can agree that the situation is changing; there are many discussions about GDP as the main economic development indicator (Elgert, Krueger, 2012). Instead of GDP, Gross National Happiness as an indicator was designed in Bhutan where this term is known for more than 40 years. At the same time different synthetic indexes become more popular, including several measurements, for example:

ESPON INTERCO project (2013) has set up six groups of territorial objectives with indicators: 1) strong local economies ensuring global competitiveness; 2) innovative territories; 3) fair access to services, market and jobs; 4) inclusion and quality of life; 5) attractive regions of high ecological values and strong territorial capital; and 6) integrated polycentric territorial development. The authors are going to explore the fifth territorial objective, since it is their interest during this research. These indicators have potential vulnerability to climate change, air pollution - PM10, air pollution - ozone concentrations and soil sealing per capita (INTERCO, 2013).

Another ESPON project KITCASP compiled indicator sets on four different themes: economic competitiveness and resilience, integrated spatial development, social cohesion and quality of life, environmental resource management. The group of social cohesion and quality of life includes green space indicator (% of total population within 500 metres of public managed green areas) and well-being index which are connected with significance of nature. The group of environmental resource management includes number and status of protected European habitats and species and water quality status (absolute values on the actual status or objective met/failed (as per WFD for groundwater, rivers, lakes, estuarine, coastal)) (KITCASP, 2013).

There was a discussion in September 2014 about how far different parts of Europe have progressed towards a green economy (GREECO, 2014). The ESPON research is focusing on five core spheres of green economy from the regional point of view: territorial sphere, economic sphere, ecosphere, environmental sphere and social sphere. The results of this project show that the environmental sphere in particular has the lowest performance; however, the researchers found out through case studies that higher awareness level is significant for greening economic sectors and in order to foster sustainable practices. The awareness increases the demand for greener services and products for consumption (GREECO, 2014). The authors consider that investments in environmental awareness are still crucial in Latvia. GREECO project compiled factors of green economy, for example, the indicator for key economic instrument is environmental protection expenditure in euro per capita; the indicators for territorial assets and physical conditions are percentage of Natura 2000 and onshore wind, photo voltaic and biomass energy potentials (GREECO, 2014). The authors believe that the

contribution of GREECO project to attract attention to the sustainable development in practice is supportive.

It is important to understand what indicators can be used on the level of single area that would describe the place economic sustainability in rural areas. This is by far less studied than place attractiveness (Zaluksne, V.), brand (Brencis, A.), or place suitability for some sector. In this article, rural areas, according to the OECD classification, are understood as sparsely populated areas with market towns. Economy is based on natural resources in rural areas with low population density. Key resources of development provided by rural places according the OECD study are: small and medium enterprises, natural resources, amenities/landscape, ecosystem services and green fields. Ecosystem services are mentioned as fundamental for overall environmental sustainability and for citizens' quality of life. In this study landscape is evaluated as a public good which can be valued as a factor that increases quality of life and the potential for tourism (OECD, 2013).

There is a traditional view that the region's identity is shaped by the natural and cultural features in a geographical space that inhabitants associate themselves with (Paasi, 2013). Natural and cultural values affect the brand development of areas, place visibility, for example, in the research area of Cesvaine municipality, the Cesvaine castle is considered to be a significant value both as a cultural heritage and an opportunity for the economic development of the town and the surrounding areas, since it is the castle that creates place visibility. Similar situation is with Lake Lubana, which is the largest lake in Latvia, and the developed Lubana wetland protected natural area, which is the basis for the development of the economic life of the place, such as tourism, fishery, research in this rural area.

For its implementation and evaluation, the strategy of Madona Region Community Foundation defines quantitative and qualitative indicators according to eight actions. Out of these, among quantitative indicators, two can be attributed to the natural and cultural environment: 1) at least 20 leisure objects developed or established; the authors believe that at least some of these objects are in the open air, and thereby associated with nature, 2) at least 10 cultural and historical sites renewed (Madona, 2008).

2. Case study of nature importance in place sustainable development

The authors S.Rozentale and A.Livina carried out the research in a rural area in the Eastern part of Latvia from May to October 2014. The surveys were conducted in a written form and completed by the specialists of local municipalities which were involved in the work on development issues, including the EU LEADER Programme. There were 39 respondents who provided their understanding of the meaning of qualitative living environment. During the same period both researchers conducted face-to-face interviews and a few phone interviews with the staff of municipalities, local entrepreneurs or members of NGOs, in total 155 respondents.

The case study area includes five local municipalities (Madona, Lubana, Ergli, Cesvaine and Varaklani) with total area of 3353km² or 5.2% of Latvian territory, and 35 698 inhabitants or 1.76% of Latvian population in 2014. The area includes a town of regional development significance – Madona, and centres of local development significance - Lubana, Cesvaine and Varaklani.

The Latvian Country Tourism Association "Lauku celotajs" (Country Traveller) conducted the survey in spring 2014 on the website www.celotajs.lv on criteria and attractions to select destination in the countryside for leisure. There were 787 local and 129 foreign respondents, in total 916 respondents.

Research results and discussion

The authors start with the findings of the written survey where the respondents were asked to explain the term "qualitative living environment", since all five municipalities joined in a non-governmental organization "Madona Region Community Foundation" to implement local actions supported by the EU LEADER Programme. The goal of their local development strategy was to support citizen participation and involvement in the development of high-quality living environment in the territory of Madona Region Community Foundation (Madona, 2008). According to the results, the understanding of qualitative living environment can be divided in three parts: economic, social environment and culture, and governance.

The results of survey show that qualitative economic environment, cultural and social environment and governance are characterised mainly by the following conditions and possibilities (see Figure 1):

<u>Qualitative economic environment</u>	Cultural and social environment	Governance
<ul style="list-style-type: none"> •Closeness of place of work and possibility to receive services; •Well-developed entrepreneurship; •Safe environment, place where one can provide living for themselves and the family; •Possibility to choose a job, to work in a profession, to do a creative work; •Inhabitants have regular income; Balanced income and expenditure of local inhabitants; •Support to local inhabitants; •Good shops with a wide range of products; •Well-established infrastructure; •Well-arranged environment; •Safe and healthy environment; •Beautiful nature; •Educational, medical and social services can be received freely and conveniently; •Schools, medicine. 	<ul style="list-style-type: none"> •Place where to relax; •Cultural and sports services can be received freely and conveniently; •Environment where a person can do their hobbies and other activities they find important; •Inhabitants have possibilities to fulfil their creative desires (culture, sports, hobbies); •Possibility to spend free time in varied and interesting ways by joining a number of activities. •Finding groups of common interest; •Extracurricular activities; •Leisure time activities for youth and children; •Security. 	<ul style="list-style-type: none"> •Educational, medical and social services can be received freely and conveniently; •Schools, medicine; •Availability of education; •Possibilities for extracurricular activities; •Leisure time activities for youth and children.

Source: Survey results of Madona region community foundation carried-out by Rozentale, Livina, 2004

Fig.1. Perception and understanding of qualitative living environment by locals

The respondents perceived the economic aspect of qualitative living environment as the most serious because this was the weak point in the research area. One of the interviewees stated that the emotional attitude also constituted a quality living environment (respondents, 29 September, 2014). Another respondent suggested that small producers should be supported, as there were not many who wanted to do something in the countryside (Respondents, 2014).

Interviews with entrepreneurs and the self-employed who had submitted their projects in the EU LEADER programme in the business (total of 45 applications) and home production activity (total of 25 applications) in this territory of research, the project breakdown by industry was the following (see Table 1):

Table 1

Number of projects submitted in the LEADER programme by industry during the period 2009-2013 in the research territory

Business activity by sector	Number of submitted projects (n=45)	Agricultural production, processing or reprocessing and pre-treatment at home by sector	Number of submitted projects (n=27)
Equipment rental services, including logging	22	Fruit, garden establishment, processing of berries, vegetables and mushrooms	11
Car service, development	5	Beekeeping	10
Woodworking, including chopping firewood	5	Rabbit-breeding	1
Equipment in the agricultural sector	3	Beef cattle breeding	1
Beauty services	2	Meat processing	1
Tourism	2	Floriculture	1
Binding of digital works	1	Cultivation of grain	1
Road construction	1	Bakery	1
Land surveying	1		
Metal working	1		
Sewing services	1		
Food processing	1		

Source: Madona Region Community Foundation, 2014

Both the number of projects submitted by sector as well as the content of the projects submitted, and the interviews with project applicants pointed to the fact that people were aware that, when living in a rural environment, one had to make use of site-specific natural advantages or avoid the limiting factors. The research territory is hilly with scattered areas of agricultural lands. Thus, beekeeping has developed rapidly in this territory, historically this activity has been there but also the support provided by the state in the form of subsidies has accelerated the expansion of the sector as a business rather than a hobby. A respondent points out that the land area is small and located on the hillsides, so it is necessary to find the most appropriate type of management of such a place.

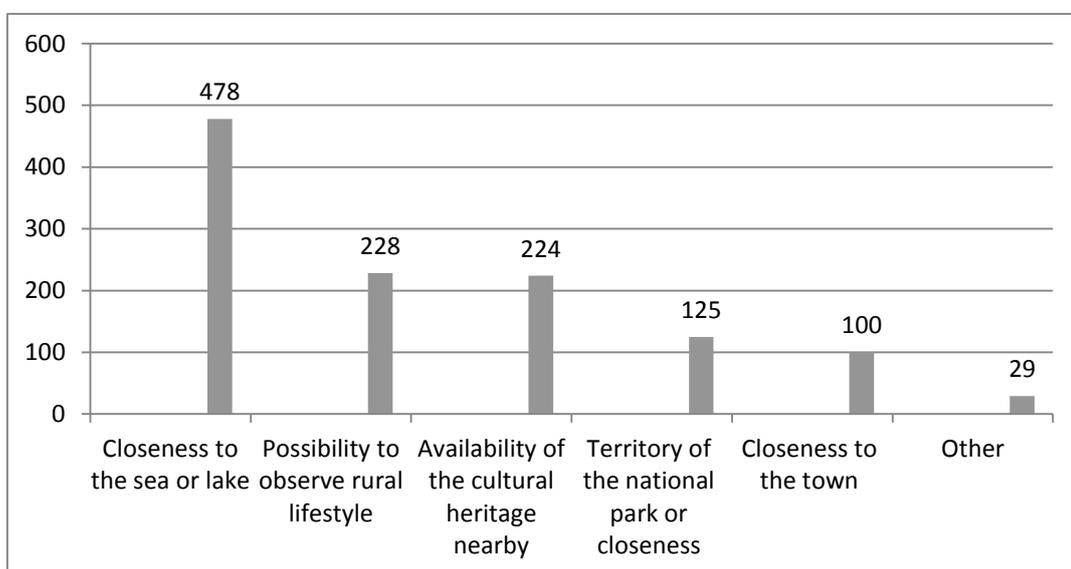
Another respondent during the interview indicates why he chose to prepare a project proposal for the establishment of an apple orchard: it is because in the place where the property is located other berry plantations could not be developed due to a bird migration route.

During the study the researchers discovered two projects that were closely related to the economic sustainable development of a place, which were implemented by associations. One of them was Kala Lake Board project which had brought together the people living around the lake for the sustainable management of the lake, in order to maintain fish living there as well as for the promotion of environmental education activities.

The second project, popularly called Iron Horse, provided purchasing of wood cutting technical unit that provides environmentally friendly management in small forest areas. The

purchasing of this equipment is special due environmentally friendly approach, thus, it is expensive and time consuming but in turn makes it possible to cut down and transport exactly the necessary trees from the forest, providing an opportunity for adjacent trees to grow; this is particularly important for the storm affected areas with fallen trees. The use of this equipment promotes awareness of environmentally friendly logging, particularly in environmentally sensitive natural areas. For the maintenance and purchase of such equipment, as one of the respondents indicated, the optimal size of the cooperation was around 3-4 owners, as everyone who uses the equipment must take responsibility. The respondent pointed out that in the future such cooperation model will be useful, since it was not economically viable to buy small-scale equipment just for one farm, while the prices are more expensive when buying the service from outside but overall the price is reasonably expensive, including costs and maintenance costs.

The second study, conducted by the Latvian Country Tourism Association "Lauku ceļotājs" (Country Traveller), has revealed that the major attractions for place selection are determined by the scenic component, which includes the cultural landscape developed in the process of human and natural interaction - closeness to the sea or lake (40%), possibility to observe rural lifestyle (19%), availability of the cultural heritage nearby (19%), territory of the national park or closeness (11%), and closeness to the town (9%), other (3%) (see Figure 2). The results of this and other surveys conducted in the previous years by the Association, show that people have an increasing desire to go to natural areas, untouched by the industrial and urban environment, where significant natural values and "live" rural environment is preserved.

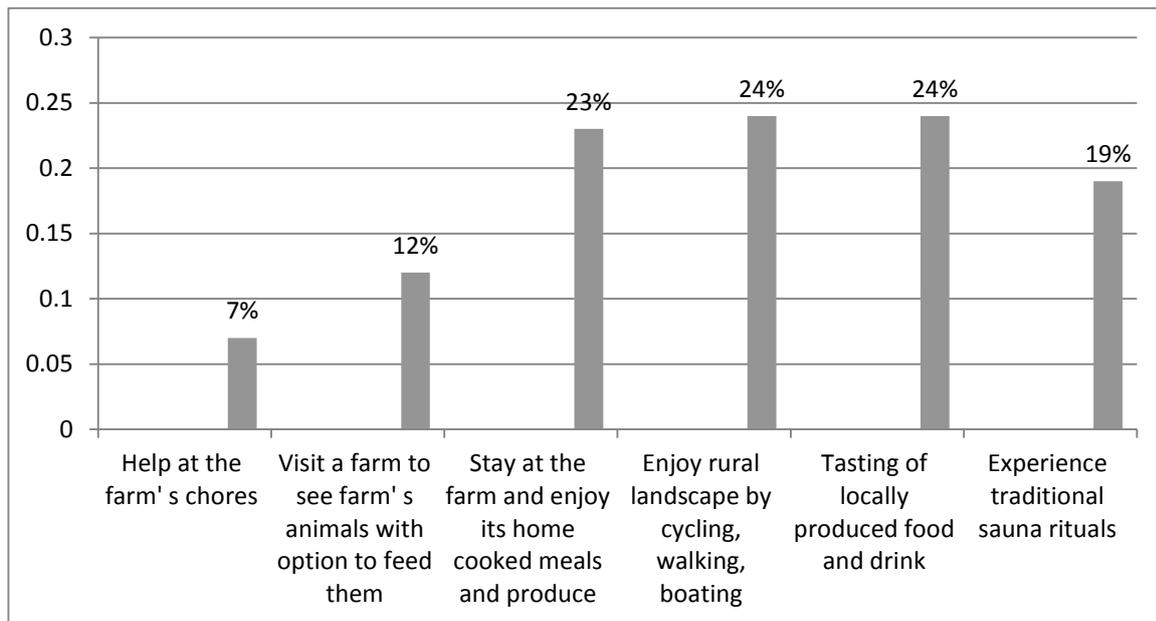


Source: The Latvian Country Tourism Association "Lauku ceļotājs" (Country Traveller), 2014

Fig. 2. Criteria of choice of place for recreation in the countryside. Case study in Latvia

Despite the desire to enjoy less-touched nature, the modern traveller at the same time also wishes to receive adequate and quality services in a recreation place - accommodation, food, public transport, equipment rental, guide services and getting to know the "local life". In Latvia

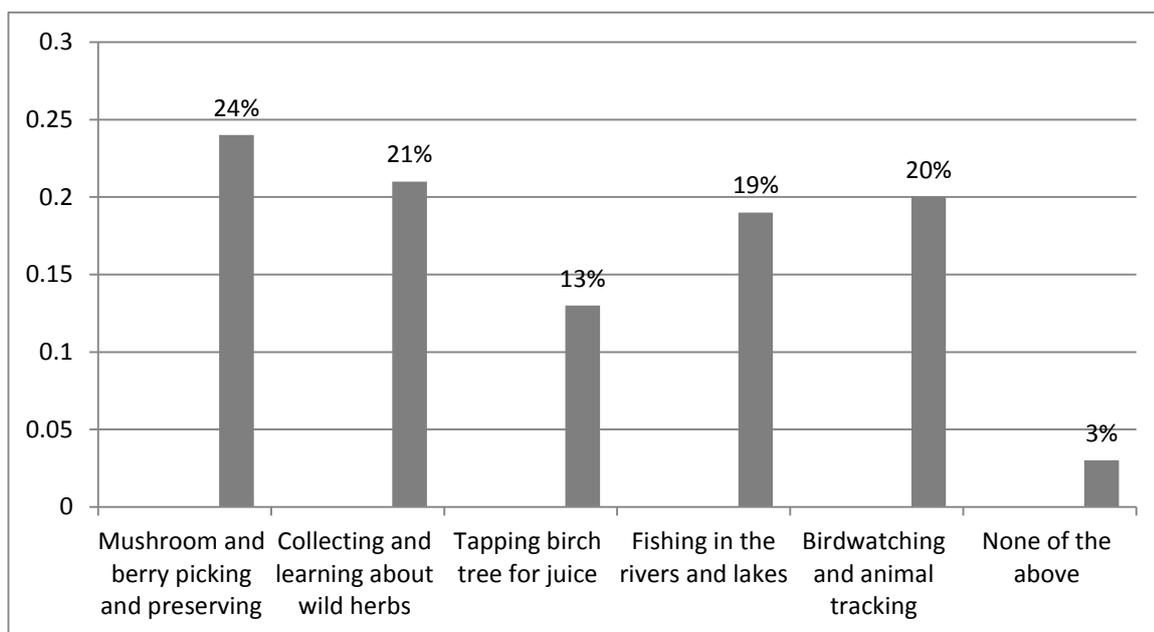
the "countryside goodies" tourism product has evolved over the past decade, offered by local farms (> 300). According to the above survey, the travellers wish to include the following as the main activities of their holiday: active rural enjoyment (walking, cycling, boating) - 24%, farm-grown produce and home-cooked meals (23%), open farm visits (15%) and contact with animals (12%) (see Figure 3). The survey results show that a very important resource for rural areas is a local businessman who creates added value to the rural and natural environment, which are essentially interrelated and have impact on each other. Often tourism-related activities are also one of the not-many economic activities (excluding agriculture and forestry) in these areas.



Source: The Latvian Country Tourism Association "Lauku celotajs" (Country Traveller), 2014

Fig. 3. Types of activities that respondents would like to include in their country holidays, %

Natural base - species, habitats and landscapes - is very important venue for various tourism-related activities (see Figure 4). According to the survey carried out by "Country Holidays", travellers want to pick mushrooms and berries (24%), seek medical etc. herbs (21%), observe wild animals and birds (20%), fish (19%), and extract birch juice (13%). One of the reasons for city dwellers to spend their leisure time in the rural environment is peace and silence, which distinguishes it from the environment where the modern man spends their daily life (noise, poor air quality, stress etc.).



Source: The Latvian Country Tourism Association "Lauku celotajs" (Country Traveller), 2014

Fig. 4. Willingness to participate in wildlife activities, %

Conclusions, proposals, recommendations

In assessing theoretical conclusions on the use of a variety of indicators for national, regional and place development, it is noted that the chosen indicators often do not reach their goals. At the same time, the authors note that the indicator setting and application changes. Local governments and institutions begin to use so far unused indicators to attract attention in domestic and foreign markets, such as city brand tops, cities more appropriate for living, working, tourism.

This research and the Latvian Country Tourism Association survey results indicate that the nature as a set of ecosystem has significance in place economic development, because the beauty of nature and scenery, and peace are factors why number of people choose rural areas in particular as their place of residence. While living in a rural area, it is natural that people are looking for business opportunities provided by the existing natural resources in terms of agricultural activities and services for tourists. Furthermore, tourists who want to spend holidays in rural areas recognize natural resources as important in order to visit particular places for leisure.

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CAPABILITY OF COMMUNITIES AS PRECONDITION FOR SUSTAINABILITY OF RURAL AREAS

Liga Paula¹, Mg.sc.soc., PhD student +

¹ Faculty of Economics and Social Development, Latvia University of Agriculture

Abstract. This paper represents a part of the results derived from the main findings of the PhD research focusing on community capability and community involvement in rural development in Latvia. Contemporary endogenous and neo-endogenous approaches to rural development emphasize greater involvement of local communities in development processes providing both opportunities of involvement in decision making and support instruments. However, communities lack capability to recognize and seize the opportunities in many cases. It is not conceivable that rural development policy objectives would be achieved without viable rural communities. Therefore, the aim of the paper is to characterize capability of rural communities as precondition for sustainability of rural areas, and to analyse factors affecting community's capability. Case study approach was chosen for the research, which was carried out in 2014 and 2015. Empirical data were obtained in three rural municipalities (novadi) representing three regions of Latvia: Riebini municipality (Latgale region), Rundale municipality (Zemgale region), and Strenci municipality (Vidzeme region). The research findings reveal that rural communities have strong cultural and social capability, whereas economic capability is very weak. Both internal and external factors affect capability, for example, migration and population mobility, availability of financial and human resources. These factors have positive as well as negative impact on capability of rural communities.

Key words: community capability, sustainability, rural areas.

JEL code: Q01, R58, Z13

Introduction

The concept of sustainability of rural areas and sustainability in rural contexts has gained popularity among scholars, researchers and policy makers all across Europe in the last decades. Along with other issues, quality of life, sustainability (economic, environmental and social), and balanced territorial development have been emphasized in the new Common Agricultural Policy 2014-2020 (European Commission, 2013). Current adverse socio-economic and demographic tendencies in many rural areas require complex solutions and greater

+ Corresponding author. Tel.: + 371 26321667; fax: + 371 63005616
E-mail address: Liga.Paula@llu.lv

coordination between different social agents (ministries, municipalities and local governments, non-governmental sector, and local communities) in defining policies and activities related to rural development. It is not conceivable that rural development policy objectives would be achieved without viable rural communities, thus, the question is, how communities can be resilient and improve their capability when they are challenged by both external and internal factors. Community resilience, capacity building and participation in development processes have been emphasized in many studies and discussed in a number of conferences, for example, organized by the European Society for Rural Sociology (ESRS, 2013). Involvement of rural communities in local development processes is emphasized in the endogenous and neo-endogenous approaches to rural development (Galdeano-Gómez E., Aznar-Sánchez J.A., Pérez-Mesa J.C., 2011). However, this approach is also criticized (see, for example, Margarian A., 2013). Nevertheless, current rural development policies in Europe and also in Latvia tend to promote greater activity of local actors.

Although there are number of recent studies about socio-economic issues in rural territories (e.g. Karklina R., 2012 and LVAEI, 2011), they do not focus specifically on analysis at community level and do not examine particular cases. This paper represents a part of the results derived from the main findings of the PhD research focusing on community capability and community involvement in rural development in Latvia. The case study approach was chosen for the research and empirical data were obtained in three rural municipalities (Figure 1). Document analysis, expert interviews, and semi-structured interviews were conducted in order to obtain the data. The aim of the paper is to characterize capability of rural communities as precondition for sustainability of rural areas, and to analyse factors affecting community's capability. In order to reach the aim, the following tasks were set:

- to explore theoretical discussion about the concept of rural community and to support it with empirical data;
- to define the concept of capability of rural communities and discuss its relations with sustainability;
- on the basis of qualitative research data, to identify internal and external factors affecting capability of rural communities.

The author of the paper seeks to find answers to the following research questions:

- (1) What are the links between capability of the community and sustainability of rural area?
- (2) What internal and external factors affect capability of rural communities?

Research methodology

The case study approach (Yin R.K., 2003) was chosen for the PhD research. In 2014 and 2015, empirical data were obtained about three rural municipalities (novadi) representing three Latvia's regions: Riebini municipality (Latgale region), Rundale municipality (Zemgale region), and Strenci municipality (Vidzeme region) (Figure 1).



Fig.1. Rural municipalities selected for the case study

The cases were selected according to the following criteria: 1) rural municipalities should represent different regions of the state; 2) the size of the territories and numbers of inhabitants should be comparable; 3) territory development index should differ among the municipalities; 4) selected municipalities should have different geographical allocation and distance from Riga and regional centers; 5) rural municipalities should vary by economic structure (diversity of economic activities, employment structure, unemployment, economic potential), socio-demographic structure, service infrastructure, natural and cultural resources; 6) rural municipalities should vary by number and structure of administrative units (villages, small towns, *pagasts*); 7) presence of active NGOs and local initiative groups in municipalities.

Document analysis, expert interviews, and semi-structured interviews were used in order to obtain the data, which characterized capability and resilience of local rural communities. Both expert interviews and semi-structured interviews focused on socio-economic aspects of community capability within a context of sustainability: community involvement in local development planning, local problems and challenges, community's abilities and skills to use financial and other supportive instruments provided by local governments, foundations, and national rural development policy. Two expert interviews were held with representatives of organizations supporting local initiatives in rural communities all across Latvia: *Liesma Ose* (Chair of the board of the Latvian Community Initiatives Foundation) and *Valdis Kudins* (Chair of the board of the Latvian Rural Forum). Experts were asked to share their experience and vision about the involvement of communities in local development processes, their ability to respond to current socio-economic challenges, and factors affecting community's capability. Twenty-one semi-structured interviews were conducted with the representatives of local governments and community members (mainly activists of local NGOs). They were asked about local initiatives and community involvement in local development processes, abilities and skills to cooperate and use available financial instruments etc. In order to support qualitative

data, the strategies for sustainable development of the particular municipalities, and development strategies at national level (for example, Rural Development Programme 2014-2020) were analyzed in the research.

Research results and discussion

Contemporary rural community: theoretical assumptions and empirical evidence

The concept of the community is used by sociologists in several different ways. In this research, the concept is used considering that the community is a group of people sharing a common territory as well as common interests, goals, participation, and identity. The concept of the rural community might seem self-evident; however, it raises many questions and sometimes confusion. What is a community in contemporary globalized world where people have both face-to-face interactions and virtual connections beyond their rural settings? Can we still find communities having close relationships, mutual trust and reciprocity, community spirit and self-awareness? What are boundaries of the community? Do people living in the same village or municipality necessarily form a community? Still, in contemporary world there is no question whether communities exist but more what types of local relationships people sustain and what dependence they have on local institutions (Scott J., 2006). Number of scholars relates an idea of community-led development with a shift from government to governance, thus, "communities have the capacities to take a more active role in their development" (Herbert-Cheshire, L., Higgins, V., 2004:389). However, it is very important to identify local actors which would be able to represent community opinion, define objectives and participate.

The research results show that the concept of community still has not enrooted very well in everyday communication at the community level as well as in vocabulary of policy makers. Definitely, a community is much more than a place. As one of the experts stated: "*Community is about recognition and acceptance of an internal diversity*" (the expert interview with Liesma Ose). Both experts suggested applying the concept on smaller territorial units than municipality, for example, a village or even a part of it. The case study results approve that communities in rural areas are not homogenous; they internally differ in social structures and relationship patterns which have been developed historically. Variety of socio-demographic groups, ethnicity, cultural and religious differences makes communities heterogeneous.

Capability of rural communities within a context of sustainable rural areas

The role of the community is to fulfil specific purposes that its members cannot satisfy alone (Brager G., Specht H., Torczyner L.J., 1987). Capability at the community level means that community is able to mobilise its resources and abilities, is aware of opportunities and recognizes them, and takes action actively, purposefully and accordingly to the goals set by the community. Ability of self-organization for achieving community's aims or interests, and for

preventing from marginalization, poverty and other negative processes is a factor significantly influencing capability of a community (e.g. Narayana D., 2005; Alsop R. et al, 2006). Capability has several dimensions. *Social and cultural dimension* means awareness and ability to maintain community's identity and cultural life, to support community members and satisfy their needs. *Environmental dimension* is related to community's responsibility to use and take care of its natural resources and anthropogenic environment. *Economic dimension* characterises involvement of the community members into economic activities, labour market, and private businesses. *Political dimension* means ability to establish or to be involved actively in local, nongovernmental and public organizations which have impact on community's life. In reality, these dimensions are interrelated. Capability is crucial for sustainable communities, which are in the core of sustainable rural areas. Schouten A.H.M. et al. denote rural areas as social-ecological systems, comprised of social and economic (or human) and ecological (or biophysical) characteristics (Schouten A.H.M., van der Heide M.C., Heijman J.M.W., Opdam F.M.P., 2012:166). In this system, the human subsystem (Socio-economic subsystem) is comprised of individuals, groups, networks and institutions (rules, regulations and procedures), which intervene with the ecological system (Ecosystem). Both subsystems interact: ecosystem provides services but humans intervene on ecosystem in different ways (Schouten A.H.M., van der Heide M.C., Heijman J.M.W., Opdam F.M.P., 2012:167) both positively and negatively. All these aspects should be considered when analysing rural community capability.

Analysis of the community initiatives shows that they are mainly focused on social, educational and cultural activities; there are few attempts to establish entrepreneurial initiatives. This leads to conclusion that social and cultural dimension of capability is more developed in rural areas, whereas, economic dimension is very weak. As local economy should be inclusive, developing community businesses requires community needs assessment and skilful resource management. The experts emphasize that rural people often lack business thinking skills and are not able to assign value to the services they can provide or goods they create. This, in turn, impedes developing new businesses. The most active social categories in rural areas are women, youth and seniors. These groups are mostly involved in community activities, which are related to social and cultural sphere. Capability in rural areas is often affected by ethnicity; it plays important role if ethnic groups form smaller closed communities and therefore they do not involve so actively in processes of wider community (local municipality).

Components of sustainable communities are as follows: effective and inclusive governance; good transport system and communication; public, private, voluntary and community services; inclusiveness; flourishing local economy; housing and the built environment; fair, tolerant and cohesive social environment; strong local culture (Sustainable Development Principles). To reach this condition in rural areas, governmental and municipal institutions need to develop purposeful public policy. However, more detailed analysis of the rural development policy

statements in Latvia (Ministry of Agriculture, 2014) leads to some doubts whether policy makers indeed treat rural development in its broader sense instead of focusing mainly on traditional rural activities (agriculture, forestry, fishery, natural resource management). It seems that diversified economy, social inclusion and reduction of poverty as well as improved road infrastructure, and services in rural areas are still the matter of political rhetoric. It is difficult to find one strategic document or plan purposefully focusing on rural problems in a systemic way except support to already mentioned traditional rural economic activities. These arguments were supported also by the respondents.

The interviews reveal that in most cases rural people and local governments (especially those allocated far from the capital Riga) struggle for surviving without reasonable vision on how rural areas should be developed in a future. In the interview, the expert Valdis Kudins defined sustainable community development this way: sustainable community development means that people sharing common territorial interests and having clearly defined objectives know how to reach them by self-organizing and restructuring local resources. Sustainable communities attract external means after restructuring local resources. The core idea of this statement is that community itself should be able to define objectives, purposefully use local resources and to turn its efforts in particular results. In this sense, definitions of capability and sustainable community development have basic arguments in common. The experts acknowledge that rural communities are too dependent of external resources which restrict ability to develop sustainable long-term strategies based on both local and external resources and opportunities.

Factors affecting capability of rural communities

The experts, members of local governments and community activists identified variety of factors, which have impact on capability of the community. In some aspects respondents shared common opinion; still the experts pointed more specific arguments based on their experience with rural communities all across the country. Community's capability is very much affected by both internal and external factors, for example, migration and population mobility, availability of financial and human resources. Summaries of the main factors having both positive and negative impact on capability are presented in Table 1 and Table 2.

External factors are influences coming from wider society, general socio-economic and demographic trends in the country, political and institutional environment, public policies etc. (Table 1). In most of the cases rural community initiatives are supported by the policy instruments provided by the EU funds (LEADER in particular), foundations supporting community initiatives (e.g. Latvian Community Initiatives Foundation, Society Integration Foundation, Soros Foundation, Boris and Inara Teterev Foundation) and small grants of local municipalities. These opportunities have multiple effects on community performances: on the one hand they provide financial resources and ensure practical fulfilment of local objectives

and initiatives, and on the other hand, require and also develop particular skills in local communities.

Table 1

External factors affecting capability of rural communities

Factors with a positive impact	Factors with a negative impact
<ul style="list-style-type: none"> • Availability of the EU Structural Funds and financial instruments provided by the Rural Development Programme (LEADER) • Availability of financial support provided as small grants by local government (normally few hundreds of RUR) • Opportunities for international cooperation • Proximity of Riga or regional centre • Improved situation in regional or national economy, better job opportunities 	<ul style="list-style-type: none"> • Unsuccessful administrative territorial reform, which has led to unreasoned service infrastructure • Unreasoned public policies, which put survival and development of smaller rural municipalities under the threat • Too complicated bureaucratic procedures when applying for project funding • Adverse labour market conditions, high unemployment rate in the region • Too strong or weak neighbouring communities/ municipalities

Source: Expert and semi-structured interviews

Internal factors are related to the community itself and its internal environment: relationships, structures, resources etc. (Table 2).

Internal factors affecting capability of rural communities

Factors with a positive impact	Factors with a negative impact
<ul style="list-style-type: none"> • Local patriotism and place attachment • Mutual trust, social capital (bridging and bonding ties) within a community and outside the community • Willingness to cooperate and spend time on behalf of the community, readiness to volunteer • Willingness to be still useful (important for elderly people) • Former experience of managing people and organizations, key people as driving force • Good education and specific skills • Being successful in previous activities • Enthusiastic newcomers, who bring novel ideas and have skills to motivate and convince locals; for newcomers it is important to be accepted as trustworthy • Availability of financial support provided by the local governments as small grants (normally few hundreds of EUR) • Municipal support and expertise • Presence of natural or/and cultural heritage 	<ul style="list-style-type: none"> • Adverse socio-demographic structure • Outmigration of youth and jobseekers • Lack of trust, and bridging and bonding ties within and outside the community • Focusing on problem solving instead of seizing the opportunities • Lack of dialogue and/ or internal competition between subgroups • Historically established reserved relationships between ethnic groups or other groups within a community • Language barriers, cultural and religious differences, which lead to misunderstanding and difficulties to come to agreement • Lack of resources; lack of key people as driving force and brokering • Local apathy, local conflicts, e.g. between local government and informal community leaders • Lack of both understanding and shared vision on future development, priorities and means, how to reach particular targets; fear of change

Source: *Expert and semi-structured interviews*

The data show that economic capability in communities is less developed than other capability dimensions (social, cultural, and political). Respondents were asked to suggest, what should be done to develop economic capability in rural communities. Most of the respondents were not able to answer; even representatives of local governments had difficulties to formulate their opinion. The experts shared their vision and proposed to develop Public Private Partnerships in order to warm-up local economy; also social entrepreneurship was seen as appropriate solution.

Conclusions and recommendations

1. Rural development policy focus on rural sustainability providing special support programmes also for rural communities. Objectives set by the rural development policy can be achieved in viable rural communities with well developed political, cultural, social, and economic capability. Capability analysis is useful for different social agents and stakeholders as all parties can contribute to local needs assessment and investigation in order to develop more clear strategies of local development.

2. Links between sustainability of rural areas are closely related to all dimensions of community capability as they are interrelated. Social and cultural dimension of capability is well developed in researched communities; however, in order to be more sustainable in a long run, communities should focus more on economic activities, cooperation networks, developing new business, establishing social entrepreneurship. The research reveals that lack of project writing skills and inability to formulate particular objectives often are obstacles for applying for funding.
3. Positive impact on capability have local patriotism and place attachment, high level of social capital (bridging and bonding ties), readiness to volunteer and willingness to be useful, good education and specific skills, key people as a driving force, municipal support and expertise. In many cases newcomers become a driving force for change.
4. Capability of rural communities is negatively affected by a number of internal and external factors, such as adverse socio-demographic structure of the community, outmigration of youth and jobseekers, lack of bridging and bonding ties within and outside the community, historically established reserved relationships between ethnic groups or other groups within a community, language barriers, cultural and religious differences, lack of key people as driving force, unreasoned public policies.

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CHARACTERISTIC OF FAMILY FARMING IN THE EUROPEAN UNION

Maria Parlinska¹, PhD, hab., prof. SGGW; **Agnieszka Parlinska**¹ PhD⁺

¹Warsaw University of Live Sciences – SGGW

Abstract. The aim of the paper is characteristics of the role of family farming within the European Union's countries. Authors pointed out that the definition of family farming within the EU countries is affected by the numbers of holdings, land areas and economic significance of the farm sector. Due to the availability of data the analysed period covers the years 2005-2010. In the research paper the descriptive and comparative methods were used, as well as the simple statistical method.

Family farming is the most common operational farming model in Europe, and thus, of great importance in the EU. Eighty seven percent of the EU's farms are family farms, passed down from one generation to another, and contribute to the socio-economic and environmental sustainability of rural areas. There is a high diversity of family farms in the EU, in terms of their size, activities they engage in, availability of resources, degree of market integration, competitiveness, etc.

Key words: family farming, sole holders,

JEL code: Q1

Introduction

The United Nations announced the year 2014 as the International Year of Family Farming. It was done in an effort to highlight the potential family farmers (FFs) have to eradicate hunger, preserve natural resources, and promote sustainable development. According to the UN Food and Agriculture Organization (FAO), there are an estimated 500 million family farms which represent up to 80% of all farm holdings across the developed and developing world. These farms produce the food that feeds billions of people and rely primarily on family members for labour and management (Sourisseau J.M., 2015; FAO, 2014).

The family farming is the most popular functioning farming model also in Europe, and thus, of great importance in the European Union. The majority of the EU's 12 million farms are family farms, passed down from one generation to another, and contribute to the socio-economic and environmental sustainability of rural areas.

⁺ Corresponding author. Tel.: + 48 22 59 34 194;
E-mail address: agnieszka_parlinska@sggw.pl.

The aim of this paper is to characterize the family farming and their role within the European Union economy. The following problems are examined:

- definition of the family farming within the EU;
- function of family farming;
- as well as diversity of family farms in the EU.

Analyses, carried out in the paper, cover the period of 2005-2010. The information and data about the analysed issues are taken from the applicable literatures, legal acts as well from the EU's Farm Structure Survey (FSS) and the Farm Accountancy Data Network (FADN). The used data illustrate the examined problems, show the scale of changes, their tendency and differences between the EU countries.

The descriptive and comparative methods were used in the research paper, as well as the simple statistical method in order to analyse the problem from the economic point of view.

Research results and discussion

The crucial question is who family farmers are. Within the EU and world-wide can be find the various definitions of "family farm" and "family farmer".

FAO defines that family farming "includes all family-based agricultural activities, and it is linked to several areas of rural development. Family farming is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labour, including both women's and men's. The family and the farm are linked, co-evolve and combine economic, environmental, social and cultural functions" (FAO, 2013).

The family farmers have been the main target group for policy support of the Common Agricultural Policy. However, the European Commission has never defined the concept precisely. Definition can be based on:

- share of farm labour¹;
- on ownership and control (and thus, succession between generations)²;
- on legal status (sole holders)³;
- or on who bears the business risk⁴.

¹ It considers the operation of the farm - the use of family labour and confines the family farm to a household, which normally lives under the same roof, whilst members of an (extended) family can live in different places, rural and/or urban.

² In family farming, farm ownership is combined with managerial control by the so-called principals. These may be the farmer alone, the farmer and spouse, the parents and children, brothers and sisters, i.e. related by kinship or marriage. Another specific feature is often residence: usually, the household lives on the farm or in the neighbouring village, and therefore family farmers help to populate rural areas, even the remotest ones.

³ In the FSS, Eurostat differentiates three types of holdings – sole holder, group holding (partnership) and legal entity. Normally, the family farmer is a sole holder, often (but not always) registered for statistical and policy purposes as a farmer but not constituting a legal business entity.

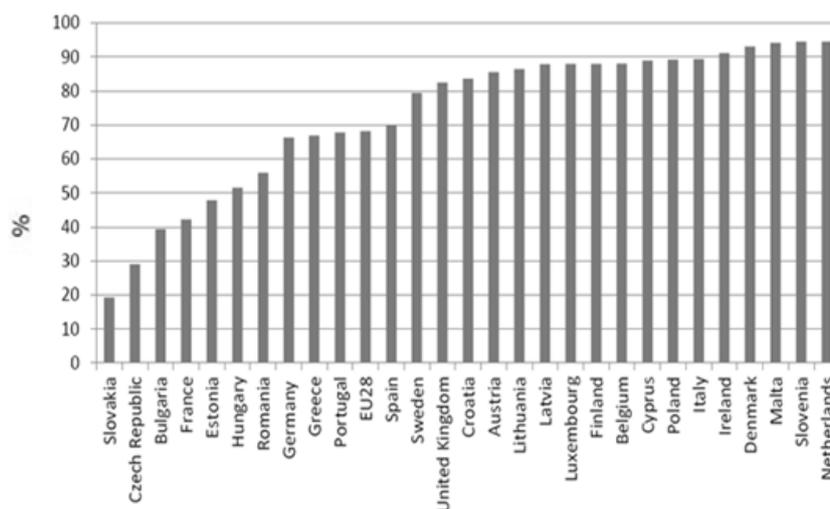
⁴ Europeans generally consider a family farm as a farm business. A clear signal in this direction was given in the answers to the public consultation organised by the EC on family farming: "Family farming is more than business but still a business".

Definition has a substantial impact on role of the FFs in the European Union, their specific challenges, future prospects and needs for policy support and should respect the diversity of the family farm sector in Europe (Council of the European Union, 2013; European Parliament 2014; Tańska-Hus B., Orlewski M., 2006).

Simultaneously with the general development of civilization (especially industrialization) family farms are a subject to significant changes. They relate to the loss of features of "peasant", crushing the historical integrity of the farm and the family (household). Particular impact on it had the inclusion of family farms into the market forces, which are dominated by competition forcing competition, specialization and intensification. Nevertheless, in the values sphere the motive of economic benefits took the first place. The competitive market enforces the continuous expansion of production scale through the farm size to satisfy economic needs of the family and to maintain economic viability of the farm. Expansion of them may be achieved by the fall of others. It is not easy because of the relationship of the household and the family farm through habitat, land market imperfections (high transaction costs of land trading) as well as the limited demand for labour from farms. Within the factors that are important for successful development of family farming can be pointed out: agro-ecological conditions and territorial characteristics; policy environment; access to markets; access to land and natural resources; access to technology and extension services; access to finance; demographic, economic and socio-cultural conditions; availability of specialized education among others (Parlinska M., Grzejszczyk B., 2014; Zegar J., 2011).

Family farming has an important socio-economic, environmental, and cultural role. The various studies indicate that the model of the family farming by above reasons congruent to the requirements of sustainable agriculture, by entering into the concept of multifunctional development of agriculture and the countryside. The family farm is not only a factory of food but also a home, a family, an important element of the landscape, and a preservation of the cultural heritage (regional and national traditions and values) (Council of the European Union, 2013; European Commission, 2013; FAO, 2014).

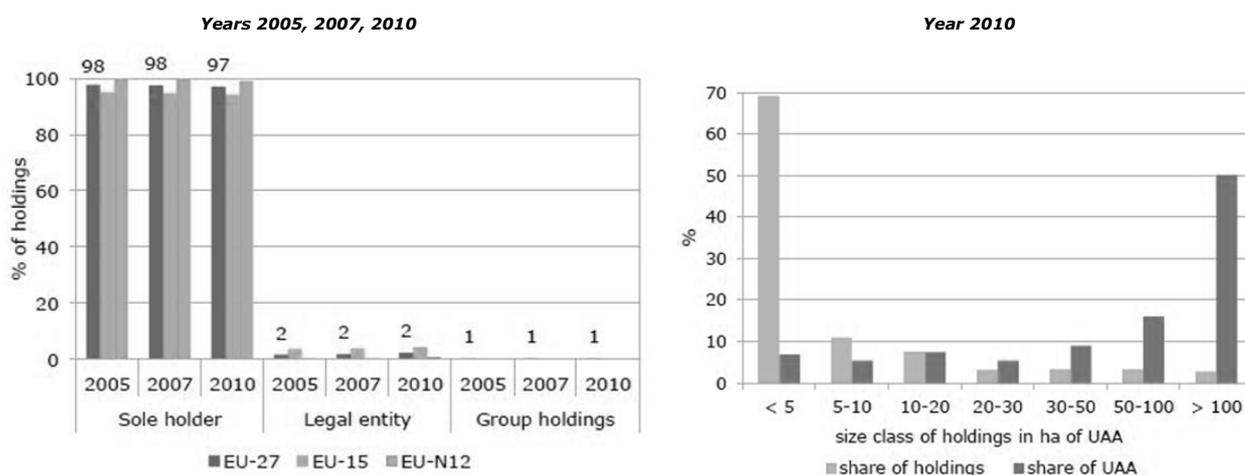
In 2010, in the EU countries were about 12 million farms/holdings with an average size of 14.2 hectares. The majority of these farms (97%) are classified as a family farms which are operated as family-run businesses in which the farm is passed down from generation to generation. Such farms managed 120 million ha of utilised agricultural area (UAA) which is 68% of the total UAA in the Union with the average size of 10 ha. In 23 countries of the member's states, sole holders manage over half of UAA, including over 80 percent of UAA in 16 member's states. Non-sole holders cultivate the largest proportion of UAA only in a small number of member's states (Slovakia, the Czech Republic, Bulgaria, France and Estonia) (Figure 1).



Source: Eurostat, FSS data from years 2005-2010; Family Farming in Europe: Challenges and Prospects, 2014, p. 19.

Figure 1. The share of holdings by legal status in 2005, 2007 and 2010 and in utilised agricultural area (UAA) by UAA size class in 2010 in the European Union countries

Family farmers vary widely by size, whether measured in land area or economic size. Among the EU countries one can observe a large number of very small farms (5.7 million of all holdings with less than 2 hectares in size) that farmed a small proportion (2.5%) of the total land area used for farming in 2010. At the same time there can be noticed a small number of very large farms (2.7% of all holdings with over 100 hectares) that farmed one-half (50.2%) of the farmland in the EU. This farm size distribution within the EU countries shows that family farming is not always a small-scale agriculture. (Figure 2.)

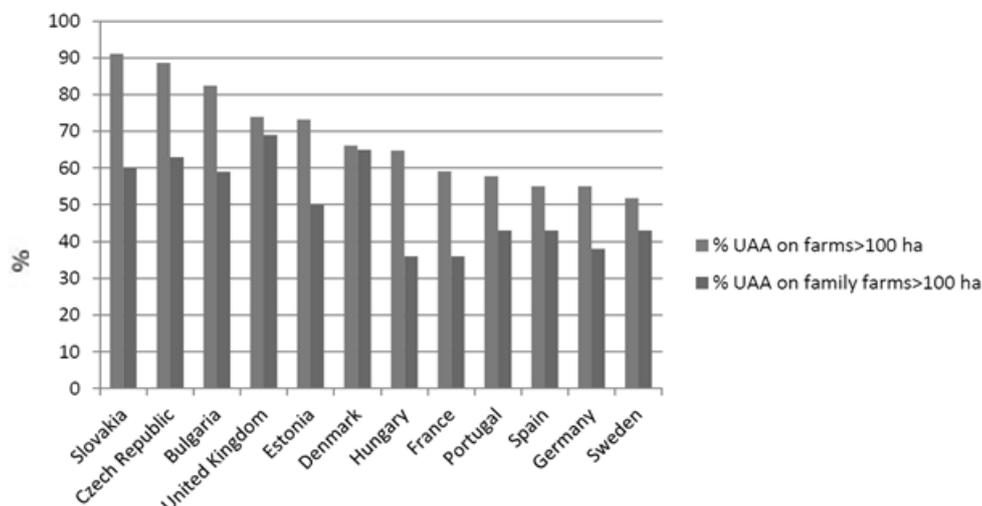


Source: Eurostat, FSS data from years 2005-2010

Figure 2. The share of holdings by legal status in 2005, 2007 and 2010 and in utilised agricultural area (UAA) by UAA size class in 2010 in the European Union countries

Figure 3 displays some of the EU's countries where farms of 100 ha or above occupied more than 50% of the UAA in 2010. It also shows the share of UAA on the large family farms. In Denmark and the United Kingdom (UK), almost all the land area on large farms was managed

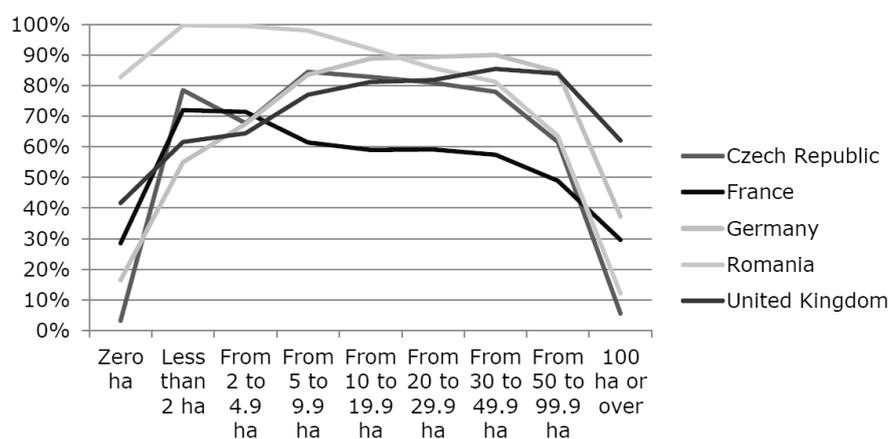
by family farmers. However, in Bulgaria, the Czech Republic, Estonia, Hungary, Slovakia, and France and to a certain extent Germany higher proportions of land on the large farms were in the non-family sector.



Source: *Family Farming in Europe: Challenges and Prospects (2014)*, p. 21.

Figure 3 . Proportions of total UAA on farms of 100 ha and over (total and family farms) in selected EU member's states, 2010 (%)

Within the EU's countries, family farmers are the main agricultural employers, and rural populations rely on family farming for their livelihood. According to the Eurostat data in 2010, there were 25.5 million persons engaged as regular labour force in the EU farming; of these, 24 million were engaged by family farmers. Family farmers engage 88% of the total regular EU farm labour force (the number of persons is translated into full-time equivalents (Annual Work Units, AWU)).



Source: Eurostat, FSS data from year 2010; *Family Farming in Europe: Challenges and Prospects (2014)*, p. 26.

Figure 4. Proportion of family labour in total regular farm labour in full-time equivalents (AWUs) according to size of the farm in ha in selected EU member's states, 2010 (%)

The importance of family farming is that about three quarters (77.8%) of the labour input in agriculture came from the holder or members of his/her family in 2010. For some countries,

such as Ireland and Poland, the proportion is over 90%. There are only a few Member States (France, the Czech Republic, Slovakia) where non-family labour accounted for a majority of the labour force in 2010.

Large incorporated farms operated mainly using existing wage labour, especially in confined livestock enterprises and in the successors to the former state and collective farms in the countries of central and eastern Europe that previously had centrally-planned economies. But, apart from a few EU member's states, they account for a relatively small share of the area farmed or of agricultural output.

Conclusions, proposals, recommendations

The numbers of holdings, land areas and economic significance of the farm sector affect the definition of family farming within the EU's countries.

Family farming is the most common operational farming model in Europe, and thus, of great importance in the EU. The majority of the EU's 12 million farms are family farms, passed down from one generation to another, and contribute to the socio-economic and environmental sustainability of rural areas.

There is a high diversity of family farms in the EU, in terms of their size, activities they engage in, availability of resources, degree of market integration, competitiveness, etc. They operate in different economic, agro-ecological and social contexts, ensuring food security while meeting rising societal expectations for food safety, quality, value, origin and diversity of food, and thus, contribute to smart, sustainable and inclusive growth.

This model of farms protects local products as well as supports and develops local traditions and culture.

Family farmers are often part-time, and frequently pluriactivity and/or diversified.

Therefore the importance of farming in total household income varies widely, from being almost the sole source to being only a minor component.

Family farmers make multiple contributions to the EU and its rural economy which confirmed their multi-function. Within their functions the most important are that they are:

- a main contributor to food security;
- providing an uninterrupted supply of high quality diverse produce;
- enhance the vitality of the rural economy;
- have strong interests in long-run environmental care of the land.

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EXPECTED LENGTH OF THE ECONOMIC EFFECTS OF THE GEOPOLITICAL CRISIS IN LATVIA

Sandris Ancāns¹, Mg.oec⁺;

¹ Faculty of Economics and Social Development, Latvia University of Agriculture

Abstract. A geopolitical crisis emerged in Europe in 2014, which began with political tensions between Russia and Ukraine; later Western economic sanctions and Russia's counter-sanctions were introduced, which affected many countries, including Latvia, thus, endangering economic growth at least in the East European region. In 2014 in Latvia, the counter-sanctions affected most the following industries: dairy farming, the fruit and vegetable industry and the international road transport industry; later, the fish processing industry and other industries were also affected after the Russian rouble exchange rate fell and an economic crisis emerged in Russia. It is important to enterprises of the affected industries, banks and government institutions to predict the length of this crisis in order to design appropriate action strategies. The research aim is to forecast the length of the effects of the geopolitical crisis in Latvia. The present research is based on analyses of Russia's balance of payments, other indicators and the effects of the Western sanctions against Russia as well as on an assumption that after a certain period, Russia's economy faces serious problems, which may lead to political and economic situation change in Russia and, consequently, to the end of this crisis. Since Russia is quite dependent on Western financial capital and technologies, it cannot have tensions with the West for a long time. By using its foreign reserve assets, Russia can maintain its external and internal macroeconomic equilibrium and the pre-crisis level of wellbeing no longer than one full year, i.e. until 2016.

Key words: geopolitical crisis, sanctions, macroeconomic equilibrium.

JEL code: F41, F51

Introduction

In the end of 2013, Ukraine had to sign an association agreement with the European Union, thus, completely rejecting its potential joining the emerging Eurasian Union or the Eurasian Economic Union consisting of Russia, Kazakhstan and Belarus. Its former president did not do

⁺ Corresponding author. Tel.: + (371 630 21041); fax: + 371 630 84987.
E-mail address: sandris.ancans@llu.lv.

it, thus, making a large part of the Ukrainian society discontent and causing a political crisis in Ukraine. Ukraine's choice in favour of European integration caused a serious geopolitical crisis and deteriorating relations between Russia and the West as well as led to economic sanctions and counter-sanctions. This geopolitical crisis caused much far-reaching implications at least for the East European region, negatively affecting its economic growth. Since the modern world is economically integrated, all these developments influence Latvia's national economy and its growth, mainly through its exports. The effects of the crisis will persist as long as the political and economic situation does not change in Russia. This, in its turn, will be determined by Russia's government's possibilities to hold macroeconomic equilibrium in the national economy.

The research aim is to forecast the length of the effects of the geopolitical crisis in Latvia. The research tasks are as follows:

1. to describe the sanctions imposed by the West against Russia and their effects under an open economy and low oil prices;
2. to examine Russia's external economic situation and dependence on foreign financial capital flows;
3. to forecast how long Russia's government is able to maintain macroeconomic equilibrium in the national economy under an open economy and sanctions.

The present research employed the following research methods: the descriptive method, analysis and synthesis, deduction, correlation analysis, quantitative forecasting and time series analysis.

Research results and discussion

Western sanctions against Russia and their effects under an open economy and low oil prices

The West imposed the sanctions in response to Russia's policy over Ukraine. The sanctions involved various restrictions to selected sectors of Russia's economy: the financial sector (restrictions to lend financial capital to major government-owned banks for more than 30 days), the energy (oil and gas) sector (restrictions to sell technologies and lend financial capital to major government-owned energy enterprises) and the military sector. The first two sectors are the most important from the perspective of their size of economic activity and more data are available on them; hence, the paper will focus on the mentioned two sectors. In response, Russia imposed 12-month counter-sanctions, banning imports of food from the countries which imposed sanctions against it. These 12-month counter-sanctions may be prolonged if the sanctions against Russia are not lifted.

Nowadays almost any country's national economy is integrated into international flows of goods and services to a great extent and is subject to the macroeconomic laws of open

economy. An open economy is well described, for instance, by the Mundell-Fleming model; according to it, a national economy must have both internal equilibrium – in the goods (and services) market and money (and other financial) markets – and external equilibrium – in the balance of payments (Salvatore, D., 2001).

Russia's exports and imports (of goods and services), as a percentage of GDP, are 30 and 22%, respectively (World Bank, 2014). Russia's key exports are energy commodities. Annually, Russia exports almost 400 mln tonnes of crude oil and oil products and approximately 200 bln cubic metres of natural gas, which account for 67% of the total revenue from exports of goods (Central Bank of Russia, 2014). Natural gas prices are pegged to crude oil prices; accordingly, changes in oil prices affect natural gas prices to the same extent. Part of Russia's oil and gas is extracted in Arctic regions by using Western technologies. For this reason, the West's ban on selling technologies to Russia's energy sector will reduce its output of oil and gas in the future. But this sector is negatively affected not only in this way. Russia's major state-owned oil and gas enterprises have borrowed funds not only in their domestic capital market but also in international capital markets. The Western sanctions do not allow them to refinance their debts abroad. Refinancing their ample debts at domestic banks is also problematic, as borrowing funds by other banks of Russia in Western capital markets is almost impossible due to the sanctions against state-owned banks. Besides, interest rates in Russia are high, as the Central Bank of Russia (CBR) implements a quite tight monetary policy in order to reduce the rouble's depreciation and inflation. The key interest rate of the CBR was raised from 10.5 to 17% at the end of 2014. However, the foreign debts of banks and other enterprises of Russia total approximately USD 700 bln, and both interest and principal sums have to be paid back but refinancing debts in Western capital markets is not possible and it is hard to do it in other international capital markets. So one can find that the two mentioned sectors face serious problems caused by the sanctions. In addition, oil prices started falling in the last months of 2014, which make even more difficult to repay foreign debts. It is associated with the decision by OPEC, the cartel of oil producing countries, not to decrease oil output under conditions when the output of shale oil and gas is increasing in the world, particularly in the USA. OPEC's oil output accounts for 43% of the total oil production in the world; hence, OPEC's decisions can significantly affect oil prices in the world (Organisation of the Petroleum Exporting Countries, 2014). Crude oil prices fell from their highest level of 115 USD/bbl in June 2014 to 56 USD/bbl at the very end of 2014, i.e. two times. It is possible that OPEC wants to increase its global market share what it lost due to the shale oil revolution and the oil output increase in arctic regions. However, there is a reason to suppose that oil prices will remain relatively low within a few next years. Yet, for Russia, such oil prices mean an essential decrease in export revenues and, potentially, even a critical situation in its national economy and financial system, given the effects of the sanctions as well.

Russia's external economic situation and dependence on foreign financial capital flows

To examine Russia's external economic situation and dependence on foreign financial capital flows, one has to analyse Russia's balance of payments, foreign debt and its repayment schedule, international investment position, foreign currency and gold reserves and their changes as well as other aspects. On the one hand, the falling oil prices and the Western sanctions against Russia decrease its revenues in foreign currencies and the financial capital inflow; yet, on the other hand, such a situation increases the financial capital outflow and, at least initially, expenditures in foreign currencies, as Russia's population, expecting high inflation and a decrease in the rouble's exchange rate, purchase durable goods, part of which are foreign goods, and prefer foreign currencies as an instrument of savings. Such a decline in revenue and a surge of expenditure hamper economic activity in Russia as well as it may lead to a substantial decrease in the level of wellbeing in the country. Given the fact that Russia is the third most significant partner in trade in goods for Latvia with a proportion of almost 12% (Central Statistical Bureau, 2014) as well as one on the largest partners in exports of services, decreases in the rouble's exchange rate and purchasing power in Russia will negatively affect Latvia's exports to this country; in addition, Latvia's residents may incur investment losses in the financial and economic problem-ridden Russia.

Table 1

Russia's key balance of payments characteristics, foreign debt, central bank foreign reserves and the average oil price in the period 2005-2014, bln USD

Indicator/year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 Q1-3
Current account, incl.	84.4	92.3	72.2	103.9	50.4	67.5	97.3	71.2	34.1	46.1
- exports of goods	240.0	297.5	346.5	466.3	297.2	392.7	515.4	527.4	523.3	496.9 ¹
- trade balance	116.2	134.3	123.4	177.6	113.2	147.0	196.8	191.7	181.9	210.9 ¹
- investment income	-17.4	-24.6	-21.5	-32.1	-31.0	-38.7	-51.0	-67.2	-80.3	-51.3
Current and capital account	72.0	92.6	61.6	103.8	37.9	67.4	97.4	66.1	33.7	35.9
Financial account ²	-5.5	3.6	97.1	-139.7	-28.1	-21.5	-76.1	-25.7	-45.0	-85.7
Financial account	-67.0	-103.9	-51.8	-100.8	-31.5	-58.3	-88.7	-55.7	-22.9	-42.3
Change in foreign reserves ³	-61.5	-107.5	-148.9	38.9	-3.4	-36.8	-12.6	-30.0	22.1	43.4
Discrepancy	-5.0	11.2	-9.7	-3.1	-6.4	-9.1	-8.6	-10.4	-10.8	6.5
Foreign debt (as of end of year)	257.2	313.2	463.9	480.5	467.2	488.9	538.9	636.4	728.9	599.5
Foreign reserves (as of end of year)	182.2	303.7	478.8	426.3	439.5	479.4	498.6	537.6	509.6	385.5
Capital inflow (+) or outflow (-)	-0.1	41.4	81.7	-133.7	-56.1	-34.4	-80.5	-54.1	-63	-151 ¹
Average oil price, USD/bbl (Brent)	55	65	72	97	62	80	111	112	109	99

¹ - Quarters 1-3

² - foreign reserves excluded (author's calculations)

³ „-“ sign means increase, „+“ sign means decrease

Source: author's calculations based on the Central Bank of Russia and the U.S. Energy Information Administration

The balance of payments of Russia, just as that of any country, has its own specifics, the main of which are as follows: 1) a persistent and ample surplus in the trade balance (exports of goods less imports of goods); 2) a persistent but considerably smaller surplus in the current account, especially in recent years; 3) an almost persistent deficit in the financial account – due to the “capital outflow problem” for Russia. It should be added that examining the problem of the present paper does not require analysing annual changes of selected indicators, as max and min values of these indicators are important.

An analysis of almost a decade reveals that Russia has an ample and stable surplus in its foreign trade balance (i.e. foreign trade in goods, which is the key component of the entire current account). It ranges from more than USD 113 bln in 2009 when commodity prices and, first of all, the prices of oil – the key export commodity of Russia – were low (on average it was 62 USD/bbl), which was caused by the global financial and economic crisis in the autumn of 2008, to USD 197 bln in 2011 when the commodity prices reached comparatively high levels (the average oil price was 111 USD/bbl). Russia’s key group of export goods is energy (crude oil, oil products and natural gas), for example, in 2013 the value of these export goods totalled USD 350 bln (Central Bank of Russia, 2014), accounting for 2/3 of the total value of exports of goods. Consequently, the total value of Russia’s exports of goods and the trade balance (surplus) depend on oil prices. In the period of analysis, a correlation between the oil price and the total value of exports of goods reached 0.995, while a correlation between the oil price and the trade balance was 0.973, i.e. the correlations were very strong (author’s calculations).

The data of Russia’s balance of payments show that the country runs a comparatively large investment income deficit; the largest deficit was observed in 2013, reaching USD 80.3 bln. Even though Russia’s government debt is small – about USD 57 bln or slightly above 2% of GDP (Central Bank of Russia, 2014), the debts of the country’s banks and other enterprises are relatively large, amounting to USD 731.2 bln in the first half of 2014. Accordingly, Russia’s expenditures on borrowed foreign capital are large. Due to the sanctions against Russia’s financial sector, it is almost impossible for all its banks to borrow new funds or refinance their debts in Western capital markets but if it is partially possible, the interest rates are certainly higher under such circumstances.

However, on the whole, the current account presents surpluses due to the very positive trade balance. In 2008, it stood at USD 103.9 bln, whereas next year when oil prices fell it was only USD 50.4 bln. Russia’s current and capital account (which takes into account also debt forgiveness and purchases of nonfinancial assets (e.g. real estate) etc.) does not considerably differ from the current account.

In contrast to the current account, which had stable surpluses, the financial account had almost persistent deficits, except two pre-crisis years (2006 and 2007), over the period of analysis. The author recalculated the financial account balance, subtracting the changes in the central bank reserves from it, as the CBR includes these changes in the financial account, thus, making more difficult to understand the situation with financial capital flows. A large outflow of

financial capital is characteristic of Russia; it exceeds the inflow of capital, especially during periods of political or economic turmoil. The CBR provides data on the capital inflow/outflow that fully do not match but at least correlate with the financial account data – presumably, the CBR calculates the capital outflow based on its own methodology that takes into account the amount of foreign currencies bought by the population for the purpose of savings that does not flow out and remain in the country. Besides, it should be noted that it is impossible to record all transactions, as part of the money flow takes the form of cash flow, avoiding banks.

Even though Russia’s current foreign transactions (the current account) provide a surplus of foreign currencies, problems are caused by the large financial capital flows, and in order to ensure stability in the foreign exchange (forex) market, the CBR significantly intervenes in it through buying any surplus of foreign currencies (mainly USD) or selling back the reserves if there is a deficit. Over the period of almost 10 years, a situation when a deficit in the financial account was greater than a surplus in the current account was observed only in 2008 when the global financial and economic crisis began in the second half of that year. Even in the next year of the crisis, in 2009, the situation changed to the opposite. Such a situation repeated in 2013 when a deficit in the financial account (USD 45 bln) slightly exceeded a surplus in the current account (USD 34.1 bln). This may be explained by the Ukrainian geopolitical crisis. As this crisis escalated in 2014, the gap between a surplus in the current account (USD 46.1 bln) and a deficit in the financial account (USD 85.7 bln) increased in the first three quarters, and the CBR had to cover this gap from its foreign reserves. Throughout 2014 the CBR sold more than USD 100 bln, and its foreign reserves declined to USD 388.5 bln (Central Bank of Russia, 2014). This trend undoubtedly is going to continue in 2015 and certainly in the next years if the sanctions are in place.

Table 2

Russia’s payment schedule of external debt from 2014 H2, bln USD

Indicator/period	2014 H2	2015	2016 Q1-3	From 2016 Q1-3 onwards	Without schedule
Principal sum	106.3	110.7	53.1	369.1	49.5
Interest	14.6	23.2	15.0	81.7	-
Total	120.9	133.9	68.1	450.8	-

Source: author’s calculations based on the Central Bank of Russia

Russia’s payment schedule of external debt shows that in the second half of 2014 when the sanctions against Russia were introduced, the debt to be paid back totalled more than USD 120 bln, and during this period the CBR’s foreign reserves decreased by about USD 70 bln. Next year, the amount to be repaid will be more than USD 133 bln. The burden of foreign debt will decline only in 2016, for which the CBR provides detailed data; however, no detailed data are available for a more distant period but the foreign debt is still almost USD 500 bln. It is not a huge debt but under the sanctions and due to an economic recession it may cause serious

problems to Russia's banks and enterprises and, after a certain period, lead Russia's government to default as well.

Under such circumstances, it is important to Russia's government not to let foreign capital flow out of the country in large amounts, but attracting new foreign capital under the sanctions, low oil prices and an expected deep recession in the economy is not even worth considering. Introducing financial controls is risky, as it increases the outflow of capital. Besides, Russia's government is interested in repatriating part of Russia's investments made abroad. At the end of 2014, Russia's government proposed an offshore capital amnesty, which would motivate the return of capital to Russia. Russia's international investment position (Table 3) shows that at the end of the third quarter of 2014, foreign investors had invested in Russia as much as USD 1178 bln, of which about half (USD 679.4 bln) was invested in financial instruments (bonds, loans, etc.). Russia's residents have invested abroad about USD 957 bln, and together with the CBR's foreign reserves (USD 454 bln) the foreign assets reached USD 1411 bln; so Russia's net international investment position was positive, reaching USD 233 bln. Yet, it should be noted that the largest investor of foreign direct investment (FDI) in Russia is an offshore country, Cyprus, – of the total FDI of USD 566 bln, at the end of 2013, approximately 28% or USD 161 bln came from this country (Central Bank of Russia, 2014); analysts suppose this is Russian capital rather than foreign capital. Cyprus is not the only offshore country from which disproportionate investments come to Russia.

The data show that the sanctions have not made any significant impact on foreign investment flows in the first two quarters of 2014 compared with the pre-sanction year of 2013. The reason might be the ineffective sanctions of Level 1 and Level 2 imposed only on individuals in the first half of 2014.

Table 3

Russia's international investment position from 2011 to 2014 Q3, bln USD (as of the end of the period) and its change, %

Indicator	2011	2012	2013	2013/ 2011, %	2014 Q1	2014 Q2	2014 Q3	2014 Q1/ 2013, %	2014 Q3/ Q2, %
Assets, incl.:	1239	1375	1470	18.6	1445	1502	1411	-4.0	-6.1
FDI	367	410	479	30.5	450	485	467	-2.5	-3.7
portfolio investment	42	48	55	31.0	59	62	63	14.5	1.6
other investments	331	374	421	27.2	443	469	419	-0.5	-10.7
Liabilities, incl.:	499	538	510	2.2	486	478	454	-11.0	-5.0
FDI	1096	1239	1344	22.6	1229	1320	1178	-12.4	-10.8
portfolio investment	455	515	566	24.4	489	547	477	-15.7	-12.8
other investments	225	270	274	21.8	237	269	225	-17.9	-16.4
Reserve assets	410	449	499	21.7	496	500	467	-6.4	-6.6
Net international investment position	144	137	126	-12.5	216	181	233	84.9	28.7
Foreign debt	488.9	545.2	636.4	30.2	718.7	731.2	679.4	6,8	-7,1

Source: author's calculations based on the Central Bank of Russia

As shown in Table 3, increases both in foreign assets and in foreign liabilities were stable in the period 2011-2013. In contrast, all kinds of foreign investment into Russia started decreasing quite sharply in the third quarter of 2014, although a return of foreign capital was observed in the second quarter after the West introduced the very first sanctions in the first quarter. In contrast, foreign investment flows from Russia were two-way – an increase in portfolio investment and decreases in reserve assets, FDI and other investments.

One can predict that some outflow of foreign capital is observed, given the current conditions and Russia's specifics. As regards a decrease in foreign assets or the return of Russia's capital from abroad, this is unlikely, and a greater outflow of capital from Russia will be potentially seen, i.e. Russia's financial account will be negative. For this reason, in 2015 and onwards (if the sanctions are in place) the foreign debt will have to be mainly repaid from the CBR's foreign reserves.

Forecast of the length of macroeconomic equilibrium in Russia under an open economy and sanctions

Russia's economy is an open one and hence substantially subject to international economic processes, i.e. interaction with the external world through the exchange of goods, services as well as financial capital. Based on the analysis performed in Sub-part 2, one can find that in 2015 and 2016 the value of Russia's exports of goods will stand at the levels of 2009-2010, i.e. more than USD 100 bln less than in the previous years. Consequently, a surplus in Russia's current account is expected comparatively small because the country's relatively large foreign debt has to be serviced (foreign debt interest is recorded in the current account).

The next most important problem is the foreign debt (the payback of principal sums) that cannot be refinanced under the sanctions. The size of it exceeds USD 600 bln, which is more than the CBR's foreign reserves (approximately USD 400 bln). So, theoretically, Russia is not able to pay back all its foreign debt at low oil prices and under the sanctions. It has to be considered that the entire foreign reserves will not be used, as any central bank needs some foreign reserves for balancing shortfalls in the country's balance of payments. One can assume that the CBR might let its foreign reserves decline up to USD 100 bln. Besides, part of these reserves is included in the Reserve Fund and the National Wealth Fund (totally about USD 170 bln), part of which (at least USD 80 bln) has been invested in long-term projects (including infrastructure projects) and another part of the reserves is intended for covering deficits in Russia's Pension Fund. So these funds will not be used for maintaining the external macroeconomic equilibrium. For these reasons, the liquid foreign reserves of the CBR total approximately USD 300 bln; but, according to the former Russian minister for finance, M.Zadornov, the amount of liquid reserves is even smaller, standing at approximately USD 200 bln (Economist, 2014).

By attempting to maintain the standard of living in Russia as it was throughout the year 2014, in 2015 the CBR's reserves might decrease by about USD 130 bln (equal to the foreign debt to be repaid in 2015, assuming that the surplus in the current account and the deficit in the financial account are balanced) to about USD 250 bln; besides, the liquid foreign reserves might decrease to less than USD 100 bln. One has to add that the CBR has announced that it envisages selling only about USD 85 bln of its foreign reserves in 2015 in the forex market. The CBR's foreign reserves will have to be likely used to bail out banks and the largest and most important companies. It leads to a conclusion that the CBR's foreign (liquid) reserves are enough only for one full year, i.e. 2015, which is followed by the loss of the external macroeconomic equilibrium as well as the internal macroeconomic equilibrium in Russia's economy and bankruptcies of many banks and other enterprises and, potentially, the default of Russia's government like in August 1998. However, such a scenario – maintaining the pre-crisis standard of living and the external macroeconomic equilibrium by using the CBR's foreign reserves is unlikely. Russia's government and central bank will implement a policy of "golden mean" – reducing the standard of living through "external devaluation", i.e. a substantial fall in the rouble's exchange rate and associated higher inflation – which would allow decreasing imports of consumer goods (by seeking to implement import substitution policies) and improving the trade balance and, in its turn, the current account; this would decrease the need for the CBR's foreign reserves. Yet, given the relatively expensive financial resources in Russia (the CBR's key interest rate was set at about 10% per year; but with the rouble crisis starting on 16 December 2014, the rate was raised to 17%), the substitution of imports in great quantities is unlikely, as this process requires large investment in the national economy, which, in its turn, requires low inflation and stable accumulation of capital (instead of spending

savings by the population on foreign hard currencies and purchasing durable (imported) goods) and cheap money resources.

By reducing the standard of living and seeking to implement import substitution policies, the period of the external and internal macroeconomic equilibrium may be lengthened; yet, with the CBR's foreign reserves decreasing, panic may start in Russia's financial markets, which can create serious problems for the entire financial system of Russia. The "weakest link in the chain" in the financial system of less developed economies is usually the forex market, which was confirmed by the rouble crisis on 16 December 2014 and which can, under the sanctions, repeat both in 2015 and, of course, in 2016 as the CBR's foreign reserves are expected to still be decreasing. It leads to a conclusion that it is likely that in 2015 no serious change in the relations between the West and Russia can occur, yet, in 2016 Russia's government will face real problems in maintaining the external macroeconomic equilibrium in the national economy, which may result in the political and economic situation change in Russia. This will lead to lifting the Western sanctions or part of them and Russia's counter-sanctions, the stabilisation of the rouble and purchasing power or even their increases in Russia, thus, positively affecting the industries of Latvia's national economy that suffered from Russia's counter-sanctions and the fall in the rouble's exchange rate.

Conclusions

1. The Ukrainian geopolitical crisis led to imposing economic sanctions against Russia, which, in its turn, introduced counter-sanctions, thus, causing a crisis for several industries of Latvia. This contributed to economic growth slowdown in Latvia and other countries.
2. Russia is quite dependent on economic interaction with the world, its exports and imports account for 30% and 22%, respectively, of GDP and its foreign debt exceeds USD 600 bln, while its foreign reserves are less than USD 400 bln; hence, the effects of the sanctions on Russia's economy are also significant.
3. Russia runs a surplus in foreign trade with goods, yet, this surplus is significantly decreased by other current account items; under unfavourable conditions (sanctions), the outflow of financial capital exceeds the surplus in the current account, which requires the Central Bank of Russia to intervene in the foreign exchange market and sell its foreign reserves that are quite limited.
4. To maintain the external macroeconomic equilibrium in Russia's national economy, the Central Bank of Russia will have to spend almost all its liquid foreign reserves already in 2015, and in 2016 Russia will face even more serious financial and economic crises in its economy. This situation creates opportunities for the political and economic situation change in Russia.

5. With the political and economic situation change in Russia, political relations between Russia and the West will improve, the sanctions against Russia and Russia's counter-sanctions will be lifted, which leads to the end in the crisis for several industries of Latvia.

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APPLICATION OF THE MODEL OF INTEGRATED AND SUSTAINABLE DEVELOPMENT OF RURAL COMMUNITIES LOCATED IN NATURAL VALUABLE AREAS OF THE LUBLIN VOIVODESHIP¹

Danuta Guzal-Dec¹, Dec, PhD⁺;

¹ Pope John Paul II State School of Higher Education in Biala Podlaska

Abstract. The overall aim of this study was to determine the feasibility and benefits of the implementation of the integrated model of sustainable development in communes located in the environmentally valuable areas of the Lublin voivodeship (Poland). The study area consisted of 30 communes with the highest environmental values in the Lublin voivodeship, as selected for the study based on the value of the indicator developed by D. Guzal-Dec in the study of the ecological values of rural and semi-urban areas of the Lublin voivodeship.

Diagnostic survey used a questionnaire interview. Interviews were completed in 2013. The research material comprised 30 questionnaires, interviews were conducted with the mayor and employees involved in environmental issues in municipal offices. Websites of the surveyed communes and Local Action Groups (LAGs) of the surveyed communes were also important sources of information.

In the light of the analysis, the integrated model of sustainable development was considered in creating the optimal development of communes located within environmentally valuable areas. It has been shown that local authorities aiming at the implementation an integration of the model of sustainable development are characterized by a higher level of environmental competitiveness. It was pointed out that the implementation of this model suffers such difficulties as shortage of social capital. The implementation of the integrated model of sustainable development also requires changes in attitudes and openness of local authorities towards the widely implemented strategy of intersectoral cooperation. The surveyed governments have taken action to the creation of the integrated model, e.g. widespread participation in LAGs, the first experience in cross-sectoral cooperation outside the LAG in clusters, the implementation of the model is, thus, in the early stages.

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⁺ Corresponding author. Tel.: +48 83 344 99 05; fax: + 48 83 344 99 50.
E-mail address: d.guzal-dec@dydaktyka.pswbp.pl

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Introduction

The paper takes up an extremely important and topical research issue of determining social determinants of local development processes within natural valuable areas exhibiting relatively low level of socio-economic development. This paper is in the mainstream of socio-ecological economic research (socio-ecological economics). Socio-ecological economics attaches great importance to social knowledge, shaped by the participation and performance in teams. Knowledge and social participation play an important role in the development, approval and implementation of the sustainable development strategy (Jezewski P., 2007).

The overall aim of this study was to determine the feasibility and benefits of the implementation of the integrated model of sustainable development in the communes located within the environmentally valuable areas of the Lublin voivodeship (Poland). The specific objectives are:

- indication of the conditions for the implementation of the integrated model of sustainable development;
- proposing tools for the identification of sustainable development models implemented in communes located within environmentally valuable areas;
- identification of the possibility of implementation of the integrated model of sustainable development in communes located in the environmentally valuable areas of the Lublin voivodeship;
- identification of the activities of local authorities in the implementation of integrated sustainable development;
- determination of the relationship between the type of the implemented sustainable development model (model aimed at integrating) and the level of environmental competitiveness of the surveyed communes.

The following hypothesis has been set up:

Local governments seeking to implement an integrated model of sustainable development are characterized by a higher level of environmental competitiveness.

The study area consisted of 30 communes with the highest environmental values in the Lublin voivodeship selected for the study, as based on the value of the indicator developed by D. Guzal-Dec in the study of ecologically valuable rural and semi-urban areas of the Lublin voivodeship. The procedure is described in detail in (Guzal-Dec D., 2013). The method of diagnostic survey used a questionnaire interview. Interviews were completed in 2013. The research material comprised 30 questionnaires, an interview with the mayor and employees involved in environmental issues in municipal offices. Websites of the surveyed communes and LGDs within the surveyed communes were also important sources of information. The report

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Research results and discussion

Integrated sustainable development - conditions for the implementation of the concept in communes located in environmentally valuable areas

Commune of natural value the constructive element of which are protected areas with a high protection regime, limiting the opportunities for economic development, in spite of many internal differences, combine low level of socio-economic development. The location of natural valuable communes in the area of the peripheral region of Eastern Poland, in the Lublin voivodeship, also determines the development impediments - dynamics of positive change and development lower than in other parts of the country. In this situation, the problem of searching for factors that could boost growth processes becomes of major importance. The newest and most popular concepts of local and regional development emphasize internal - endogenous growth factors. It is emphasized that the development of territorial units is decided by internal resources, and in particular their ability to mobilize and be effectively used. The role of the main initiator and coordinator of such processes is attributed primarily to local authorities - at the local level, the municipal self-government (Plawgo B., 2010).

The demands of the integrated management, combining interventions in various sectors and at different levels of administration, were already articulated during the creation of the European Cohesion Policy. This policy, due to its horizontal nature, is a natural carrier of such an approach. The so-called new paradigm of development management gives more powers to local governments. The process of building an integrated system opens up the public sphere to define policy in consultation and interaction with other actors of the development game (Grosse T.G., Galek A., 2008). In the construction of effective cooperation between business, science, government and non-governmental organizations, local government is particularly important. It should function as a catalyst, and thus, acquire representatives of business and scientific communities to support selected areas of promising opportunities to gain competitive advantage and to find niches in which the region can become a leader (Slodowa-Helpa M., 2012).

In view of the well-known problems of communes related to meeting the basic needs of residents local governments face the dangers of the often badly directed (not social) development and the lack of awareness of the need for competition policy and determining the sources of competitive advantage (Slodowa-Helpa M., 2013). Undoubtedly, a new quality is that, instead of competitive strategies, local government units are beginning to recognize the importance of local government and the role of co-operation. According to J. Wozniak, this new quality should be nurtured (Wozniak J., 2012). Local governments frequently take up traditional formal intra forms of collaboration and cooperation in the system: administration –

business – science – NGOs, integrating formative development, is unfortunately insufficient, particularly in the eastern Poland (Czyz P. et al., 2013).

An integrated approach involving all interested entities can significantly increase the ability of the region to reap sustainable benefits from its natural and cultural heritage. However, it is especially important to take into account both the environmental and social elements in the process of economic development. Implementation of projects strengthening local identity and self-esteem is indicated, e.g. the development of regional and local products, combining local sectors previously clearly separated, such as agriculture and tourism, commercialization of cultural and natural resources, the use of local skills, new applications of information and communication technologies (Slodowa-Helpa M., 2013).

The concept of integrated sustainable development can be implemented only in integrated and multi-entity rationally organized systems. The ability of individual actors to construct horizontal and vertical integration is, thus, an important feature to build competitive advantage. With this type of cooperation there appear territorial economies of scale, and the integrated approach, involving all interested parties, may increase the ability of the region to reap the sustainable benefits of natural heritage (Slodowa-Helpa M., 2009).

A. Kasztelan emphasizes that regions with a relatively clean environment should aim to focus on the development strategy of economic activities which more or less use the resources and values of the environment. Achieving competitive advantage over other regions, based on the existing environmental potential, the ability of its use in the process of socio-economic development and low levels of human impact can be described by the same author as the environmental competitiveness of the region (Kasztelan A., 2010). A Sztando defines competitive environment as the ability to offer residents, visitors and guests attractive, intact natural values of human activities (Sztando A., 1999).

It seems, thus, that an integrated approach to managing the development is the optimal formula for implementing sustainable development in communes located in environmentally valuable areas, generally characterized by relatively lower level of economic development and, thus, appropriate synergy of human capital and natural is necessary. The prerequisite for the implementation of the concept are such advantages as the ability to mobilize and effectively use the human factor, the development of social capital, increasing the degree of the rational (economic and environmental) use of natural capital, and eventually improving the environmental competitiveness.

Sustainable development models implemented in the surveyed communes

The concept of sustainable development, in contrast to the paradigm of globalization, highlights the subjectivity of the local community (Lawrence G., 2005, Ray Ch., 2006). Sustainable development should be based on endogenous or neoendogenous (Ray Ch., 2006) mechanisms of development the essence of which is "the participation of the interested parties

in the formulation and application of a development strategy in partnership with other social actors", both local and external (Gorlach K., Adamski T., 2006).

Social actors use different types of knowledge, based on different assumptions about the social reality, social order and everyday life (Klekotko M., 2008). Three basic types of it may be mentioned: expert - scientific, managerial and local knowledge – local lay knowledge. Local knowledge is derived from long-term experience of the community and is perpetuated by local traditions, practices and customs. In the case of the neoendogenous development it is appropriate for all types of knowledge to be the basis for constructing a change strategy (Adamski T., 2008). Launching the neoendogenous development mechanism is allowed by local knowledge, especially when it is in relation to the global scientific knowledge (Bicker A., Sillotoe P., Pottier J., 2004).

It is generally accepted that there is a close relationship between the local civil society and sustainable development of the community (Goodland R., 1995; Lawrence G., 2005). Civil society, despite the growing interest in both the academic and political environment, still faces a kind of terminological confusion and lack of consensus on a common definition (Carbone M., 2008). It is most often defined in terms of active citizenship and civic participation. Civil society is treated as one of the dimensions of sustainable development, its purpose and measure but also a facilitator of the implementation of the sustainable development strategy (Klekotko M., 2008).

The following four types of rural civil communities can be determined (Klekotko M., 2008): minimal community - inactive in the public sphere, informal and locally-oriented community – exhibits strong horizontal bonds, institutional community - formalized network of relationships, ideal community - residents exhibit activity in the community, both informally and in institutionalized forms.

Different types of rural civil societies create conditions for the implementation of various models of sustainable development (Klekotko M., 2008).

Table 1

Models of sustainable development of communes

Model	Actors and types of knowledge			
	Self-government	NGOs	residents	external experts
	managerial knowledge	Expert knowledge	local Knowledge	Expertise/scientific knowledge
Agency model	+	-	-	+/-
Model of alliances	+	+	-	+/-
Bottom-up model	+	-	+	-/+
Integrated model	+	+	+	+

Source: Klekotko M., 2008, 28; Explanation of the typology criteria requirements to be met: (+) necessary (+/-) desired, but not necessary (- / +) unnecessary but advisable (-) unnecessary

The minimal civic community creates conditions for the agency model. The agency model is characterized by the choice of the local government by people, and entrusting the interests of

the community to it. Local government decisions on directions of change are independent but usually take place with the use of expert knowledge. In the model alliances, local governments cooperate with NGOs (i.e. "modern" - deeply involved in the development of communes), basing on the expert and managerial knowledge. The bottom-up model is based on the cooperation of local government using the ideas growing out of local knowledge, thus, it plays a major role. The integrated model is characterized by the participation of various groups making up the community and cooperating with it (local government, NGOs, local people) in decision-making regarding the future direction of the commune and the integration of all types of knowledge.

A number of conditions were assumed for a relatively unambiguous assignment when attempting to identify the models of sustainable development present in the surveyed communes of the Lublin voivodeship. The agency model assumes that local power is the main subject of the creation of a local development strategy – socialization of the strategy development process can take place after its publication. Decisiveness of local authorities will strengthen their overrepresentation (larger than 1/3 share) in the structures of the Councils of LAGs. The development of competence in implementing the environmental and development policy enables the organization of work of councillors, as reflected in the creation of problem groups - standing committees for the Municipal Council on environmental / economic issues / development of the selected function.

Institutional civic community creates the conditions for the model of alliances. Participation of NGOs in the development of the development strategy is recommended in this model. The "modern" NGOs (taking up comprehensive pro-development activities for the local community as opposed to the "traditional" NGOs in rural areas, such as: voluntary fire brigades, rural housewives' meetings - operating in selected areas of development). In this model, municipal governments should create the conditions for a debate with NGOs and cooperate in the field of ecology with ecological organizations.

Informal civic community creates the conditions for the bottom-up model. In the bottom-up model commune inhabitants should be co-authors of the commune's development strategy, the structure of LAG councils should exist with apparent dominance of the social sector. It is advisable for the government to work with residents in the field of ecology.

Ideal civic community creates ideal conditions for the integrated model. In this model, the authors of the commune's development strategy should be all of the representatives of the local community and external experts. The structure of LAG councils should represent an equivalent participation of sectors in deciding on the development of communes. It is a long-standing experience in cross-sectoral cooperation of local governments (including outside of LGDs) and constant cooperation with such research centres as business clusters. There should be conditions created to debate with NGOs, representing LAG councils in a number of issues. In order to increase the own potential of knowledge, local governments should properly organize the work of the Municipal Councils (creating permanent committees on environmental

/ economic development / selected function / direction of development). In the implementation of environmental actions, municipal governments should work both with the locals and ecological organizations, so that the cumulative effect of the knowledge of the local community took place.

Table 2

Scheme of sustainable model types determination in the communes located in environmentally valuable areas

model type classification criteria	agency	alliances	bottom-up	integrated
Share of residents in the creation of development strategies	-	-	+	+
Participation of local authorities in creating development strategies	+	+	+	+
Participation of external experts in the creation of a development strategy	+/-	+/-	-/+	+
Participation of NGOs in the creation of a development strategy	-	+	-	+
The occurrence of the standing committees of the Municipal Council for environmental / economic selected development function	+	-/+	+/-	+
LAG council structure	50% self-government participation allowed	Participation of "modern" NGOs	Social sector domination	Sector balance
Participation of NGOs in the structures of LAG council	-	-	-	+
Creating conditions for a debate with NGOs	-	+	-	+
Cooperation in the field of ecology with ecological organizations	-	+	-	+
Cooperation in the field of ecology with residents	-	-	-/+	+
Continuous co-operation of local government / community with academic institutions e.g. within a cluster	+/-	+/-	-/+	-/+
Experience in cross-sectoral cooperation outside the LGD	-	-	-	-/+

Source: author's construction based on the research; Explanation of the typology criteria requirements to be met: (+) necessary (+/-) desired, but not necessary (- / +) unnecessary but advisable (-) unnecessary

Most difficulties in describing the models found in the surveyed communes have been connected with the differentiation between the agency and the bottom-up models. Therefore, the following distinguishing criteria have been adopted for the models:

- LGD council structure (with the bottom-up model, the dominance of the social sector, and with the agency model, 50% of the public sector);
- cooperation of residents in environmental efforts (advised in the bottom-up model);
- participation of the residents in the creation of a development strategy (in the bottom-up model contribution of the residents in the development of the document is necessary).

The bottom-up model was the one most widespread within the surveyed communes - a total of 16 indications and in the case of the agency model - a total of 13 indications. A model of alliances has been identified in the case of one commune. In the case of 10 communes, the model implemented has evolved into the integrated model, of which in six that was the bottom-up model towards an integrated one, in three towards the agency model and in one, it was the model of alliances towards the integrated one).

If at least 6 out of the 11 criteria for the identification of the integrated model type were met, it was considered that the present model tended to evolve towards an integrated model. None of the surveyed communes showed participation of NGOs in the creation of the development strategy of the commune, or cooperation with ecological organizations in the field of ecology. Occasionally, cooperation was taken up in clusters, and conditions were created for a debate with NGOs. In the surveyed rural communes an integrated model of sustainable development has not been fully developed, which demonstrates the essence of dim awareness of sustainable management of commune society¹. It must therefore be emphasized that the implementation of the concept of sustainable development of environmentally valuable communes in the environmental dimension requires changing attitudes towards environmental problems of local governments to support the creation of an integrated sustainable development.

Preference for the bottom-up and agency models demonstrates that local government authorities insufficiently platform the development of synergies of different types of social knowledge. Development barrier is the low level of social capital - as indicated by the popularity of the agency model, which is characterized by minimal civic community. The universality of the bottom-up model translates into great opportunities to use local knowledge, but without linking it to the global - expert - knowledge.

The model of the integrated sustainable development and environmental competitiveness of the surveyed communes

In search of the determinants of the success of the communes in achieving competitive advantages in the environmental area, it is important to show the relationship between the level of environmental competitiveness and the model of sustainable development implemented by the communes. Due to the difficulty of measuring environmental competitiveness (operationalization of the concept and availability of data) the measurement accounts for the narrow concept of environmental competitiveness understood as the ability to attract tourists. The level of the environmental competitiveness measured using the ability to attract tourists (the adopted measure - the number using the accommodation as of 31 December 2013) proved to be statistically determined by the model of sustainable development implemented by local governments.

¹ Similarly, paper on the CORASON project, based on rural communes in Lodzkie and Malopolskie voivodeships, also did not reveal the emergence of an integrated model, cf. M. Klekotko 2008.

The level of environmental competitiveness vs. the type of the implemented sustainable development model

Competitiveness level model type	below the arithmetic mean	above the arithmetic mean
aimed at integrating (integrated)	16.67%	83.33%
Other	91.67%	8.33%

Source: author's calculations based on the research

Communes characterized by above-average levels of environmental competitiveness have often implemented models aimed at integrating (Pearson Chi-Square test is 15.09, $df = 1$, at the significance level of $p = 0.0001$). The results obtained allow for the acceptance of the hypothesis set up in the paper, as the governments' efforts to implement an integrated model of sustainable development are characterized by a higher level of environmental competitiveness.

Conclusions, proposals, recommendations

1. An integrated model of sustainable development should be considered optimal in the creating of development of communes located in environmentally valuable areas.
2. It has been shown that local efforts to implement an integrated model of sustainable development are characterized by a higher level of environmental competitiveness.
3. The implementation of this model finds such difficulties as shortage of social capital, which is evident in the preference for the agency model applicable to the low level of social activity.
4. The implementation of the integrated model of sustainable development also requires changes in attitudes and openness of local authorities to widely implemented inter-sectoral cooperation strategies.
5. The surveyed local governments have taken action to create an integrated model, for example, widespread participation in LAGs, the first experience in cross-sectoral cooperation outside LAGs, e.g. in clusters, thus, the execution of the model in at its early stages.
6. Further involvement of local communities in the current financial perspective within the framework of LEADER is advised in order to strengthen local social capital, along with taking up cooperation with LAGs from other regions in the country and abroad for the transfer of positive role models and good practices.
7. Activation of municipal institutions of culture and education in the implementation of projects that integrate social knowledge (local and expert) is aimed at strengthening social capital.
8. Application of specific solutions for enhanced social capital in the surveyed communes requires deeper research in order to identify the problems of development in the various communes.

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SOCIAL INNOVATION AND ITS TYPES IN RURAL AREAS

Ligita Melece¹, Dr.oec. +,

¹ Latvian State Institute of Agrarian Economics

Abstract. The growth of modern economic systems has generated more numerous, complex and urgent social challenges. The aim of study is to clarify the term (definition) and meaning of social innovations and to determine the types of social innovations in the rural areas. The results of study show that the definition of social innovation is still vague. Despite the social innovation being defined and interpreted differently, it provides the social benefits for both local community and/or society in general. When accepting broader description of social innovation, it was concluded that social innovation is not the same as social entrepreneurship. Nowadays, social innovations, particularly in the rural areas, focus on successful solution of different social, economic, political and environmental issues. The social benefits, for instance, reduce the threat of climate change (e.g. reducing greenhouse gas emissions); maintain the biodiversity, ecosystems and landscapes; offer fresh and healthy local food etc., can be provided by the social innovations based on the agricultural production and other rural activities. The following social innovations (but not all) are or will be suitable for Latvia: sustainable or environment friendly agricultural production; local food systems; social or care farming; social services; renewables (e.g. bioenergy); ecosystem services (int. al. tourism) and recreation services; cooperation; local action groups and financial services.

Key words: social innovation, rural area, development.

JEL code: A130; O130.

Introduction

The growth of modern economic systems has generated more numerous, complex and urgent social challenges. Moreover, there is a growing consensus that the disconnection between economic growth and social welfare is increasing (Harayama, Nitta, 2011).

Therefore, interest in social innovation is growing due to societies facing extraordinary numerous, complex, and urgent social challenges: energy efficiency and security, food security, increasing inequality, rising poverty rates, unstable economies, extended unemployment, delocalisation, climate change, environmental degradation and a raft of other,

+ Corresponding author. Tel.: +37129196063; fax: +371 67541789.
E-mail address: ligita.melece@lvaei.lv.

mainly global, issues (Harrisson et al., 2009; Hewit, 2008; Caulier-Grice et al., 2012). The importance of social innovation for successfully addressing the social, economic, political and environmental challenges of the 21st century has been recognized on a global scale (Howaldt et al., 2014).

It is acknowledged on the European Union (EU) level (The Social Innovation..., 2010; European Commission, 2013) that social innovations are critical or essential in addressing the following challenges: economic growth - restarting economic growth and ensuring long-term sustainability and competitiveness for the future; fighting unemployment – especially youth unemployment and generational worklessness; climate change.

It is widely accepted (Bertolini et al., 2008) that there is backwardness of well-being of the inhabitants of rural areas or territories. For instance, Copus and de Lima (2014) recognize that the risk of poverty and social exclusion was higher in Central and Eastern Europe; *inter alia* Latvia, particularly in rural areas.

Taking into account the above mentioned considerations, the aim of the study was stated - to clarify the term (definition) and meaning of social innovations and to determine the types of social innovations in the rural areas. The tasks of study are: to clarify the definition, meaning and concept of social innovation; to find and propose social innovations, which are or will be suitable in Latvian rural areas.

Materials and methods. The principal materials used for the studies are as follows: different sources of literature, e.g. scholars' articles, research papers and the reports of institutions. The suitable qualitative research methods have been used: monographic; analysis and synthesis; grouping, logical and abstractive constructional etc.

Due to limited space, only the most important results of research have been outlined in the paper.

Research results and discussion

Definition and nature of social innovation

There are numerous definitions of social innovation found in literature that have been used in a number of ways. Some of the earliest references to social innovation, dating back to the 1960s, use the term to refer to experimental research within the social sciences and humanities (Caulier-Grice et al., 2012). Moreover, the social innovation is a complex and multidimensional concept that is used to indicate the social mechanisms, social objectives and/or societal scope of innovation (Bock, 2012). Many scholars pointed out that the definition of social innovation was still vague (e.g. Butkeviciene, 2009; Harrisson et al., 2009; Westley, Antadze, 2009; OECD, 2010; The Social Innovation ..., 2010; Caulier-Grice et al., 2012; The Young Foundation, 2012; Howaldt et al., 2014) and confusion exists with regard to the understanding of it. Besides, it is proved that social entrepreneur, social entrepreneurship and social enterprise do not have the same meaning (Westley, Antadze, 2009; The Social

Innovation..., 2010; Noya, 2011; Groot, Dankbaar 2014), for example, in the United States as in Europe (OECD, 2010), and this difference also complicates situation.

Murray et al. (2010:3) defined the social innovation as "...new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. ...they are innovations that are both good for society and enhance society's capacity to act. The interest is in innovations that are social both in their ends and in their means." To this definition Caulier-Grice et al. (2012:18) added that social innovations " lead to new or improved capabilities and relationships and better use of assets and resources" but Phills et al. (2008) pointed out that social innovations were created, adopted, and diffused in the context of a particular period in history. Phills et al. (2008:39) propose own definition of social innovations "...novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals." Phills et al. (2008:39) insert the social change within the meaning of social innovation, to redefine social innovation as "a novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals."

The social innovation happens in all sectors, public, non-profit and private; and between the three sectors (Phills et al., 2008; Harayama, Nitta, 2011). Caulier-Grice et al. (2012:29) add informal sector, which is described as "...activity undertaken by individuals, families and communities that is not captured by the private, public and non-profit sectors." Caulier-Grice et al. (2012:18) suggest the following five elements should be used to define the activity or practices as a socially innovative: novelty; from ideas to implementation; meets a social need; effectiveness; and enhances society's capacity to act, which along with the descriptions are outlined in Table 1.

Table 1

Core elements of social innovation

Core elements	Description
Novelty	Social innovations are new to the field, sector, region, market or user, or to be applied in a new way.
From ideas to implementation	There is a distinction between invention (developing ideas) and innovation (implementing and applying ideas).
Meets a social need	Social innovations are explicitly designed to meet a recognised social need.
Effectiveness	Social innovations are more effective than existing solutions – create a measurable improvement in terms of outcomes.
Enhance society's capacity to act	Empowers beneficiaries by creating new roles and relationships, developing assets and capabilities and/or better use of assets and resources.

Source: *Caulier-Grice et al., 2012*

Scholars (Westley, Antadze, 2009; The Social Innovation..., 2010; Noya, 2011) argue that terms "social innovation", "social enterprise," and "social entrepreneurship" are overlapping but distinct. Moreover, the terms "social enterprise," "social entrepreneurship," and "social finance" are often used interchangeably with "social innovation" (Westley, Antadze, 2009). Table 2 shows the links and differences of social innovation and social entrepreneurship.

Table 2

Links between social innovation and social entrepreneurship

Social innovations	Social entrepreneurship
New solutions to social challenges	New responses to social challenges.
Improvement of individual and collective well being and quality of life	Explicit pursuit of positive externalities.
Conceptual, process or product change, organisational change and changes in financing, and new relationships with stakeholders and territories	New forms of internal and external governance.
Changes in financing	Mixed financing (public, private, monetary and not monetary).
Changes in relationships with territories	Strong links with territories.

Source: *Noya, 2011*

Groot and Dankbaar (2014:24) go even further and indicate that 'social' should not be used as an adjective to entrepreneurship, which suggests that some entrepreneurs are social and others are not. 'Social' is as a dimension of the results of entrepreneurial action. Entrepreneurship can have social results, intended (by what are often called social entrepreneurs) but also unintended (when a business idea leads to social change) or maybe partially-intended; moreover, new ideas, new products, or new services, may turn out to be social innovations regardless of any social impact intended by the inventor (Groot, Dankbaar

2014:24). Groot and Dankbaar (2014) explain very clearly that it would be easier to define, separate and compare the social impact of enterprises than to aspire with rigorous criteria separate 'social' enterprises from so called 'regular' or 'normal' enterprises. Moreover, the 'normal' entrepreneurs should be encouraged to think about possibilities to engage in social innovation instead of thinking that social innovation is something for government, foundations, charity, or non-profit organization (Groot, Dankbaar, 2014).

Groot and Dankbaar (2014) consider that social innovation occur in different sectors, in which they may arise from actions and activities done by different actors (e.g. public authorities and officials as well as from private initiatives, both profit and non-profit); and social innovation does not require social entrepreneurship.

Meanwhile, Caulier-Grice et al. (2012) state that the term social innovation has been used to describe also social entrepreneurship. This statement is opposite to viewpoint of other forenamed and cited scholars. Hubert (2012) pointed out that in the BEPA report three complementary approaches to social innovation were distinguished:

- 1) *social*: the grassroots social innovations responding to pressing social demands which are not addressed by the market and are directed towards vulnerable groups in society;
- 2) *societal*: the broader level which addresses societal challenges, where the boundaries between social and economic are blurred; and they are directed towards society as a whole;
- 3) *systemic*: the systemic type which relates to fundamental changes in attitudes and values, strategies and policies, organisational structures and processes, delivery systems and services.

There are three major challenges with a global scope, which require action at the EU level (Hubert, 2012):

- 1) a green challenge: the need to change current ways in which essential natural resources are used;
- 2) an inclusive challenge: the need to anticipate and adapt to societal changes, including political, cultural, demographic and economic transformations in order for the EU to develop into a knowledge society;
- 3) a smart challenge: the need for more effective and transparent governance in the EU and the world with the creation of accountable forms of governance able to anticipate and adapt to the future; and in such a way to respond to common challenges.

Social innovations can mobilize collective activities and leverage institutional resources into society-wide incentives (social services, social economy, model of governance, inter alia, regional, social movements, and diversity policies); thereto, the relationship between state institutions and social innovation is complex and may complete both tensions as well as opportunities (Moulaert et al., 2013). Besides, the social innovations highlight new cross-sector relationships (Bjork, Olsson, 2013).

The social economy is the source of social innovation and while it already plays the key role in developing new models and services to meet social needs, it could play an even greater role (Murray et al., 2010). The social economy is a hybrid and it cuts across the four sub-economies: the market, the state, the grant economy, and the household (Moulaert et al., 2013). The distinction between social and economic innovation is impractical and restrictive, because there are many cases of social innovations which are also economic innovations, for example, the fair trade and micro-finance movements (Caulier-Grice et al., 2012). Social innovations can include new types of production and new markets for social or environmental goods; moreover, it can include employment, consumption or participation; and ownership and production, for example co-operatives (Caulier-Grice et al., 2012). Butkeviciene (2009), studying Lithuanian situation, regards that the main actor in social innovation development is community; and the idea and successful implementation of social innovation highly depend on the characteristics of the community itself.

Types of social innovation in rural areas

The Ministry of Agriculture of Latvia¹ emphasizes the viability of long-term agricultural production and the future-oriented management of natural resources; in addition, the Ministry stresses that the Latvia's EU presidency will continue promoting the sustainable, innovative and environmentally-friendly development of agricultural, food and fishery sectors.

Evaluating the possibilities of the social innovation in rural areas, author agrees to this view and consider that the meaning of social innovation is broader than simply satisfying social needs but includes numerous challenges (e.g. energy efficiency and security, food security, increasing inequality, rising poverty rates, unstable economies, long term unemployment, delocalisation, climate change, environmental degradation etc.); and can address to achieve the benefits for society as a whole.

Butkeviciene (2009), analysing social innovations in rural Lithuania, lists them: ecological farming, formation of local action groups, and electronic social innovations. Moreover, the social innovation is often appointed as an essential part of agricultural and rural innovation (Bock, 2012), which are characterised by co-production of economic and social values or benefits.

Analysing experience of other countries, one can notice differences in selection the types of supporting social innovations. In this context, Moulaert (2013) stressed that social innovations could differ, considering regional and local specifics. For example, Northern Ireland Building Change Trust (2013) emphasises the following themes or sectors as the key opportunities and challenges associated with developing social innovation: health and social care; access to rural services; culture and the arts; and food/food production.

¹ <https://www.theparliamentmagazine.eu/articles/feature/latvia-focus-long-term-agricultural-production>

Taking into account the benefits not only for the local community but for society as a whole, author proposes pursuing types of social innovations, which already are developed, are currently in the developing stage or could be developed in rural areas.

Sustainable agricultural production

Sustainable or environment friendly agriculture is the production of food, fibre, or other plant or animal products using farming techniques that protect the environment, public health, human communities, and animal welfare. Scholars (Phills et al., 2008; Power, 2010) consider that sustainable agricultural techniques can provide the social and environmental benefits. For instance, environmental friendly and organic farming is recognised as social innovation, which provides ecological (biodiversity; ecosystems, landscapes, carbon storage and climate regulation etc.), recreational (*int. al.* tourism) and cultural output (Phills et al., 2008; Bergman et al., 2010; Power, 2010).

Local food systems

Local food systems or chains not only provide locally produced fresh food but also strengthen social cohesion and community development, particularly in disadvantaged rural regions, where low farm incomes and narrowly-based economies can lead to out-migration, which further threaten agriculture and social cohesion (Karner, 2010; Melece, 2014).

Local food systems deliver the following social benefits: social co-operation, local economic development, and close geographical and social relations between producers and consumers, thereby providing universal social benefits – welfare of a society - in economic, social and environmental terms, which satisfy society, not only locally but in general (Karner, 2010; Bareja-Wawryszuk, Golebiewski, 2014; Melece, 2014).

Social or care farming

The care farming (also called as social farming, green care farming, farming for health) can be defined as the use of commercial farms and agricultural landscapes as a base for promoting mental and physical health, through normal farming activity; and provide various other services, for example, educational, rehabilitation and etc. (Sempik et al., 2010; Di Iacovo et al., 2014; Elsey et al., 2014). In addition, the care farming or care farm has the following different interpretations: social farm, rehabilitation farm, residential farm, educational farm, community farm, therapeutic farm etc. (Elsey et al., 2014). Di Iacovo et al. (2014) pointed out that the social farming was a traditional as well as an innovative activity for farmers.

Social services

Social services are a range of public services provided by governmental or private organizations, for example, education, health care, job training, and nursing services for children, older people and disable persons; as well as to help former prisoners and people with addictions. These public services may provide not only above mentioned social farming but also entrepreneurs and other different institutions (e.g. public, non-governmental and community owned).

Renewables (e.g. bioenergy)

It is recognized that pollution-reducing innovations, *inter alia* green house gases reducing emissions, are the social innovations (Bergman et al., 2010), and scientists (Knickel et al., 2009; Levidow, 2011) include the development of renewables, including bioenergy, in it.

Ecosystem and recreation services

Considering the fact that agroecosystems are essential sources for provisioning services (Power, 2010), EU Rural Development Programme offers, under agri-environmental measures and measures promoting environmentally sustainable farming practices, different options for addressing environmental concerns to rural development stakeholders, through actions that include, *inter alia*: enhancing biodiversity by conserving species-rich ecosystems, *inter alia* reserving or maintaining grassland and extensive farming (e.g. organic); improving water management; contributing to capture and storage carbon; reducing emissions; as well as preserving cultural heritage and landscapes (Peters, 2009; Maes et al., 2013).

Moreover, Maes et al., (2013) stressed that the cultural ecosystem services or recreation services were one of the non-material benefits for society. Ecosystem services are connected not only with recreation services but also with rural or countryside tourism.

Cooperation

The social impact or benefits of the cooperation and various cooperatives, which act in rural areas, are identified by scholars (e.g. Thomas et al., 2011; Lafleur, Merrien, 2012; Anderson et al., 2014). Besides, it is noted that the cooperatives may multiply local expertise and create social capital within a community (Nembhard, 2014).

Local action groups

One way to operate the initiatives of local community in rural areas are local action groups, made up from public and private partners from the particular territory, and may include representatives from different socio-economic sectors and act under the LEADER¹ approach. They receive financial assistance to implement local development strategies, by awarding grants to local projects.

Financial services

Taking into account that the rural areas are still lacking access to financial resources and services, credit unions and micro-finances² or micro-credits are the options in this sector. Despite the rural microcredit funding having been established in Latvia (Kruzmetra et al., 2012), nevertheless, the further development of financial services, in particular credit unions, are necessary. As evident from the above description of various types of social innovations in the rural areas, it should be noted that the majority are related to the so-called green

¹ Derives from the French words "*Liaison Entre Actions de Développement de l'Économie Rurale*" which means, 'Links between the rural economy and development actions'. An EU wide initiative that give local people a real opportunity to get involved and have their say in the delivery of a local development strategy.

² Micro-finance is a source of financial services for entrepreneurs and small businesses lacking access to banking and related services.

economy and partially could be described as a green innovations. UNEP (2011:16) provides the definition of green economy as "...low-carbon, resource efficient and socially inclusive". Furthermore, it can characterise as "...improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2011:16).

Conclusions, proposals, recommendations

Many scholars have pointed out that the definition of social innovation is still vague. Despite the fact that there is lack of common and clear definition, social innovation is complex and multidimensional concept; and is a much broader term than social entrepreneurship or enterprise.

The social innovation is defined and interpreted differently. Some scientists perceive the social innovation only in its narrowest scope, linking it solely with the social services and the social entrepreneurship. Another view expressed by the scientists in recent publications highlights a broader description or meaning of the social innovation. They emphasize that the social innovations are innovations which provide the social benefits or beneficial outcomes for both the local community and/or the society in general.

Besides, the social economy is the source of social innovation. Hubert (2012) suggests three major challenges with a global scope, which require action at the EU level: 1) a green challenge; 2) an inclusive challenge; 3) a smart challenge - the need for more effective and transparent governance.

Nowadays, social innovations, particularly in the rural areas, focus on successful solution of different social, economic, political and environmental issues. The social benefits for example, reduce the threat of climate change (e.g. reduction of greenhouse gas emissions); maintain the biodiversity, ecosystems (e.g. agroecosystems; forest ecosystems) and landscapes; offer fresh and healthy local food etc., can be provided by the social innovations based on the agricultural production and other rural activities.

After studying literature on social innovations of rural and agricultural origin, author describes and propose following, but not all, social innovations, which are or will be suitable for Latvia: sustainable or environment friendly agricultural production; local food systems; social or care farming; social services; renewables (e.g. bioenergy); ecosystem services (int. al. tourism) and recreation services; cooperation; local action groups and financial services.

The majority of abovementioned rural social innovations are related to the so-called green economy and could be named as partially green innovations.

The necessity of further studies arises from various types of rural, including agricultural, innovations which could require detailed studies for each of the types of innovation.

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RURAL AND URBAN MUNICIPALITIES IN THE REGIONS OF LATVIA – DEVELOPMENT TENDENCIES AND CHALLENGES

Zane Bulderberga¹, Dr.oec, asist.professor⁺,

¹ Latvia University of Agriculture, faculty of Economics and Social Development

Abstract. The aim of the research was to evaluate the 48 indicators in urban and rural municipalities in the regions of Latvia in order to identify the factors for differentiated development of municipalities as well as their socio-economic clusters. One may conclude that there are differences among values of indicators in urban and rural municipalities. Factor analysis results showed that the most important factors for diverse municipality development are - *Residents' income, Employment, Land resources and Provision of basic functions*. As a result of cluster analysis, several municipality groups were identified, which have similar socio-economic processes. Positive socio-economic processes have been recognized in 58 municipalities, for example, larger population, higher income level or positive age structure comparing with other municipalities. Negative socio-economic processes have been observed in 52 municipalities, the main problems being as follows – clear depopulation and aging, small number of employed and low salary, small land area per farm and low intensity of agricultural activity.

Key words: rural, urban municipalities, sustainable development, regional development

JEL code: R00

Introduction

The development of municipalities may be characterised by various indicators. An analysis enables to evaluate development tendencies and to model future development. The evaluation is essential to perform sustainable development planning process in all levels – local, regional and national (Rondinelli, Ruddle, 1978; Shucksmith, Cameron, Merridew, Pichler, 2009). The indicators' evaluation can be used as a tool to assess the efficiency of regional policy implementation or as argument to introduce the new regional or spatial development measures in order to promote sustainable and balanced development. Balanced and sustainable spatial development has been a topical issue in the EU since the 1980s with the aim to reduce differences between the EU regions, and rural and urban areas (Wegner, 2008).

⁺ Z. Bulderberga, e-mail: zane.bulderberga@llu.lv

This goal has been included in the European Spatial Development Perspective (1999), the Territorial Agenda (2007), the European Community Strategic Guidelines on Cohesion (2006) and other documents. Necessity of sustainable regional and local development has been updated also in Latvia – both the Sustainable Development Strategy of Latvia until 2030 (2010) and the National Development Plan of Latvia for 2014 – 2020 (2012) as well as the Regional Policy Framework for 2013 – 2019 (2013).

Taking into considerations territorial cohesion as one of sustainable development dimensions, many scientists stated questions – did the city impact on its administrative area could be described as significant (Meijers, Waterhout, Zonneveld, 2007) and were there statically significant differences between rural and urban areas in terms of socio-economical indicators (Tacoli, 1998; Zonneveld, Stead, 2007; Szajnowska-Wysocka, 2009).

Specific research tasks: (1) to evaluate the indicators in Latvia's urban and rural municipalities for a three year period; (2) to perform a factor analysis to identify the indicator groups that differ between urban and rural municipalities; (3) to perform a cluster analysis to identify the municipalities with positive or negative development tendencies. The research methods employed: monographic, analysis and synthesis, induction and deduction, statistical analysis methods, factor analysis, cluster analysis and Mann-Whitney U test. The secondary data collected by the Central Statistical bureau was used. The municipality is considered as urban if one or more towns/cities are located in its territory. If there are no towns in the territory of municipality – it is considered as rural municipality. The republic cities are excluded of the research. The research was elaborated in the period from 2010 to 2013, the calculations made were performed in the national currency (LVL), and the results can be converted into euro currency according to the exchange rate: EUR 1 = LVL 0.702804.

Research results and discussion

Analysis of the administrative territories of Latvia was carried out in several stages. The *first* stage reveals indicators for rural and urban municipalities in the period 2009 – 2011 (due to data availability, agricultural description was analysed only for 2010). Indicators were analysed in groups of municipalities of the statistical regions of Latvia. To determine differences in indicators correctly, *Mann-Whitney U test* was performed and *p-value* was obtained – if its value is less than 0.05, it shows statistically significant differences in values of indicators in urban and rural municipalities (The theory behind..., n.d). In the *second* stage factor analysis was performed to analyse and study in detail the main structural differences in the groups of municipalities, as large group of common indicators was used to describe situation in the territories. To justify results of factor analysis, objective probative indicators were calculated (*Anti-Fig.* correlation matrix, Bartlett test and Kaiser-Meyer-Olkin test) that prove the statistical significance of the performed analysis. In the *third* stage of data analysis cluster analysis was performed on the basis of complex factors, revealing differences among the municipalities, obtained as a result of factor analysis. As a result different groups of

municipalities was identified, characterising the positive and negative tendencies of their development.

Analysis of demographic indicators

To determine the demographic differences in rural and urban municipalities in Latvia, several indicators were analysed – number of residents and its changes, demographic burden, density in a three-year period. Factor analysis includes one more indicator (Personal income tax (PIT)). Three factors were identified, explaining 88.37% of differences in municipalities (Table 1). The most important factor is *Residents' income*. Six indicators differ statistically in rural and urban municipalities suggesting heterogeneous situation in Latvian municipalities.

Table 1

Results of analysis of indicators characterizing the demographic situation

Indicators	Mann-Whitney U test*	Factors (explained dispersion)
PIT in the municipality budget, LVL per 1 inhabitant	0.34	Residents' income (48.09%)
Residents in the pre-employment age, %	0.41	
Density of population, resid./km ²	0.00	
Residents after the working age, %	0.21	
Demographical load per 1000 residents in the working age	0.00	Residents' structure (24.33%)
Residents in the working age, %	0.00	
Residents after the working age, %	0.00	
Number of residents	0.00	Number of residents (15.95%)
Changes in number of residents (compared to the prev.year)	0.00	

* *p*-value

Source: author's calculations

Fifty-one percent of population lived in nine cities (in 2011), majority of them in the capital city Riga, showing an explicitly monocentric spatial structure. Number of residents has decreased by 4% since 2009 – in urban municipalities the decrease was caused by residents' migration to other territories, in rural municipalities – due to the decrease of natural reproduction. Proportion of number of urban and rural municipalities, however, has not changed (70% and 30%) proving that residents are leaving urban and rural areas. In Pieriga region the numerical dispersion between municipalities in terms of number of inhabitants is - 15.8 times, but the largest difference is in Latgale region (23.9 times) showing an explicit heterogeneity in terms of the number of residents in municipality.

Pieriga region is the most densely populated area (104 resid./km²), Vidzeme region, which is of large space and small number of residents, in terms of density of population is the last one compared to the other statistical regions of Latvia. Ageing structure of residents in urban and rural municipalities is similar – differences in each ageing group are less than 1%, in the

regional aspect it is homogeneous as well. Significant differences is observed in rural municipalities of Pieriga region where proportion of residents in the pre-employment age and residents after the working age ranges within 10% each, proportion of residents in the working age, however, ranges only within 4%.

The average level of demographic load in 2011 in Latvian municipalities was 522 persons; moreover, dispersion was larger in rural municipalities than in urban municipalities. The largest average demographic load was observed in rural municipalities in Kurzeme region, the smallest – in rural municipalities in Pieriga region, showing that the territory is attractive to residents in the working age that can be explained by the wide variety of work opportunities in Riga.

Analysis of indicators describing economic activity

In the cities are located 53% of all economically active statistical units of Latvia, in urban municipalities – 32%, in rural municipalities – 15%, demonstrating concentration of economic activity in the cities. In order to characterise economic activity in rural and urban municipalities, analysis of 12 indicators was made – only three of them (gross salary in public and private sector and number of self-employed) are not statistically different in groups of municipalities. Factor analysis resulted in three factors – factor *Employment* explains 44.78% of disparities in municipalities.

Table 2

Results of analysis of economic activity indicators

Indicator	Mann-Whitney U test	Factors (explained dispersion)
Number of employed, thou.	0.00	Employment (44.78%)
Number of employed in public sector, thou.	0.00	
Number of employed in private sector, thou.	0.00	
Gross salary (companies employing >=50 employees)	0.79	
Number of individual merchants per 1000 residents	0.00	
Gross salary (companies employing <50 employees)	0.79	Salary (19.08%)
Gross salary at public sector	0.79	
Number of companies per 1000 residents	0.00	
Unemployment level, %	0.00	
Number of economically active market sector statistical units of per 1000 residents	0.04	Basic forms of economic activity (13.73%)
Number of self-employed per 1000 residents	0.95	
Number of peasant and fishermen farms per 1000 residents	0.00	

Source: author's calculations

In the cities the most often form of commercial activity is a commercial company (69%), in municipalities - self-employed persons (44% in urban municipalities and 42% in rural municipalities in 2011). Farming and fishing enterprises are mainly located in municipalities - 64% in urban municipalities and 35% in rural municipalities. In Latvia 95% of economically

active statistical units in rural municipalities and 94% of economically active statistical units in urban municipalities are classified as micro by the economic size, 4% and 5%, respectively, fall into the group of small economically active units showing a fragmented economic activity, low competitiveness and limited development opportunities.

According to NACE, the largest number of companies in Latvia is registered in the following lines of business: agriculture, forestry and fishery (52% of the group of rural and 40% of the group of urban municipalities), retail sales and wholesale, repair of vehicles and motorcycles.

In 2011 in Latvian municipalities 228.7 thousand residents were working, 67% of those were employed at companies operating in urban municipalities and 33% - at companies operating in rural municipalities. Proportion of the number of employed complies with the general trends of residents' placement in the groups of municipalities and shows that in urban municipalities there is a larger number of available work places, concentration of economic activity, state and municipality institutions are located there. Private sector employs 57% of the employed; the proportion is equal in both rural and urban municipalities.

When evaluating economic activity indicators one can conclude that there are significant differences in the groups of urban municipalities and rural municipalities – urban municipalities have higher indicators of economic activity in terms of number of employed, number of economically active statistical units as well as in terms of gross salary.

Analysis of agricultural activities

The largest number of registered economically active statistic units is observed in agriculture, forestry and fishery, thus, the main indicators of agricultural activity were assessed in detail using data of agricultural census in 2010.

Seven agriculture indicators were reduced in three factors (Table 4), explaining 91.84% of differences; factor with the greatest impact is *Land resources* as the basis of agricultural activities. Utilised agricultural area (UAA) per farm depends on both location of municipality and municipality overall area. Mann-Whiney test results showed that indicators of agricultural activities did not statistically differ in rural and urban municipalities as agricultural production depended on available resources and land quality.

Table 3

Results of analysis of agricultural activity indicators

Indicator	Mann-Whitney U test	Factors (<i>explained dispersion</i>)
Agricultural area, on average per farm, ha	0.59	Land resources (42.71%)
UAA, on average per farm, ha	0.58	
Total land area, on average per farm, ha	0.67	
Number of persons employed in agriculture	0.72	General description of agriculture (28.39%)
Number of farms	0.09	
Average economic size of farms, thou. EUR	0.95	Agricultural intensity (20.74%)
Average number of persons employed at farm	0.06	

Source: author's calculations

According to the farms surveyed during the agricultural census, the total agricultural area occupy 67% of total municipality area, forests occupy 25%. In urban municipalities on average 97% of total agricultural area are utilised, in rural municipalities the result is 96%. There are 83 364 farms registered in Latvia that are managing 1 796.3 thou. ha. The main specialization of farms is agriculture (43%), dairy farming (21%) and mixed farming (13%). In Latgale region the largest number (35%) of farms is registered. Analysing the obtained data, it can be concluded that agricultural activity in Latvia is concentrated in certain areas and municipalities also have differentiation in economic activities – there are municipalities with very intense agricultural activities, especially in Zemgale region. Various economic size of farms is another significant issue for policy developers – in order to increase development diversified policy instruments for the small and large farms are necessary.

The most significant share of persons employed in agriculture is in Latgale region (35%). In Zemgale region the number of employed in rural municipalities is higher (53%) than in urban municipalities demonstrating the explicit specialization of farms in Zemgale region in agriculture.

The total standard output of farms in 2010 was EUR 777.2 million. In Zemgale region the farms are more active and economically more efficient that is proved by the share of number of farms and total standard output. In Latgale region the number of rural farms and UAA is larger, however, the total standard output in this region is 18% of total Standard output in Latvia showing an ineffective use of resources. The economical size of Latvian rural farms is EUR 11.7 thou. On average, in rural municipalities – EUR 13.2 thou., in urban municipalities farms – EUR 10.5 thou. showing that farms in rural municipalities are economically more active and the value of produced goods is higher. Assessing the agricultural sphere in the context of the EU, it can be concluded that farms in Latvia are with low competitiveness, comparing with other EU member states. To promote development, merging of farms should be stimulated or operations should be oriented to niche products.

Analysis of financial indicators of municipalities

Analysis of income in municipalities shows the most significant income sources of residents and its size as well as relations to other municipalities, for example, receiving resources from the municipal balancing fund, resources from other municipalities for services provided by education institutions and other income sources. The municipality budget factor analysis identified two factors (Table 5), whereas the Mann-Whitney test showed two indicators which did not statistically differ in rural and urban municipalities (environment protection and health expenses).

Table 4

Results of factor analysis of municipal financial indicators

Indicators	Mann-Whitney U test	Factors (explained dispersion)
Total income of general budget	0.00	Provision of basic (primary) functions (62.19%)
Education expenses	0.00	
Leisure, religion, culture expenses	0.00	
Total expenses of general budget	0.00	
Expenses for general government services	0.00	
Social protection expenses	0.00	
Economic activity expenses	0.00	
Environment protection expenses	0.29	Provision of secondary functions (11.18%)
Municipality territory and housing management expenses	0.00	
Health expenses	0.11	
Public order and security expenses	0.00	

Source: author's calculations

Income of general budget for the majority of municipalities (32%) amounts to LVL 3–5 million, for the fifth part of municipalities – LVL 5–7 million. Personal Income Tax (PIT) contributed to the municipal budget 39% on average (total tax income 46%). In urban municipalities incomes amounted to LVL 7.45 million on average in 2011, in rural municipalities – LVL only 4.60 million, showing that rural municipalities have less opportunities to ensure good life conditions to residents and support economic activities thereby creating an attractive business environment. Income of urban municipalities is 13 times higher on average, allowing affect the development of territory positively and promote the use of potential more than in rural and urban municipalities.

In 2011, PIT payment per one resident in Latvia amounted to LVL 225 on average, in Pieriga region PIT payment was higher by 17%. The lowest amount was in Latgale region, demonstrating differences of income and economic situation among inhabitants that complies with salary trends. In urban municipalities, PIT payment was higher by 12% than in rural municipalities. Municipalities in Pieriga region should be emphasized because the PIT payment per one resident is the highest in Latvia both in urban municipalities (LVL 277 on average) and

in rural municipalities (LVL 248 on average). These differences between both groups of municipalities are comparatively small – 10%. It proves that income of residents of municipalities located near Riga are higher and not dependent upon place of residence, as majority of working places are located in Riga, the declared places of residence are in suburban municipalities.

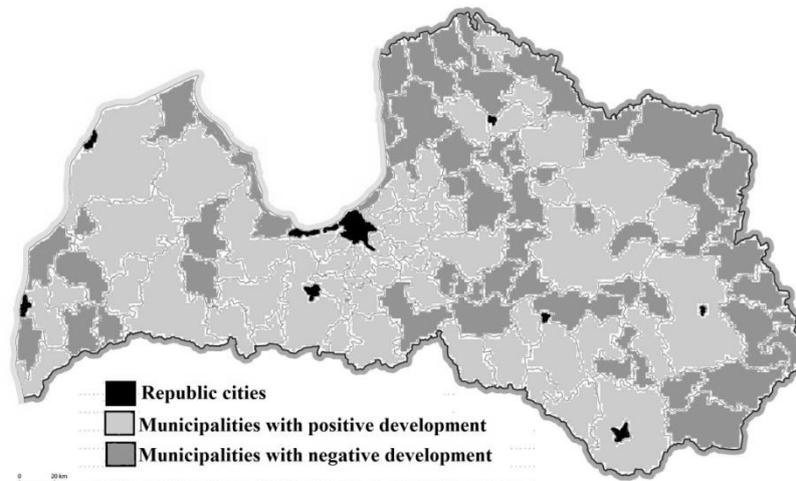
The largest part of expenses of the general budget are expenses for education (40% on average), territory and housing management expenses (18%) and expenses for general governmental services (12%). Expense structure in regions is comparatively homogeneous. There are significant differences in municipalities as regards expenses for environment protection and health - as a result of various reforms, in several municipalities there are no medical institutions and municipalities have not incurred any expenses in this category. Expenses for environment protection are not the priority and have not been included in expense structure.

Assessment of development in municipalities applying cluster analysis

As a result of cluster analysis, clusters of municipalities bearing different social-economic situation is obtained; the analysis is based on previously obtained factors. Municipalities located close to republic cities are more attractive – the number of residents is higher as well as residents' income level. The essential issue for future development is creation and maintenance of infrastructure – both road network and its quality which ensures everyday commuting, and public service availability to improve the quality of life. The second group is municipalities with intense agricultural production – a larger number of farms, higher economic size, more inhabitants are employed in agriculture. A key issue of development in these municipalities is sales markets for agricultural production and creation of demand-supply chains. Cities and towns are major market for agricultural products and partnership establishment between municipalities is an essential factor to ensure development and growth. Municipalities with particular decrease of population and unfavourable aging structure, partnership and cooperation should focus on more attractive living condition creation by ensuring access to public services.

Applying the cluster analysis it is possible to group all Latvian municipalities in clusters with a positive situation or negative situation. For example, Adazi municipality in Pieriga region has especially high residents' income level and values of other indicators are medium. Thus, one can conclude that this particular municipality may be characterised as high-income municipality among other municipalities in Latvia. In order to ensure future development in municipalities it is essential to identify those areas where certain measures should be implemented to improve negative tendencies. In those municipalities, which are characterised positively, local government main task is to ensure the continuation of growth and stabilisation of positive development. Positive development tendencies (for example, high residents' income, high number of employed persons, high economic activity, high agricultural intensity)

are identified in 28 rural and 30 urban municipalities. Negative socio-economic processes (an explicit decrease of number of residents, clear ageing of residents, low number of employed persons, low agricultural intensity) are identified in 22 rural and 30 urban municipalities.



Source: author's construction

Fig. 1. **Latvian municipalities with positive and negative socio-economic situation**

Results of cluster analysis show that in Latvia there are several groups of municipalities with different socio-economic situation – the regional and spatial planning instruments should be diversified in order to ensure growth and development. Development planning may be carried out in two forms - strengthening and developing the strong points of municipalities (for example, in municipalities with high number of farms and high number of persons employed in agriculture, highlight agriculture as a priority sphere) or focusing on reducing the impact of the weak points of municipalities (for example, in municipalities with the highest decrease of number of residents, focus on matters to maintain the number of residents).

Conclusions, proposals, recommendations

1. When analyzing demographic, economic, agricultural production and municipality financial indicators in municipalities, it can be concluded that there are differences among values of indicators in urban and rural municipalities which can lead to unbalanced development in future.
2. Analysis of demographic indicators revealed by the first three groups of factors, highlight Pierīga region as the most favourable - residents' income and number of residents is higher and demographic load is lower. Situation in urban municipalities in Latvia is more favourable in terms of resources - higher number of residents promote development of municipalities, increase municipal budget and general attractiveness of the territory. In rural municipalities, especially those located close to the cities, there is a more positive demographic load - proportion of children and youth until the age of 15 is larger than in other municipalities proving that families with children choose to live not in urban but in municipalities close to cities.

3. The average values of factors *Employment* and *Basic forms of economic activity* in regions show comparatively homogeneous situation, values of factor *Salary* in regions differ. Economic activity is higher in Pierīga region with a high number of registered companies, in Latgale region, however, there is an opposite situation - level of employment is low and number of commercial companies is small. In rural municipalities residents establish their own companies as the number of offered working places is limited - number of economically active statistical units per 1000 residents is higher than in urban municipalities.
4. Analysing agricultural operations, municipalities in Latgale region have a higher number of persons employed in agriculture and higher number of farms, those are, however, smaller in size and production intensity. In Zemgale region the situation is quite the opposite - farms are bigger in terms of land for agricultural use and size of area of land for agricultural use per one farm. Description of agricultural activity does not significantly differ among urban and rural municipalities.
5. Certain municipality groups with similar socio-economic tendencies can be identified by using 11 factors. Socio-economic processes, which can be evaluated positively, have been recognized in 58 municipalities, for example, larger population, higher income level or more positive age structure as in other municipalities. Negative development tendencies have been observed in 52 municipalities, the main problems being as follows - clear depopulation and aging, small number of employed and low salary, small land area per farm and low intensity of agricultural activity.

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A REVIEW OF MUNICIPAL ENVIRONMENTAL COMMUNICATION RESEARCH: STAKEHOLDERS, INSTRUMENTS AND EVALUATION (2009-2014)

Elina Kunga¹, B. soc. sc.+; **Janis Buholcs**¹, Dr. sc. comm.

¹ Institute of Social, Economic and Humanities Research of Vidzeme University of Applied Sciences

Abstract. This review article identifies the main elements of successful municipal environmental communication practices presented in research papers that have been published from 2009 to 2014. Various aspects of municipal environmental governance and communication, including planning, methods, stakeholder engagement and evaluation indicators, are examined. The article provides an overview on current state of research on this issue and suggests directions for future studies.

Key words: municipal communication, environmental communication, sustainable development planning, environmental management, citizen involvement, literature review

JEL code: Q

Introduction

Over the past decades, research on environmental protection in various management levels has become increasingly important due to increased attention on global warming, increasing pollution and other environmental issues. Scholars have explored the ways in which human behaviour affects environment and developed instruments that can be used to change it through different levels governance. Environmental communication on local level, including environmental communication activities practiced by local municipalities, also has an important role in bridging the local community and environment. Yet up until now researchers have often neglected the importance of environmental communication as a vital part of municipal environmental governance in itself (Calder & Beckie, 2011; Grodzinska-Jurczak & Cent, 2011).

By exploring the ongoing scholarly work on environmental communication on municipal level, the authors aim to gather information on how various communication-related tools and processes are employed to achieve the relevant goals. By doing this, the authors provide an overview of the current developmental status of this topic and identify directions for further studies. Since a number of studies from Latvian researchers were examined, too, the article

⁺ Elina Kunga. Tel.: +371 20220756;
E-mail address: elina.kunga@va.lv

also demonstrates how approaches to environmental communication popular in Latvia correspond with those chosen by researchers from other countries.

This paper specifically inspects studies on governance and environmental communication that deal with environmental communication as a tool for sustainable development in municipalities. In this review, an emphasis was put on the municipal environmental instruments that can be used to include primary stakeholders in all stages of the development of environmental policies. The paper also summarizes methodological choices of researchers and their main observations regarding the stakeholder involvement, instruments that are used by municipalities to engage with those groups and recommendations for best practices.

The paper is structured as follows. First, the authors explain the procedures they used to search for and select research articles that were included in this study. Then they proceed to analyze methodology of these papers, including methods and research objects, and summarize environmental communication practices in municipalities. Finally, the authors draw conclusions, which also illustrate potential directions for further research.

Research results and discussion

The sample consists of 12 research papers published between 2009 and 2014 that could be found in databases available to us, including Academic Search Complete in EBSCO, Sage Journals and Taylor & Francis Online. Additionally, the authors searched online repositories in which works by Latvian researchers have been included and also consulted Google Scholar search results. Only articles that could be found by using keywords "municipal" (or "governmental," or "governance"), "environmental communication" and "sustainable development" were considered for the inclusion in the sample. The authors were especially interested in applied research articles that describe actual communication tools and practices employed by municipalities and evaluate the effectiveness of these activities. Thus, the sample included only papers that concern municipal environmental communication in context of sustainable development, including those that deal with specific issues, for example, the use of particular communication instruments or specific (e. g. archaeological) environmental protection methods and issues.

Since the aim of this report is to provide an overview on the central ideas and approaches employed by other researchers, this account is constructed based on the principles of grounded theory (Glaser & Strauss, 1967/2006), a methodology that builds a theory or framework based on the analysis of data, rather than applies an existing theory to gather and interpret data from the beginning. In this way, we looked for common patterns, recurrent ideas in the included articles, which were then outlined in the subsequent description.

1. Methodological patterns

Among the reviewed research papers, most are case studies, in which specific practices of environmental communication have been studied or tested. Researchers from Latvia mostly

have researched the coastal regions of the country, with a focus on coastal environmental pollution issues (e. g. Antons, Ernsteins, Sulga, Kursinska, Fridmanis, Lice, Zilniece, 2013). Researchers from other countries, on the contrary, have directed their attention to more diverse territories and have examined various issues, including the status of environmental policies and sustainable development strategies and the readiness for the implementation and evaluation of these strategies (Grodzinska-Jurczak & Cent, 2011, Calder & Beckie, 2011). One of the most commonly used criteria for the selection of territories to be included in research is population differences in these territories.

Researchers have used a variety of research methods, such as focus-group discussions and interviews, to gather opinions from experts or stakeholders regarding the current and desirable practices. Similar methods have been used to assess the expectations that various stakeholders have regarding the municipal environmental communication activities (e. g. Antons, Ernsteins, Sulga, Kursinska, Fridmanis, Lice, Zilniece, 2013; Grodzinska-Jurczak & Cent, 2011; Buil, Roger-Loppacher & Marimon, 2014). In addition, researchers also have analyzed policy plans and other official documents with an aim to identify legal and strategic practices within municipalities (e. g. Calder & Beckie, 2011; Lagzdina, Ernsteins, 2009).

2. Identified existing and desirable practices

It is a common understanding that a planned environmental protection policy is needed on a local level. However, most of the studies reviewed in this article do not discuss environmental governance and environmental communication in municipalities as standalone phenomena. Instead, they are integrated in various other practices and policy plans. Thus, environmental communication has been analyzed in the context of sustainable development planning (e. g. Skoglund, Svensson, 2010), environmental protection (e. g. Grodzinska-Jurczak & Cent, 2011), reduction of environmental pollution (e. g. Kalnina, Zilniece, Ernsteins, 2013), change of citizen behavior (e. g. Buil, Roger-Loppachier, Marimon, 2014), local-patriotism (e. g. Skoglund, Svensson, 2010), spatial planning (e. g. Ernsteins, Lontone, Kaulins, Zvirbule, 2013) and the management of administrative resources (e. g. Pasquini, Shearing, 2014).

Research on municipal environmental communication shows that it consistently takes up only a small part in a long list of environmental protection instruments that municipalities use — along with legal and political, economical and financial, administrative and institutional planning and infrastructure instruments (Ernsteins, Lontone, Kaulins & Zvirbule, 2013). This happens despite the fact that environmental communication serves as the bridge between the people and environment, thus creating a common understanding of environmental issues and the need for sustainable development in a particular territory (Ernsteins, 2000, cited in Ernsteins, Kaulins & Zilniece, 2013:21). Environmental communication has often lacked attention as an important group of governmental instruments per se in a municipality (Calder & Beckie, 2011; Grodzinska-Jurczak & Cent, 2011).

A well-developed communication practice is crucial to putting sustainable development plans into action. It requires stakeholder involvement in all stages of policy development, including problem identification, policy planning, policy implementation and evaluation of the outcomes. Even though researchers and communication practitioners seem to agree on this, only few studies have attempted to find ways on how to improve environmental communication practices in municipalities (Calder & Beckie, 2011; Grodzinska-Jurczak & Cent, 2011) by treating them as a standalone management tool.

There are, however, a number of elements that are common in the reviewed research articles and characterize a good environmental communication practice. These elements are: (1) involvement of the relevant stakeholders in the planning and implementation stages; (2) using appropriate communication instruments and (3) making it a long-term practice, thus allowing it to be integrated in other planning and development practices. The following subsections present these elements in more detail.

2.1. Stakeholders in municipal environmental communication

Even though in practice municipal environmental communication often is limited to dissemination of specific information to denizens, research shows that in order to ensure the best possible practice, it should encompass interests and perspectives of various stakeholders more thoroughly. This, however, puts a pressure on planners to find a compromise between the interests of the various stakeholders, which often have conflicting views (Corburn, 2003).

The key players are citizens, whose behaviour municipalities aim to change through communication activities. A number of the reviewed research articles conclude that the success of environmental management practice in municipalities depends on citizen perspectives and their environmental awareness (e. g. Kalnina, Zilniece, Ernsteins, 2013; Calder & Beckie, 2011). Citizens not only can express their opinions on existing or proposed practices, but also are able to provide suggestions on how their ideas should be implemented. For example, citizens can voice their opinions regarding which sites or artefacts in the municipality should receive some sort of protection or on which places the spatial development should focus in a particular territory (King, Lepofsky, Pokotylo, 2011).

Even though the previous research puts an emphasis on citizen engagement in public deliberation by using questionnaires, discussions and other methods, it should not be neglected that there are many other stakeholders that also have an important role in the environmental communication processes in municipalities. For example, a research project carried out in Poland on how the local public accepts the idea of environmental protection in their surroundings showed that if the communication activities do not reach all of the primary stakeholders it can lead to a fiasco of the whole environmental policy (Grodzinska-Jurczak & Cent, 2011). Conflicting ideas and non-involvement of primary stakeholders can make it impossible to achieve the desired behaviour of the public, and, accordingly, fail to gain the intended benefit for the local environment.

In the discussions during all stages of the policy development — problem identification, planning, implementation and evaluation — the local business community should also be involved. Local businesses usually have interests in the development issues because these can affect business operations. However, their perspectives do not always correspond with the interests of the environmental protection (King, Lepofsky & Pokotylo, 2011). There are other groups that also should participate in all stages of the policy development. These include municipal officials and city councils, who are responsible for the management of environmental communication in the municipality; environmental NGOs, which usually lend support to the environmental issues, the media, consultants, researchers and educational institutions, including libraries, schools, universities and museums. (Calder & Beckie, 2011; Ernsteins, Kaulins, Zilniece, 2013:23).

These stakeholders differ in their power to affect the environmental policy, their interests in it and willingness to accept the proposed ideas. Therefore, all stakeholder groups, regardless of whether they support or oppose these ideas, are ignorant to them, interested in them or already practicing and supporting the proposed action (Bocur, Petra, 2011), should be engaged by using proper communication instruments to achieve the best possible results.

2.2. Instruments for municipal environmental communication

Previous studies suggest that the existing environmental management instruments in municipalities are sufficient to change people's behaviour in a direction that would be beneficial to the environment (Ernsteins, Lontone, Kaulins & Zvirbule, 2013:12; Bocur & Petra, 2011). At the same time, the results of the reviewed studies show that these instruments in municipal communication practice usually are not used in the most effective way. An understanding exists among researchers that environmental communication in municipalities until now has mostly been limited to a mere exchange of information, rather than cooperation between the key stakeholders in environmental management (Kalnina, Zilniece & Ernsteins, 2013:45).

One of the ways the communication instruments can be classified is related to the involvement of stakeholders in the issue. For example, a study that took place in Canada and was aimed to examine communication processes in various stages of sustainable development planning describes an idea of stakeholder involvement levels that differentiate municipality's duties regarding communication with the stakeholders. These levels are: informing, consulting, involvement, cooperation and support (Calder & Beckie, 2011). According to this framework, all stakeholders should be engaged in all those stages consecutively. Similar ideas of dividing the communication processes into levels can be found in other reports, too (Ernsteins, 2008:160, cited in Ernsteins, Lontone, Kaulins & Zvirbule, 2013:16; Bocur & Petra, 2011). However, other authors consider such a division only as a desirable practice rather than an existing one or even something that can realistically be implemented, because the involvement of the relevant stakeholders is difficult and not all municipalities are able to handle it.

The first level of stakeholder involvement — “informing” — refers to those instruments that are used for information purposes only and provide stakeholders with advice about the issue. Examples for these instruments include press releases or other information on environment-friendly behaviour or environment-related events disseminated through media, e-mails, municipality’s website or other channels. In a research article on reactions of youth to an environmental social marketing campaign the issue of choosing the most effective communication channels to reach and inform the targeted stakeholder groups was highlighted (Buil, Roger-Loppacher & Marimon, 2014). When trying to reach youth, one should consider transmitting the message through social media, such as Twitter or Facebook. Buil, Roger-Loppacher and Marimon (2014) stress the importance of using the appropriate instruments and channels to transmit the information during the campaign.

The second level — “consulting” — covers the educational role that informs about and explains the significance and regulations of environmental issues. These activities could be carried out through seminars, discussions, workshops and similar deliberations.

The third level — “involvement” — until now has been considered as one of the biggest challenges for municipal planners, because it represents the need for the motivation among citizens and other stakeholders in order to participate in the municipal environmental policy processes — from the defining of a problem to the evaluation of a policy (Calder & Beckie, 2011). Stakeholders may be engaged through seminars, workshops, and public discussions during which they can express their views and interests (Barge, 2006, cited in Calder & Beckie, 2011). However, this can only be achieved through a clear understanding that the expected results are of benefit to the stakeholders’ interests. Strong motivation is hard to achieve when, as the previous research demonstrate, even the task of informing the stakeholders is often not being implemented adequately (Antons, Ernsteins, Sulga, Kursinska, Fridmanis, Lice & Zilniece, 2013; Grodzinska-Jurczak & Cent, 2011). Information on environment and environmental protection (or global warming, for that matter) circulated in the public sphere is often contradictory and insufficient, and it may lead to erosion of stakeholders’ trust in the interpretations of such issues (Buil, Roger-Loppacher & Marimon, 2014). If these basic requirements are not fulfilled, it is hard to exercise the next steps in a proper manner.

The fourth level of the stakeholder involvement is “cooperation.” It helps mobilizing the public to act in a desirable way and includes planning of common activities like projects, waste collection campaigns in municipalities and the like. Finally, the fifth — “support” — level refers to the requirement for municipalities to provide opportunities for stakeholders in environmental policy to act in a desirable manner by providing opportunities, such as encouragement to take part in the Earth Hour or setting up a platform for discussions between stakeholder groups (Bocur, Petra, 2011:49-51) and the like. In some articles (Antons, Ernsteins, Sulga, Kursinska, Fridmanis, Lice & Zilniece, 2013; Grodzinska-Jurczak & Cent, 2011) the fourth and fifth levels are combined together.

To conclude, municipalities have a wide range of communication instruments at their disposal, but the use of those instruments in practice requires a considerable level of sophistication. In order to carry out these activities according to guidelines described in the reviewed articles, the communication practice has to be planned.

2.3. Municipal environmental communication planning

Even though specific activities might be completed on an individual level or even executed spontaneously (Bocur & Petra, 2011:51), yet one of the main preconditions for successful environmental communication practice mentioned in reviewed studies is that it has to be planned and implemented over a long-term period and integrated in other municipal planning activities — sustainable development plan, spatial plan and others (King, Lepofsky & Pokotylo, 2011). However, drafting a strategic and analysis-based plan of activities is not an easy task, and in many cases municipalities lack incentives to do so. Sustainable and integrated planning of development is not always required by the legislation, as it has been demonstrated in the case of Latvia (Ernsteins, Kaulins, Zilniece, 2013:24; Lagzdina & Ernsteins, 2009:136-138). Since the environmental issues are not necessarily among the priorities of local governments (Lagzdina & Ernsteins, 2009), the environmental management activities often are not carried out on the strategic level. When they are, implementation differs massively.

Research shows that good municipal environmental communication planning practice should include a long-term plan that provides a clear vision and a list of priorities, directions and tactics of what has to be completed (Bocur & Petra, 2011). All these elements must be compatible with other municipal planning documents and the interests of stakeholders, including public, also have to be taken into account. This can only be done through appropriate means of communication and by providing sufficient information to the parties involved (Antons, Ernsteins, Sulga, Kursinska, Fridmanis, Lice & Zilniece, 2013:6).

Researchers have suggested various approaches on how to create a good environmental communication plan in a municipality. One of the examples is the eight-step model for integrated municipal development planning that includes (1) audit of the sector; (2) formulation of the vision, problem, and priorities; (3) integrated audit of the relevant issues; (4) development of spatial development guidelines and (5) directions of action; (6) drawing up action and investment proposals; (7) establishment of control system for planning documents and (8) defining long-term development indicators (Ernsteins, Kaulins, Zilniece, 2013:24). Another model proposes that at first the municipality should develop a structured planning process; then a proper communication process should be used to create a common understanding of expected results, so that the plan coincides with stakeholders' interests; then a common understanding of issues should be developed, followed by an action plan for previously identified targets. Final steps are implementation, control and reports to the stakeholders (Calder & Beckie, 2011).

The planning process has to inhere an activity cycle that allows returning periodically to previous stages and improve them. However, to do that, the evaluation process of the practice should have clear aims and timetables (Lagzdina & Ernsteins, 2009) — without these the evaluation process most likely will be hard.

Conclusions

This review of selected research articles allows drawing a number of conclusions, proposals, and recommendations.

1. The methods and content of the environmental communication discussed in the reviewed articles are in line with other activities in which municipalities can engage to advance their policies. At the same time, environmental communication is special in that it puts a particular emphasis on distinct groups of stakeholders — including environmental NGOs, educational institutions that have environment-related programs, and the like.
2. Obviously, the number of articles reviewed does not represent all the research that has been done on this subject. The sample used by the authors was limited to research papers we were able to locate in databases available to us. However, this review still provides an insight into the issue and identifies the main challenges in municipal environmental communication practice. It highlights shortages in both practice and research, which should be addressed in the future.
3. The small number of research articles and reports the authors were able to include in the study also indicates that the role of communication in these issues has often been underrated. While it has long been acknowledged that human behaviour impact the environment, not that many scholars have analyzed the instruments that can be used to change it. The instruments available to municipalities include planning, overseeing and legal actions. Communication instruments also can directly influence stakeholders in the environment policy and make them change their attitudes and behaviours that in turn could reduce the negative impact on environment caused by human activities.
4. Having communication instruments at officials' disposal is not enough. Municipalities should find the right way to use them. The lack of national or regional regulations regarding policies of environmental management and their aims does not add to officers or any stakeholders' motivation to engage in environmental management activities.
5. Taking into account the emerging technologies and changing ways in which communication between various groups in a society works, the future research should investigate municipal communication instruments in more detail with an emphasis on how to encourage the relevant stakeholder groups to engage in local environment management. More research is also needed on the examination of the differences between stakeholders' involvement stages and local environment management processes. Differences between

those fields of activity and possible communication results should be explored. Moreover, specific standard models for municipal environmental communication planning need to be developed; these models should be compatible with the varied environmental management policies, sustainable development policies and other municipal plans and policies.

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LOCAL PLANS IN THE MANAGEMENT OF ROAD INVESTMENT PROJECTS

Paweł Mickiewicz¹, Prof. +; **Maciej J., Nowak**², PhD +

¹Social University of Science in Warsaw, General Directorate for National Roads and Motorways

²West Pomeranian University of Technology in Szczecin

Abstract. The aim of this article is to define the role of local development and spatial plans in road management procedure. The article analysed the area covering the national road section S7 including Krakow - Moczydło. The section is being built in the municipalities of Książ, Miechów, Iwanowice, Michalowice and Krakow. It contained four variants of the location of the road (W1, W1A, W2 and W3). Records of local development plans and documents relating to the implementation of the road investment have been verified as part of the research. Verified which of these areas is covered by local plans and what purpose. Those was the basis for a broader analysis of the role that the local plan and other planning instruments play in the road projects.

Key words: local plans, regional development, road investments.

JEL code: R11

Introduction

Various factors affect the development of real estate, including agricultural real estate. These factors include, among others, spatial conditions as well as conditions related to the execution of specific investment projects. Local spatial development plans should be pointed out in this context, these are key instruments of spatial management. The aim of this article is to analyse the impact of adopted local plans on the process related to the management of road investment projects. In this work statistic materials included in reports prepared by the General Directorate for National Roads and Motorways (GDDKiA) and some municipalities were used as a source of data. Analyses contain case studies of specific activities conducted by representatives of GDDKiA and their results, especially significance and influence of local plans on road investments projects as well as on local development.

+ Tel. no. + 48 22 656 36 15, pmickiewicz@spoleczna.pl

+ Tel. no. + 48 91 449 69 45, macnowak@zut.edu.pl

Research results and discussion

1. Local plan as an instrument of spatial management

The local spatial development plan is not substantially an obligatory document. It is the communal authorities which decide to a large extent whether and to what extent the plans will be valid within the commune. However, the plan, as opposed to a study, is an act of local law and the provisions planned in it are thus valid. At this point it is worth pointing out the fact that the rights and obligations resulting from the content of the plan are specific. First of all, they will be taken into account when the area covered by the plan is supposed to be developed in a certain manner. In this situation, the content of the plan's provisions decides whether it is possible to issue a building permit for specific investment projects. The lack of approval for a specific intended use of the investment project in the plan will result in the inability to issue a building permit and, as a consequence, the abandonment of the investment project. However, the local plan substantially does not affect an area which is already developed. The act on spatial planning and development does not contain decisions authorizing bodies to bring about the actual condition that is inconsistent with the legal status to compliance with the content of the plan. Interference in this respect may be performed on the basis of specific regulations, e.g. the building law or the water law. The local plan, thus, plays a specific but key role in the context of the future development of an area.

The provisions contained in the plan have an unquestionable impact on the plan's role. P. Kwasniak classified them as:

- provisions of a directional type, determining the directions for development describing the structure (including the development) of a specific area as well as indicating favourable and unfavourable factors affecting the achievement of expected changes (the concept of spatial development of a specific commune or area is included here);
- provisions of a location type, including specific projects (with a diverse degree of detail);
- provisions of a linear type, separating areas of various intended use;
- provisions of a procedural type, determining the mode of conduct related to the formation and execution of the local plan (Kwasniak P., 2008).

The publication edited by R. Cymerman indicates the following functions of the local plan:

- the protective-control function, namely, the identification of the framework and requirements for conducting activities resulting in spatial development (consists, among others, in preventing conflicts);
- the information function - providing information to local administration authorities in order to conduct an effective offer and promotional policy in the commune;
- the coordination function, executed by indicating mutual spatial and material relations between entities participating in the planning process;
- the inspirational function - extracting unique spatial qualities (Cymerman R., 2011).

Of course, the main premise should be the fact that the local plan shapes the space according to sustainable development and spatial order. Thanks to all the functions listed above, spatial shaping may be deemed fully effective with the use of this instrument.

According to Article 15 of the Act on Spatial Planning and Development, the local plans include mainly:

- the intended use of the land;
- lines marking the boundaries of areas of various intended use;
- the principles for the protection and shaping of spatial order;
- the principles of environmental protection;
- the requirements resulting from the needs to shape public space;
- the parameters and indicators for shaping the development;
- the principles for the modernization and building of communication systems as well as technical infrastructure.

The list presented above results in the fact that local spatial development plans may shape the space to a great extent, affecting the forms and manner of its development. They are a very important and necessary instrument for the management of regional and local development (Mickiewicz P., Nowak M., 2013). It is the local plans which very often determine the success and effectiveness of a specific project, planned by both private as well as public investors.

The obligation to provide cash benefits is an important financial consequence of adopting the local plan. When the value of land covered by the plan increases because the plan becomes effective, the owner of the land selling this land within five years from the plan's becoming effective is obliged to pay a zoning fee amounting up to 30% of the real estate's value growth (the specific rate is determined by the commune council). On the contrary, when the value of land decreases because the plan becomes effective, the owner of the land may file a claim for compensation towards the commune regarding the return of the amount related to the change in the land's value. If using the real estate in the previous manner or consistent with the intended use has become impossible or significantly limited because the plan was adopted or changed, the owner or the perpetual user of the real estate may request

- compensation for the actual damage sustained or
- acquiring the real estate or its part.

When the owner or the perpetual user did not exercise this right and the value of the real estate was reduced, when he sells the real estate within five years from the date when the plan becomes effective, the owner or the perpetual user may request compensation from the commune equal to the reduced value of the real estate.

This type of compensation is one of the more vital elements discouraging local governments in communes from using local plans. Other factors may include:

- relatively large costs related to the preparation of the plan's draft;
- the lack of the possibility to quickly change the plan (Nowak M., Mickiewicz P., 2012).

The latter factor may be assessed in various manners. On the one hand, it really leaves no ground to manoeuvre for the communes in some situations but on the other hand it should be emphasized that changes in spatial planning must not be of an accidental and ad hoc nature. However, the literature indicates a thesis with which one should completely agree that the entire area of the country is insufficiently covered by local spatial development plans (Mickiewicz P., Nowak M., 2013a). High investment pressure resulting from the launch of means from the European funds does not improve this situation. In connection with the above, it may be justified to consider whether local plans - at least to a certain extent - should become obligatory for the communes (Sleszyński P., Solon J., 2010). Of course, such modification of the legal system would have to entail other consequences in the form of changing the modification mode of the local plans. The spatial development plan for the voivodship is a separate instrument of spatial management but it is not so important from the point of view of the effects. However, this is a programme document rather than an act of local law.

The conditions related to the preparation of road investment projects (public roads) are defined by the Act dated April 10, 2003 on specific principles for the preparation and execution of investment projects regarding public roads. Pursuant to its provisions, there is a separate mode related to the execution of investment projects, independent of the planning conditions. First of all, it is based on the permit to execute a road investment project issued by the voivode regarding national and voivodship roads, and by the starost regarding roads in powiats and communes. This specific decision contains comprehensive different settlements which are contained in separate decisions in the regular mode. The permit may thus contain elements usually expressed in the local plan, decisions on development conditions, decisions approving the division of real estate, decisions on expropriation or building permits.

In the context of relations between road investment projects and spatial planning, Article 11i of the Act seems to be crucial. Pursuant to this article, regulations on spatial planning and development do not apply in cases regarding the permit to execute a road investment project. The Voivodship Administrative Court in Poznan indicated that when an investor determines a specific procedure and intends to execute the investment project according to the regulations of the special road act, the regulations of the Act on spatial planning and development do not apply at all. The following options are then available: using the special road act or the local plan and location decisions.

There is a field for discussion which tools of spatial management can be recognized as the most efficient. In the authors opinion it depends on the context and perspective of the problem. At this stage of the analysis it must be assumed that despite the regulations of the special road act, the very important tasks should follow local spatial and development plans. They are provided as basic tools for space management. It can be only verified by research how these assumptions work in practice.

The National Road Construction Programme for the years 2011-2015

The National Road Construction Programme for the years 2011-2015 is a medium-term programme document in the sector of the national road infrastructure. This document determines the investment objectives as well as priorities, indicates the level and sources of necessary funding as well as the list of tasks related to road investment projects which need to be executed. The programme takes into account:

- the current level of the state's financial capacity;
- the progress of the preparatory process in investment projects;
- the result of the acceleration of road investment projects from the years 2008-2010.

The programme's content refers to the material scope which was specified in the National Road Construction Programme for the years 2008-2012 demonstrating the effects of its execution after almost 3 years. The total limit related to the programme's execution is PLN 82.8 billion. This amount includes expenses for the execution of tasks related to investment projects regarding national roads, sustained from the National Road Fund and counted from the beginning of 2010.



Source: National Road Construction Program for the years 2011-2015 Appendix to the resolution of the Council of Ministers No 10/2011 dated January 25, 2011

Map 1. Layout of express roads along with layout of motorways in Poland according to the Regulation of the Council of Ministers dated May 15, 2004 on the network of motorways and express roads

2. General Directorate for National Roads and Motorways as the largest road investor in Poland

The General Directorate for National Roads and Motorways is the largest road investor in Poland as well as the central government administration authority responsible for the construction and management of the network of national roads and motorways. The General Directorate for National Roads and Motorways (GDDKiA) is the administrator of more than 20,000 km of roads, including approx. 1,553 km of motorways and approx. 1,472 km of express roads and the largest investor building roads in Poland. According to the state as at December 2014, works on the construction of new roads were underway, including 1,308 km of motorways, express roads and bypasses. According to the new National Road Construction Programme (PBDK) for the years 2015-2023, 2,227 km of new national roads are planned for

construction, including 1,946 km of motorways, express roads and bypasses with the parameters of express roads.

The efficiency of GDDKiA's activities depends to a large extent on other institutions at the central level, namely:

- the Ministry of Infrastructure;
- the Ministry of Environment;
- the Ministry of Finance;
- the General Directorate for Environmental Protection.

GDDKiA's investment projects apply, above all, to national roads understood as one of the categories of public roads. The group of national roads includes, in particular:

- express roads;
- international roads;
- access roads to commonly available border crossing points;
- alternative roads to toll motorways;
- roads constituting bypass routes for large municipal agglomerations;
- roads of defensive importance.

The General Directorate for National Roads and Motorways undertakes investment activities towards national roads, and is responsible, in particular, for obtaining necessary administrative permits (building permits, decisions on environmental conditions, decisions on land development conditions) as well as for acting as the investor in specific construction processes. GDDKiA's actions in this respect have a very strong impact on regional development. Taking into account the above, the General Directorate for National Roads and Motorways is divided into branches dealing with particular tasks at the level of each voivodship.

GDDKiA's tasks as the administrator of national roads, in particular, include:

- serving as an investor;
- maintaining road surfaces;
- coordinating works on the road strip;
- executing intervention, maintenance and protective works;
- counteracting the destruction of roads by users.

There is no doubt that these tasks involve the obligation to care for the condition of roads as well as - in the case of observing related problems - conducting relevant construction works. GDDKiA thus conducts relevant actions in the sphere of construction investment projects and not only affects regional development but also performs its statutory obligations. GDDKiA has also influence on spatial planning. This affection was unexpected by the legislature on the occasion of the creation of space management system. However, this is the actual impact, sanctioned by special road act but that is not in the basic principles reflected in spatial management system. This opens up the question of the effectiveness of management in terms

of space to reconcile the basic instruments of the need to implement the tasks which are important from the point of view of implementation plans of road projects.

3. Process of preparing a road investment project

From the organizational point of view, the process of preparing a road investment project of national importance and higher (express road and motorway) executed by the General Directorate for National Roads and Motorways may be divided into 3 stages: the corridor study stage, the environmental decision stage and the building permit stage. The last stage (exceeding the preparation stage) is the construction stage.

According to procedures functioning at the GDDKiA, the following should be performed at the stage of obtaining the decision on environmental conditions (DSU):

- the corridor study along with a multi-criteria analysis (SK);
- the technical, economic and environmental study (STES).

In order to obtain the permit to execute a road investment project (ZRID), the following should be performed:

- the programme concept (KP);
- the building design (PB).

The purpose of the corridor study is to:

- determine field corridors for the route's options;
- initially analyze corridors in conjunction with the network of public roads, with particular focus on spatial relations with areas of various spatial functions as well as the emphasis on solutions contained in local law as well as studies of land use conditions and directions in communes;
- select options least colliding with local conditions, including with areas and facilities, covered by protection. Options selected at this stage are subject to a further study in subsequent phases of preparing the documentation.

Unfeasible and irrational solutions in technical, economic, environmental and social terms are ruled out at the stage of the corridor study. General data about the area in which the corridor is to be located along with the inventory-taking of previous planning-design works regarding the road network is used when preparing the study. This is the first (initial) document in the management of planning the development of the road network.

The purpose of the technical, economic and environmental study is to specify the routes of particular options and to finally determine the types as well as basic technical parameters of building facilities. This stage is used to provide initial details of the project's material and financial scope as well as to determine its economic efficiency. A report on the investment project's environmental impact is drawn up as part of STES and the planned investment project's impact on the environment is assessed as a result of which the decision on environmental conditions is obtained. This stage is the longest phase in the management process of preparing the investment project.

The programme's concept is prepared after obtaining the decision on environmental conditions for the selected option of the road's route. The main objective of this stage is to specify the project's material and financial scope, consisting in determining specific geometric solutions for road elements, the structure of road and engineering facilities, field boundaries of the investment project as well as the bill of quantities and the cost estimate of works. The building design is a detailed design documentation of drawn up for the selected option of the road route (in the decision on environmental conditions) and the selected type of the structure of building facilities. The Investment Preparation Department as well as the Environmental Department supervise the execution of the corridor study. The worst options are rejected. After receiving the documentation, at the request of the GDDKiA branch, a meeting of the Team for Assessing Investment Projects (ZOPI) at the Head of the Branch is summoned. The supervision over the execution of the technical, economic and environmental study is performed in a similar manner. After issuing the recommendation for options subject to further assessment, the study referred to above is prepared which is then assessed by the Team for Assessing Investment Projects at the Head of the GDDKiA branch.

The investor is not obliged to inform the society about the preparations for the project, about the initial analysis of particular road options, nor about collecting data to maintain or omit further analyses of particular road options in the project.

4. Local plans in the management of road investment projects - a case study

The analysis covered the section of national road S7 Krakow - Moczydło. This section is built in the following communes: Ksiaz, Miechow, Iwanowice, Michałowice and Krakow. Four options for the location of the road were planned (W1, W1a, W2 and W3). Some areas intended for the road are covered by local plans.

Table 1

Scope of planned road investment project covered by local plans

Option	Length of section (in km)	Length of sections covered by local plans
W1	45	30
W1a	42	17
W2	40	21
C3	41	22

Source: Own work

The last part within the plan Krakow - Dolina Dlubni was not included in the calculations. The analyzed area has four valid local plans, including two adopted by the city of Krakow. In general, it should be indicated that each option for the location of the road involves a large

part of areas covered by local spatial development plans. From such perspective, Option 1 for the road S7 is covered by local plans - depending on the location - at the level of 40-66%. Option 2 - 52%, and option 3 - more than 53%. The local plans include an intended use for roads, and it may be assumed that this instrument is used to a significant (but still incomplete) extent.

Table 2

Intended use of land of the executed investment project covered by local plans

Option	Prevailing intended use
W1	Residential buildings, farm buildings, green areas, residential-service buildings
W1a	Residential buildings, farm buildings, green areas, residential-service buildings
W2	Residential buildings, residential-service buildings, green areas
C3	Residential buildings, farm buildings, green areas, residential-service buildings
Common part for all options	Production buildings, forests, service areas, sports and tourism

Source: Own work

It should be verified in the local plans, but also in the overall concept related to the construction of roads, what is the intended use of the land in areas surrounding the roads. Table 2 demonstrates the fact that residential buildings and service buildings dominate in the analyzed cases. Green areas and agricultural areas may be observed. In general, local plans determine an intended use other than roads for the land which is intended for the road investment project. The Road S7 is included in the spatial development plan for the Malopolskie voivodship (in the part "Directions", p. 70). It is defined there in very general terms, several sections are indicated (e.g. section Krakow-Myslenice, section Radzikowskiego-Modlnica). However, as it was already indicated above, taking into account even the general guidelines referred to above does not generate any legal consequences related to the reservation of land for the investment project and the possibility to commence the investment project.

It can be assumed that the basic system associated with the management of the space and the most important tool - local plans - is detached from the needs and realities of road investments management. It also confirms the assumptions made in the theoretical part of the paper. The current system of spatial management is fragmented and internally inconsistent.

Conclusions

The conducted research implies that planning instruments in the analyzed areas do not bring about any assumed effects: local plans do not take into account complete road investment projects, and plans for the voivodship are drawn up at a very high level of generality (in addition, they are not binding). It may be assumed that the assumptions related to spatial management in the present formula - regarding road investment projects - are not effective. Therefore, instruments contained in the special road act apply - at least when it comes to national roads. The possibility to execute investment projects in isolation from the planning order in the commune is provided by the permit for the execution of a road investment project.

This actual and legal condition raises numerous doubts. It seems that basic planning instruments should be used to a greater extent. Currently, there may be too many contradictions, especially when it comes to attempts to maintain spatial consistency and order.

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QUALITIES AND INDICATORS FOR SOCIAL CAPITAL ASSESSMENT

Rudolfs Cimdins¹, PhD student; **Peteris Skinkis**¹, Dr.geogr.;

Maija Usca⁺, Dr.geogr.¹

¹ University of Latvia

Abstract. Social capital as a research subject has been topical for several decades, especially in the field of social and economic sciences, and recently also in relation to development planning. In literary sources and territorial development planning practice, an ever greater attention is devoted to the significance of social capital in the context of territorial development and possibilities for its assessment. Social capital is usually understood as mutual connections among individuals or groups in society, however, different opinions still exist. There are also different approaches to the measurement and assessment of social capital, usually manifested as development of various quantitative and qualitative indicators.

Where social capital is regarded as a resource for territorial development, it is important to define suitable indicators. The purpose of this study is to define indicators for the assessment of social capital on the basis of information freely available in the databases of various agencies which store statistics in Latvia. Five local municipalities in three regions of Latvia have been chosen as research territories where consultations were undertaken and situation was explored to define social capital indicators and identify possibilities for its assessment.

The outcomes of research demonstrate that, when carrying out an assessment of social capital, it is equally important to include information on population as creators of social capital, and on civic participation in social processes as well as social interaction and networks, which is the component of social capital least easily assessed and requiring a quality-based approach.

Key words: social capital, territorial development, assessment.

JEL code: Z130

Introduction

This article explores various understandings of the concept of social capital and regards social capital as a resource for territorial development. The study has examined options of the measurement and assessment of social capital by applying a complex approach, or two sets of indicators: quantitative and qualitative – the latter also defined as qualities.

⁺ Corresponding author – Maija Usca. Tel.: + 371 26471900; E-mail address: maijausca@gmail.com

For assessment of social capital it is important to define suitable indicators, at the same time statistical information used in formation of indicators should be available to all local municipalities

that would be main users of it. Therefore the aim of this study is to define indicators (based on freely available information) for the assessment of social capital in Latvia. In order to reach it, several tasks have been set: 1) to develop suitable approach for social capital measurement in Latvia; 2) to analyse information freely available in the databases of various agencies which store statistics in Latvia; 3) to probe into five local municipalities as case studies in order to define quantitative and qualitative indicators for the assessment of social capital in Latvia. Research methods include analysis of statistical information, interviews and consultations with local authorities, representatives of local NGOs and observations of research areas.

Five territories of local municipalities in the planning regions of Riga, Vidzeme and Latgale have been chosen for research purposes, on the grounds of their scale and location: Jaunpils - a small rural municipality, Kandava - a municipality with a small town as the centre, Gulbene - a municipality with a town as the centre, Rezekne - a municipality with a city as the centre and Rezekne city. The territories have been analysed in the context of statistical data available in Latvia, applying quantitative indicators which characterise population and people's engagement in societal processes. It is more difficult with identification and analysis of social interaction and public participation - it is not enough to apply quantitative indicators, and more often than not, the necessary information is not available.

For the most part, the study builds on information obtained in consultations in the above listed municipalities, and on freely accessible data; the majority of it was obtained through the application of the Regional Development Indicator Model (RDIM, 2014), which integrates information provided by various data maintainers at the national, regional and local level.

The section of conclusions and recommendations contains the main findings on the possibilities for measuring the social capital and a prospective course of further research that should most probably target the issues of qualitative assessment.

Understanding of social capital

Although the term "social capital" was coined as early as at the end of the 19th century, it is only since the 1980s that social capital and its significance is being addressed alongside other forms of capital. The ideas concerning social capital are of particular significance in the areas of sociological and economic sciences, while also being actively applied in other realms, for instance, environmental sciences, medicine, psychology and others. This means that the concept is holistic, making it possible within its framework to analyse and explain issues connected with the structure of society, engagement, health, and others. This article focuses on the importance of social capital in the context of territorial development and possibilities for its assessment.

Most often, social capital is understood as connections keeping society together and related, for the most part, to the value of mutual relations the formation thereof as a resource for social conduct. Social capital is accumulated through building social relations between people, groups, communities and institutions. Social capital is often regarded as the aspect that shapes the context of human capital.

Human capital concerns the existing abilities of individuals, while social capital is about possibilities (Burt, 1997). Like other forms of capital, social capital makes it possible to achieve results that were not possible to achieve in the absence of that capital (Coleman, 1990). In Latvia, in the "Human Development Report", social capital has been defined as the most significant advantages offered to an individual, a family or a group by better contacts (Simane, 2003; Zobena, 2007).

American sociologist James S. Coleman distinguishes among three forms of social capital – social norms, information channels, and collective obligations and expectations that function in social networks. Individuals involved in certain relationship structures are able to achieve goals which they would be unable to achieve otherwise (Coleman, 1988).

Politologist Robert Putnam focuses on trust, norms and networks, emphasising the prominent role of the involvement of the general public in various civic society organisations which can stimulate collective action (Putnam, 1993). A number of researchers have studied differences between social capital, which featuring internal, exclusive relations (bonding capital) and social capital possessing external, inclusive relations (bridging capital). Bonding capital promotes solidarity and cooperation within a community or group, whilst bridging capital ensures access to resources and information outside a group (Putnam, 2000; Saegert et al., 2001).

Rasma Pipike explains this with an example and points out that on the one hand, a helping hand lent by a neighbour can be regarded as an element reinforcing social capital but on the other hand, that social capital is a set of existing or potential resources which are formed by various institutions interacting over a longer period of time (Pipike, 2003) and, thus, presents a resource beyond the boundaries of a group or community. Accordingly, social capital is related to the ability of individuals to form connections among the members of their group/community and "bridges" with other groups. Likewise, in this study, social capital is treated in terms of both its manifestations – individual connections and relations within a group, and links between groups/inter-institutional relations.

Social capital as a resource for territorial development

James Coleman began using the concept of in a broader sense in the 1990s and connected it to the development issues. He admitted, that the role of social capital in territorial development is not unequivocal. In certain cases, information and trust based on personal contacts or networks can facilitate economic cooperation, whilst in other cases, networks can also function as an instrument restricting competitions, thereby reducing efficiency (Trigilia,

2001). The role of social capital in local economic development depends on whether bonding capital or bridging capital dominates in the specific territory, and on the mutual relations and the strength of linkages between those two aspects (Kaminska, 2000). Besides, an American sociologist Mark Granovetter has argued that the impact of social capital on local economic development cannot be clearly foreseeable. Therefore, in order to understand the impact of social, political and economic indicators on the formation of social capital in a certain territory and, consequently, its significance in development processes, he calls for an in-depth analysis of those indicators (Granovetter, 1985).

Social capital as a resource is formed only through interaction and can be used by everybody who is involved in a particular network. Consequently, certain individuals have a lesser incentive of personal involvement in the formation of social capital. Thereby, social capital is often created as a by-product of various activities (Coleman, 1990). In the context of territorial development, it can be formed as a by-product of various organisations and networks (cultural, religious, political associations, territorial communities) connected with a territory.

Measurement and assessment of social capital

Social capital can be evaluated in groups and communities, and between groups and institutions: in the first case, social capital can be measured by analysing it at the level of individuals, in the second, at the level of relations between groups. Social capital is a multi-dimensional phenomenon and its assessment cannot be conducted taking into account separate indicators. Therefore, to enable a complex perspective, indicators in this article have been separated in two sets – quantitative indicators characterising social capital, and qualitative indicators characterising social capital. Five territories – Jaunpils, Kandava, Gulbene, Rezekne municipalities and Rezekne city – have been analysed as examples on the basis of data available in Latvia.

The assessment of social capital can be undertaken taking into consideration various indicators available in a specific territory or a country. Selection of those indicators depends on the objective of research (sector), the dimension of analysis and the data available. More often than not, data are available on territorial units of different scale (police precincts, statistical units, administrative and territorial units and others), on different time periods and with indeterminate frequency (Chaskin, et al., 2006).

At the same time, although increasingly more data are obtained and analysed, and presented in various ways, they are often unavailable for local communities and even local authorities (Coulton, Hollister, 1998), which would potentially be the most direct users of those data. Therefore, it is accentuated in this article that the indicators used in the assessment of social capital should, as much as possible, be made more easily available to anyone interested in a concrete territory.

To enable the assessment of the formation and accumulation of social capital, the data should be analysed on several dimensions of indicators:

- 1) population;
- 2) civic participation;
- 3) social interaction and networks.

Each dimension has been presented below in further detail.

People are indicators of social capital in a specific territory, therefore, the characteristic features of population are essential in terms of background for the formation of social capital. The analysis should take into account population number, population change trends in a territory, age structure and employment.

Civic participation directly illustrates resident activity in a territory. Participation can be analysed in view of a number of indicators – voter turnout rates, the number of NGOs per 1000 people, the number of the EU projects carried out and the amount of funding under those projects, activity in planning processes (e.g. public consultations), engagement in leisure activities (amateur art groups). The existence of a phenomenon such as local territorial communities, and their actions, should also fall within the realm of civic engagement and activism. These communities often are informal groups hard to identify and small scale territories, not municipalities should be more suitable for studying them.

Social interaction of people and networks relate to individual level– people's daily contacts, for instance, the frequency of contacts with neighbours, the existence of territorial community in a territory. These indicators directly point at the presence of social capital in a territory.

Possibilities for assessment in the context of statistical data available in Latvia

As mentioned above, in order to identify the available resources and understand the scale of their application, it is of vital importance that there are possibilities for assessing social capital in the territories of local governments, therefore, data should be easily accessible. The quantitative, regularly updated data used in this article have been regularly extracted from the Regional Development Indicators' Module (RDIM, 2014), in addition to publicly available data from the Central Statistical Bureau, the Office of Citizenship and Migration Affairs, the Population Register, the Central Election Commission, and information from the Lursoft company database.

Nevertheless, the authors are aware that these are not the only indicators that could potentially characterise social capital in certain territorial units; however, the other indicators are not so easily usable and accessible for anybody who would be interested and, therefore, only indicators from the above mentioned resources have been analysed in this article.

Indicators characterising **Population** as creators of social capital in the research territories have been selected to reflect the number of population, changes in population, its age structure and employment rates (Table 1).

Changes in the number of population, characterised by indicators of population change due to natural causes (births and deaths) and mechanical movement (migration) in the research territories are mainly negative, which is self-evident given the negative demographic situation in the country as a whole: in 2013, the number of population in Latvia decreased by 0.50% due to natural causes and by 0.37% due to migration. On the whole, both these factors have had an almost equal impact on decrease in population numbers over the past years; however, there are certain territories (Jaunpils municipality, Rezekne municipality) where the migration balance is positive, albeit slightly.

The most significant differences between the territories are those concerning unemployment rates: municipalities in Latgale region demonstrate much higher figures, which can largely be explained by less favourable overall socio-economic situation. The figures for the share of working-age population as an important part of the creators of social capital do not reveal significant differences in the selected territories, while demonstrating a common trend – decrease in the share of this segment of population, which is largely indicative of a gradual reduction of social capital.

Table 1

Indicators characterising population as creators of social capital

Indicators	Territories					Average in Latvia	
	Jaunpils municipality	Kandava municipality	Gulbene municipality	Rezekne municipality	Rezekne city		
Number of population at the beginning of the year (inhab., OCMA)	2012	2 743	9 691	24 604	31 164	33 936	-
	2013	2 698	9 605	24 311	30 901	33 438	
	2014	2 665	9 431	23 720	30 217	32 630	
Number of births per 1000 population (inhab., RDIM calc.)	2012	8.75	10.73	8.13	9.02	8.31	9.25
	2013	7.78	8.54	8.51	7.67	7.51	9.68
	2014	-	-	-	-	-	-
Share of working-age population (%, RDIM calc.)	2012	66.28	65.69	66.36	66.70	65.94	65.62
	2013	66.23	65.36	66.30	66.43	65.31	65.35
	2014	65.93	64.54	65.97	66.24	64.69	64.81
Unemployment rate (%, RDIM calc.)	2012	6.82	6.19	8.26	21.25	13.19	7.18
	2013	7.16	6.51	8.62	21.95	13.67	7.52
	2014	-	-	-	-	-	-
Impact of migration on population numbers %, RDIM calc.)	2012	0.18	-1.34	-0.61	0.12	-1.34	-0.29
	2013	-1.49	-0.42	-0.56	0.12	-0.84	-0.37
	2014	-	-	-	-	-	-

Source: author's construction based on the data of the Office of Citizenship and Migration Affairs (OCMA) and Regional development indicators module (RDIM)

Civic participation in social processes is the main indicator of population activity. Indicators selected for the assessment of participation point to the intensity of absorption of the EU funds, the work of non-governmental organisations, and elector turnout (Table 2).

The rate of absorption of the EU funds illustrates, to a great extent, the ability of people and institutions to cooperate in joint activities and towards common goals. The amount of the EU funding in projects per 1000 of population reveals dramatic differences among the selected territories; however, the number of population, the number of projects implemented, and also the local government's possibilities for applying for specific funding have a major role to play here. These indicators sooner point to good quality development management and ability to effectively embrace opportunities offered by the EU funds.

The number of organisations and their activities are the quantitative indicators that perhaps the most precisely characterise the level of population activity. Jaunpils and Kandava municipalities are in the lead here, having more than ten non-governmental organisations per 1000 of population, which is indicative of the ability of people to cooperate and a more pronounced horizontal communication.

The voter turnout is the most formal indicator of civic participation, and nevertheless, to a great extent indicative of civic activity. The analysis of voter turnout at the local elections of 2013 and the European parliamentary elections of 2014 reveals that the overall voter turnout is rather low. However, in the territories with a comparatively high rate of the non-governmental organisation activity, people also tend to be more active at elections.

Table 2

Indicators characterizing civic participation

Indicators		Territories					Average in Latvia
		Jaunpils municipality	Kandava municipality	Gulbene municipality	Rezekne municipality	Rezekne city	
EU project funding (EAGF, EAFRD, EFF) per 1000 population (thou. EUR, RDIM calc.)	2012	2 177.9	373.7	582.9	571.0	3.8	478.7
	2013	1 003.4	253.6	380.4	405.7	3.1	324.5
	2014	-	-	-	-	-	-
Number of projects under EU funds (EAGF, EAFRD, EFF) per 1000 population (number, RDIM calc.)	2012	88.9	106.8	131.7	289.6	0.4	114.9
	2013	88.6	103.5	136.7	287.5	0.5	116.5
	2014	-	-	-	-	-	-
EU project funding (ERDF, ESF, CF) per 1000 population (thou. EUR, RDIM calc.)	2012	21.8	410.5	362.3	97.2	370.2	268.8
	2013	34.2	228.3	597.5	242.4	384.4	322.9
	2014	0.3	0.0	26.6	6.4	3.2	13.1
Number of registered non-liquidated NGOs (Lursoft data base)	2012	-	-	-	-	-	-
	2013	25	92	128	212	179	
	2014	28	95	137	222	196	
Number of registered NGOs per 1000 population (author's calc.)	2012	-	-	-	-	-	-
	2013	9.3	10.2	5.6	7.5	5.5	7.6
	2014	10.5	10.1	5.8	7.3	6.0	8.8
Voter turnout (% , CEC)	2012	-	-	-	-	-	-
	2013	44.4	42.5	36.4	37.4	47.5	46.0
	2014	57.6	55.8	51.4	38.4	57.7	58.8

Source: author's construction based on the data of the Regional development indicators module (RDIM), Lursoft data base of enterprises, the Central Election Commission (CEC) and author's calculations

The existence of **Social interaction and networks** is the most essential and still the least easily identifiable element of social capital. The quality of human life is determined by the ability of the members of society to socially interact and trust each other; nevertheless, the existence of communities and their coordinated and targeted actions are essential preconditions for these processes to take place in a meaningful way. The formation and existence of communities is related to common priorities, beliefs, interests, traditions and mutual relations the functioning of which is conditional on social interaction and networks.

The most important qualities usually named as those behind the ability of communities to act, or social capital, are mutual trust, equality, availability, communication, participation, cooperation, adaptability and flexibility. To characterise those qualities of social capital, it is not enough to define separate selected quantitative indicators in selected territories, because the activities of this type usually take place disregarding administrative borders of territories and, for the most part, on a smaller scale.

Conclusions and recommendations

1. In view of the multidimensional character of social capital, a complex approach should be applied to its measurement and assessment, which includes both quantitative and qualitative methods.

2. In evaluation, it is of equal importance to include information both on population as creators of social capital, and civic participation in social processes as well as social interaction and networks.

3. Quantitative indicators are best suited for the assessment of population and civic participation. The characteristics of population should consider the number of population, trends of population changes in the territory, age structure and employment rates. The assessment of civic participation should examine activity in civic processes, from joint leisure activities to membership in non-governmental organisations, involvement of joint projects, participation in local development planning processes and elections.

4. The existence and actions of local territorial communities are essential for the assessment of social interaction and networks. Communities often are informal groups difficult to identify, and a quality-oriented approach sooner than definite quantitative indicators should be applied to study them.

5. Possible directions of further research should involve the identification of approaches to qualitative assessment of social capital.

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ASSESSMENT OF POSSIBLE REGIONAL ACCIDENTS AND CREATION OF DISASTER RELIEF MANAGEMENT SYSTEM

Ilmārs Vaičulis¹, Dipl.ing.; **Jeļena Malahova**¹, Dr.oec., asoc.prof.+; **Vladimirs
Jemeljanovs**¹, Dr.Sc.Ing., prof.; and **Karlis Ketners**¹, Dr.oec., prof.

¹ Riga Technical university

Abstract. One of important state development aspects is ensuring even and stable development. Production being developed, big industrial objects being built at the regional level, there also appear problems related with great industrial accidents, assessment of such accident risks, as well as with accident risk reduction activities. Despite the remarkable technical and scientific progress in the safety field, there is an inherent risk in industrial establishments, where dangerous substances are produced or stored. In the article the assessment of possible regional catastrophes and the analysis of prevention management system are made on the example of Rezekne district. From the point of view of risk assessment, there are various dangerous objects in the territory of Rezekne district: the district is crossed by international railways and highways; there are several hydropower stations, as well as petrol and gas filling stations in the territory of the district. The aim of the paper is to make the analysis of existing threats and elaborate the methodology for creating systems of regional threats, as well as for elaborating the civil defence plan. In the article the analysis of certain local authority condition has been made and proposals for improving the system of civil defence activities have been put forward in the context of regional technogenic safety.

Key words: regional accident, disaster relief management system, chemical substances, risk assessment.

JEL code: Q50, R19, H59

Introduction

One of important state development aspects is ensuring even and stable development. Production being developed, big industrial objects being built at the regional level, there also appear problems related with great industrial accidents, the assessment of such accident risks, as well as with accident risk reduction activities. Every year in the world there break out

⁺ Corresponding author. Tel.: + 371 67089097; fax: +371 67089097
E-mail address: jelena.rtu@inbox.lv.

devastating industrial accidents, fires, natural and technogenic disasters and catastrophes. They do great damage to environment, human life and health and incur great material losses. The issues of guarding towns, residential areas, commercial facilities from industrial accidents and other destructing accidents are placed at the level of nationally important tasks.

In the article the assessment of possible regional catastrophes and the analysis of prevention management system are made on the example of Rezekne district. From the point of view of risk assessment, there are various dangerous objects in the territory of Rezekne district: the district is crossed by international railways and highways; there are several hydropower stations in the territory of the district, petrol and gas filling stations as well. In connection with that, in the territory of the district there may appear crashes, fires, spill of dangerous substances, as well as there may arise other unexpected, undesirable and destructive events.

The aim of the paper is to make the analysis of existing threats and elaborate the methodology for creating regional threat systems, as well as for elaborating the civil defence plan. In the article the analysis of definite local authority condition has been made and proposals for improving the system of civil defence activities have been put forward in the context of regional technogenic safety.

Regional accidents and disaster relief management

Despite the remarkable technical and scientific progress in the safety field, there is an inherent risk in industrial establishments, where dangerous substances are produced or stored. Even if the risk cannot be avoided, however, it is possible to manage it to contain and minimise the consequences of accidental events. Complex process industries, such as the chemical industry, process hazardous substances within densely populated areas (Reniers, Dullaert, Foubert (2006)), and the dangers inherent in the storage, handling, processing and distribution of such materials continue increasing. Fires, explosions and toxic emissions are frequent in these processes (Khan, Abbasi (1999a); Kwon (2006)), potentially killing a large number of people (employees and the population) as well as provoking catastrophic damage to the environment. Industrial accidents occurring in the past, such as the Bhopal gas or Chernobyl nuclear disasters, reflect the risks inherent in these processes, and have raised public awareness about the negative effects of technology (Khan, Abbasi (1999b); Nivolianitou, Leopoulus, Konstantinidou (2004); Saraf, Karanjikar (2005); Willey, Crowl, Lepkowski (2005), Fernandez-Muniz, Montes-Peon, Vazquez-Ordas (2007)). Most authors studying emergency plans and emergency handling analyse the robustness of emergency plans and attempt to detect the failures in the plans (e.g., Kanno and Furuta (2006), Flaus (2008), Karagiannis *et al.*(2010)). To assist the work of emergency planners and reviewers, national emergency management and civil protection authorities of many countries publish emergency planning guides. These guides provide only a description of the steps to follow to apply preventive actions in case of emergency. This approach is followed by Ramabrahmam et

al. (1996). Additionally, emergency plans are often outlined by flow diagrams with the purpose of aiding the comprehension of the plan by an inexperienced user (Tseng et al., 2008).

In the recent years some attention has been paid to the development and implementation of incident management systems (IMS). As shown in (R.W. Perry, 2003) the IMS is a tool for marshalling pre-identified and pre-assembled resources to respond to an emergency or disaster. IMS is particularly useful when personnel and resources from many agencies and jurisdictions are required to manage large incidents successfully. Unlike the researches mentioned, the authors consider regional component of technogenic safety as an integral part of regional management. After 2000, researchers pay attention to prevention of possible risks and effective management of technogenic safety (Kim, J. K., Sharman, R., Rao, H. R., & Upadhyaya, S. (2007)). Development of the technogenic disaster prevention system also serves as basis of sustainable regional development and economic growth. As it is shown (Fernandez-Muniz, B.; Montes-Peon, J. M., Vazquez-Ordas, C. J. (2009)), there exist positive causal relationship between effective safety management and, respectively, the competitiveness and economically financial activities of regional and local businessmen performance. Major accidents in chemical industry have occurred world-wide. In Europe, the Seveso accident in 1976 prompted the adoption of legislation aimed at the prevention and control of such accidents. The resulting 'Seveso' directive now is applied to around 10,000 industrial establishments where dangerous substances are used or stored in large quantities, mainly in the chemicals, petrochemicals, storage, and metal refining sectors. The Seveso Directive obliges Member States to ensure that operators have a policy in place to prevent major accidents. Operators handling dangerous substances above certain thresholds must regularly inform the public likely to be affected by an accident, providing safety reports, a safety management system and an internal emergency plan. Member States must ensure that emergency plans are in place for the surrounding areas and that mitigation actions are planned. Account must also be taken of these objectives in land-use planning. (see also scientific discussion on EU regulations in O'Mahony, M.T., Doolan, D., O'Sullivan, A., Hession M. (2014), Nerin C., Seco B., Tena A., Calvo M. (2014), Wood, M.H. (2009), Gerbec, M., Kontic, B. (2009)).

Characterisation of local territory and the example of analysis methods

Establishing possible threats, one has to take into consideration administrative-territorial, industrial, as well as national economy aspects. Rezekne district is in the eastern part of Latvia, 245 km away from its capital Riga. Taking into consideration the specific features of Rezekne district civil defence plan, as well as the software available, for the elaboration of cartographic material with scenario of chemical substance spill, the computer programme ALOHA (see description for programme in National Oceanographic and Atmospheric Administration (2014)) and the map computer programme ARCGIS were used (for additional software analysis see also Arnaboldi, Valerio, Marco Conti, and Franca

Delmastro (2014)). Every object is subject to external threats, especially the objects situated near main motorways and railways. Malta village in Rezekne district has no ring roads. Dangerous chemical substances are transported by auto transport and railway transport. Spill of dangerous chemical substances during transportation can seriously endanger the territory of Malta village. That is why it is important to study possible threat, as a result of which spill of dangerous chemical substances may take place. The most mass and dangerous out of the cargo transported are oil products and ammonia. On the basis of cargo transportation statistic data, it was concluded that the amount of chemical cargo transported by railway as well as by motorway grows each year. Consequently, one can conclude that chemical substances are used in household and industry more and more widely. Computer programmes can be used, taking into consideration that wind velocity cannot be high, weather conditions should be stable, as well as one has to take into account wind direction and the concentration of the substance spilled. The result is calculated in the computer programme and it is possible to cartographically picture it in ArcGIS maps. As the location of cartographic modelling Malta village of Malta rural municipality in Rezekne district was chosen. Transit motorway Warsaw-St. Petersburg, as well as railway Warsaw-St. Petersburg goes through the centre of Malta. Every day different cargos are transported through Malta, including cargos with dangerous chemical substances. It is important to study possible threat in this location, as the centre of the rural municipality is densely populated and there are two secondary schools, a music school, a special orphan boarding-school, two kindergartens, a culture house and other institutions, where mass gathering of people is possible. Possible accident place can objectively be the crossroads in the centre of Malta village, where 1st May Str., Andrupenes Str. and Stacijas Str. cross. Risk scenarios (variants of undesirable event development) are made to design a logical model of accident development that describes the process of accident escalation from initiating event to undesirable effect of the accident on people. The consequences of „the worst case”, i.e. the most unfavourable result of an accident (100% total leakage amount of substance), is assessed. Practically, in all risk scenarios the following accident events are examined:

- Spill of dangerous substance or product,
- Substance or product slop fire,
- Substance or product vapour-air mixture fire,
- Spreading of substance or product vapour toxic concentration.

Atmospheric pollution is connected with the amount of substance dumped (slop size), the characteristics of the substance and meteorology. For each chemical substance examined, the assessment of situation toxicity has been made. The concentration dangerous for health and life with 30 min. time limit (IDLH) has been calculated. For situation analysis the depth of contamination area has been stated at the most unfavourable meteorology. Spreading of spilled substance or product toxic concentration in the air can be especially dangerous in windless condition and/or for dumped substances with density of vapour larger than that of the

air, when accumulating in low places (for example, caustic soda, etc.). Combustible substances or products can start burning while pouring out from burning initiators of mechanical, electric nature or other. Further accident escalation is connected with heat radiation emission. The consequences of such accidents are connected with accident location and the amount of substance involved. Other variant of accident consequences is connected with delayed burning of explosive vapour-air mixture, which can be caused by burning initiators mentioned before, if substance leakage is not stopped and there is a source of ignition. Further accident escalation depends on how effectively burning is localized. Leakage of substances the vapour of which is heavier than the air is especially dangerous. The vapour can spread to a distant source of ignition and catch fire. While performing the evaluation of accident consequences, it is accepted that the initiating factors of accidents can be: dissatisfactory technical condition of equipment and utilities, insufficient supervision of technological process, low qualification level of service staff, breach of labour protection and fire security requirements. In the calculations it is admitted that, according to the worst scenario, leakage of chemical substances happens through a hole with conditional diameter of 5 cm caused by external factors (for example, damage of reservoir body caused by another vehicle), as tanks, reservoirs and cisterns are regularly inspected and it is almost impossible that there may appear holes in the walls of a reservoir because of corrosion or wear. Scenarios of accident with dangerous chemical substances after motor transport accidents have been calculated: accidents with 32m³ petrol delivery tank-truck (scenario 1), 4 t ammonia leakage from the tank-truck (scenario 2). In case of scenario 1 (a tank-truck with petrol accident), the amount of dumped petrol is 32 m³, the petrol will pour out around free area, the mass of the petrol will be 21.7 tons. The area of leakage is not limited and it can reach 1145 m² maximum. The intensity of vaporizing from the slop is 171 kg/min; the time of vaporizing is 127 min. Explosive mass is stated as 262 kg. Computer programme states that the explosion of explosive mass in open space is unlikely, but the damage done as a result of explosion may be the following (See Table 1).

Table 1

Damage done as a result of 32 m³ petrol tank-truck explosion

Distance from explosion epicentre (m)	Damage
10-13	99-1% lethal outcome for people from direct effect of the explosion
16	Possible building collapse
14-37	90-1% eardrum injuries
42	Partial collapse of walls and roofs
18-70	Injuries from flying glass and other shivers
70-121	Breaking of window glasses

Source: authors' calculation

Leakage of 4 tons of ammonia from a tank-truck with capacity 32 m³ (scenario 2). Theoretically we accept that ammonia leakage was from one tank-truck section with 4 ton

volume as a result of a crash with other vehicle. Leakage of 4 tons of ammonia from a tank-truck is possible during its transportation. In this scenario the calculation of leakage parameter evaluation is made for free leakage of ammonia in non-limited area. Moreover, possible actions of participants and, corresponding response activities, the so-called „worst variant“, are not taken into account. In case of tank fracture, real leakage of its contents can last depending on leakage hole width. The effect of ammonia will depend on meteorology. Ammonia vapours can get into space through ventilation, damaged or open windows and doors. USA computer programme ALOHA is used (National Oceanographic And Atmospheric Administration (2014)) for the evaluation of effect from ammonia leakage into atmosphere. UNO Environmental program recommended it for use in modelling and planning emergency situations. Risk data are taken from computer programme CAMEO database (CAMEO (2014)). The authors examine the depths of ammonia contamination area (IDLH, +17 C⁰, -8 C⁰) for atmosphere vertical stability classes: B – convection (clear), D – isothermia (cloudy) and F – inversion (clear), wind velocity is 3m/s; 5m/s and 1 m/s correspondingly, relative humidity in summer is 75%, in winter - 80%, closed environment (trees, bushes)). Ammonia dangerousness is defined by its toxicity and capability to form the concentration dangerous for people in large area. The accident can express itself as ammonia leakage from a tank-truck as a result of damage in its body or armature. According to the scenario, ammonia leakage happens in the most unfavourable meteorology from the tank, through a hole with relative size 10x50 mm (Table 2).

Table 2

Value of threat area in case of ammonia leakage in different seasons

Summer			Winter		
Day		Night	Day		Night
B	D	F	B	D	F
2 km	1.3 km	1.7 km	1.7 km	0.965 km	1.5 km

Source: authors' calculation

Explosion of ammonia-air mixture is unlikely, as burning ammonia vapour cloud rarely causes explosion overpressure, it is possible only in closed space or in the case when there are obstacles that trouble free expansion of burning cloud (trees, dense building). Toxic vapours of ammonia relief into atmosphere reach maximum permissible concentration 300 ppm in the surrounding air at a distance of 2 km, but, taking into account short time of exposition (2 min.), this effect can be considered insignificant, as toxic effect with irreversible consequences for health and life is possible only if during 30 minutes from the moment of substance leakage no corresponding accident result aversion actions were taken. The possibility of implementation of such event is very little. Having drawn up cartographic materials with probable leakage of dangerous chemical substances, it was established that the consequences of the accident would cause human and material losses, similar situation having happened in populated area. In the chosen location of the incident, an accident having happened, there are

several dwelling houses, shops, a pharmacy engineering building, a bus stop, as well as a rescue service building in the lethal radius area. For chemical substance leakage cases prevention, readiness, response and liquidation emergency actions have been elaborated. If it is necessary to call a civil defence committee, this action plan can be used as an algorithm for co-operation between services and institutions as well as a succession of actions for liquidation and aversion of event consequences. Using ALOHA computer programme and CAMEO database of chemical substances (CAMEO, 2014), it is possible to precisely define the pollution area, probable explosion threat area, as well as the area of damage caused by explosion. However, great amount of information and time to enter necessary information into a computer are needed to be able to configure a computer programme precisely. It would be problematic to enter the necessary information in the place of the event quickly and precisely. The computer programme is easily used in training of the employees of high dangerousness objects, of the members of civil defence committee, as well as in defining the risk in case of dangerous chemical substance spill.

Conclusions, proposals, recommendations

1. Civil protection has become an engineering technical field which requires deep theoretical and practical knowledge of civil defence issues from State Fire-Fighting and Rescue Services, municipality institutions, managers of industrial and economy objects for their mutual co-operation, wide introduction of new co-operation methods and their use in real situations. The issues of protection of towns, populated areas, economy objects from industrial accidents and other destructive accidents are placed at the level of national importance tasks.

2. After evaluation of possible catastrophes in Rezekne district, chemical accidents, when poisonous gases and substances (chlorine, ammonia, prussic acid, sulphuric acid) are transported, are considered the most dangerous;

3. In case of possible accident threat the inhabitants of the district are subject to risk factors and the environment is under influence, as dangerous chemical substances can get into soil, water and air;

4. Cartographic materials have been elaborated and two possible scenarios have been examined. The cartographic materials can be used for training Rezekne district civil defence committee.

Analysing the essence of the problem, the authors have elaborated recommendations for facilitating evaluation of possible catastrophes and anticipated catastrophe management activities:

1. In civil defence plan it is necessary to envisage scenarios for possible catastrophes with particular solutions.
2. For developing the scenario and defining threat area, the access to computer programme for civil defence committee is necessary.

3. For preventing different kinds of catastrophes, it is necessary to organise regular theoretical and practical training for members of civil defence committee and the institutions involved.
4. Timely information for inhabitants in case of possible accidents and catastrophes should be envisaged.

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PREVENTIVE MEASURES FOR GRASS FIRE RISK REDUCTION

Gunārs Mašins¹, Dipl.ing.; **Valentīna Urbāne**¹, Dr.chem.,prof.; **Jānis Ieviņš**¹, Dr.oec.,prof.
and **Jelena Malahova**¹, Dr.oec., asoc.prof.⁺

¹ Riga Technical university

Abstract. One of the problems within ecosystems is fire, which is a commonly recognized component of ecosystem disturbance regime. In the grassland ecosystem, such disturbances as fire and grazing or range management to some extent positively influence the productivity and plant diversity of the grassland ecosystem. But every year, as a result of last year's grass burning, people die; residential and household buildings are burnt down causing several tens or even hundreds of thousands of euros material loss. The problem of grass burning requires intense work for several years. The main aim of the paper is to create medium term solution for grass fire prevention and propose an action plan to reduce possible fire-extinguishing costs. Research is based on traditional economic science methods, such as analysis and synthesis, monograph method and practical experience of Latvian fire protection services. As main result of the paper, the authors elaborated proposals for plan of action for reducing the number of grass fires. Implementation of prepared recommendations gives a premise to ensure reduction of fire protection costs and ensure effective natural resource management.

Key words: grass fire, damage prevention, economics of fire- extinguishing.

JEL code: Q50, R19, H59

Introduction

Fire protection and fire prevention problems are not only technical and technological issues; they could also be evaluated as an economic problem, since fires are an important source of economic losses for municipalities and also a part of state budget costs. As a result of last year's grass burning, people die; residential and household buildings are burnt down causing several tens or even hundreds of thousands of euros material loss. In 2013 (State Fire and Rescue Service (2013)) there were registered 2,430 grass fires (including the fires possibly caused by grass fire) in Latvia. In comparison with 2012, when, according to the State Fire and Rescue Service (2012), there were registered 1,824 fires, their number increased by 25%. In

⁺ Corresponding author. Tel.: + 371 67089099; fax: +371 67089097
E-mail address: jelena.rtu@inbox.lv.

2012 overall 8,536 fires were registered in Latvia. 21.3% out of these 8,536 fires are exactly grass fires. The number of grass fires tends to increase during last four years. In 2013 the State Fire-Fighting and Rescue Service spent for fighting grass fires the amount of LVL 20100.33 for petrol (the sum was calculated, taking into account the prices for petrol for summer, 2013). 6 vehicles were damaged in fighting such fires. The repair works cost LVL 560.99. (the State Fire and Rescue Service (2013)). The problem of grass burning requires intense work for several years. The main aim of the paper is to create medium term solution for grass fire prevention and propose an action plan to reduce possible fire-extinguishing costs. Research is based on traditional economic science methods, such as analysis and synthesis, monograph method and on practical experience of Latvia's fire protection services. As main result of the paper, proposals for the plan of action for reducing the number of grass fires have been worked out. Implementation of prepared recommendations gives a premise to ensure reduction of fire protection costs and ensure effective natural resource management.

Landscape fire problems

Fire is a commonly recognized component of ecosystem disturbance regime (see Cheney P., Sullivan A.(2008) as an example). In the grassland ecosystem, disturbances such as fire and grazing, or range management (haymaking) can positively influence the productivity and plant diversity of the grassland ecosystem (Li, M. and Guo, X.L. (2014), Anderson, R.C. (1990)). Also, grazing and burning behaviours are studied in scientific literature (Bond, W.J. and Keeley, J.E. (2005), Moreira F. *et.al.* (2011)). Because both of them not only have contributed to the evolution history in the past, but also are both forms employed in grassland management practice (cattle grazing and/or prescribed burning). Burning grass is not an ancient Latvian tradition. In ancient beliefs and reports there are no statements that it would be an ancient Latvian domestic tradition. It was even mentioned, that there was often lack of grass. For Latvians their land was sacred and they made maximal use of it and maintained it carefully, so there was no dry grass on the fields in spring. In Latvia burning grass started in Soviet times; it was introduced by immigrants from Russia and the Ukraine. In these countries, where there were large and non-maintained lands, grass was burned (TVNET (2013)). Mainly in the ecological literature, scientific researches are devoted to agricultural aspects of grass fire problems. As an example, Cruz M., Alexander M.E. (2013) and Alexander M.E., Cruz M. (2012) are examining flame length and fire line intensity modelling aspects. As shown in Sullivan A.L. (2010), thorough understanding of the behaviour of fire in grasslands is critical to the minimization of the impact of fires on agricultural and pastoral land as well as the successful management of the health, robustness, and species diversity of native grasslands. Some authors are exploring fire spread consequences (Carmel Y. *Et al* (2009), Velez R. (2010)). Only few papers are devoted to fire protection and fire prevention issues as a regional problem (Peattie S. *et.al* (2012), Pezzatti, G.B. *et al.* (2013)).

Unfortunately, nowadays burning last year's grass has become a kind of entertainment (BNN (2013)). Fire starters excuse their actions with the necessity to free the land from old grass and its fertilisation with ashes. But every year, as a result of burning last year's grass, people die; residential and household buildings are burnt down causing several tens or even hundreds of thousands of euros material loss.

Last year's grass fire starters often emphasize that they "control" burning process and are sure they are really able to control fire. Burning last year's grass cannot be controlled. Under the influence of wind and other factors the direction of burning can change, flames can rapidly expand and spread to buildings and other objects. Authors agree with Mourao P., Martinho V (2014) conclusion that the amount of municipal burnt area per forest fire depends on the economic dynamism of each locality, the population density of a municipality, the availability of trained teams of forest firefighters, and the presence of relatively high municipal expenditures on environment outlays and exactly the same is applicable for other types of landscape fires. Grass fires may appear only in the places where the land is not well-managed, the grass is not mown down in autumn. Additionally, not only countryside is not well-managed, but also urban territories are not well-managed in many places. Although, as compared to countryside regions, smaller areas burn down in towns, these fires are very dangerous, as there is denser building and grass fires endanger residential buildings, household buildings, historical monuments and other urban objects. As a result of fire urban territory gets smoked and polluted. In peaty soils there is lasting smouldering which creates fire hazard during longer period of time. Burning last year's grass can cause and also causes forest fires. The level of society awareness is often insufficient to understand that economically the most profitable method of maintaining weedy meadows – burning – cannot be joined to the modern person understanding of natural processes. Unfortunately, the unwillingness of land owners to invest financial means or their little financial possibilities sometimes force them to act imprudently and irresponsibly. One should emphasize that last year's grass is not burned only by private owners in their territories. According to the State Fire-Fighting and Rescue Service data (State Fire and Rescue service (2013)), 70% of grass fires occur exactly in the territories owned by local authorities. Burning last year's grass causes damage to nature and its biodiversity, destroys valuable plants, insects and small animals, bird nests. The greatest harm can be done when burning grass in late spring or even in summer when almost all animals have woken up, nests have been built and eggs have been laid. Additionally, wet meadows and river flood-lands, that are important for birds, are burnt. Authors agree with Malcolm Gill A. (2005) that 'landscape' fire problem is exemplified by the destruction of homes and human lives by landscape fires raging out of control. The 'problem' involves a series of landscapes (e.g. wild land and suburb), a series of systems (e.g. biophysical system and environmental-effects system), and a series of time phases (e.g. planning phase). It is a multi-stakeholder, multi-variable, multi-scale problem. Land uses, like 'farmland', imply a set of specific assets and, thus, particular perception of losses. In all land-use designations, at any one point, fire-

proneness may be seen as a function of exposure to ignition sources (members, burning brands or flame radiation and flame contact) and the ease of ignition. The landscape-fire problem has multiple partial 'solutions', not just one overall solution, and these involve social governance, land management (public and private), suppression capacity and personal preparedness. The problem needs to be addressed at multiple temporal and spatial scales in an integrated fashion for the outcome to be of maximal benefit. There will always be a residual risk of severe fire occurrence. Minimisation of residual risk requires effective land management, recurrent funding and the perpetual vigilance of all parties. Such kind of problems are common in many countries (see also Brown A., Davis K. (1973), Pyne S., Andrews P., Laven R. (1996)). Extinguishing grass fires is physically hard and even dangerous for fire-fighters work – there is no water and driveways, fire-fighters are forced to damage their vehicles driving over plough lands and ditches, to work long hours directly next to fire and in strong smoke, using dry fire-extinguishing method (with brooms, lashes). During the periods of intensive grass burning, the number of calls to the State Fire-fighting and Rescue Service reaches 300 times a day. It seriously endangers effective receiving of fire-fighters' help in other accidents.

Statistic analysis of grass fires

In 2013 2,430 grass fires were registered in Latvia (including the fires possibly caused by last year's grass burning). As compared to 2012, when 1,824 grass fires were registered, the number of fires increased by 25%. In 2012 there were in general registered 8,536 fires. 21.3% out of these 8,536 fires are exactly grass fires. The number of grass fires during last four years has tended to increase (see Table 1).

Table 1

The number of fires from 2000 to 2013

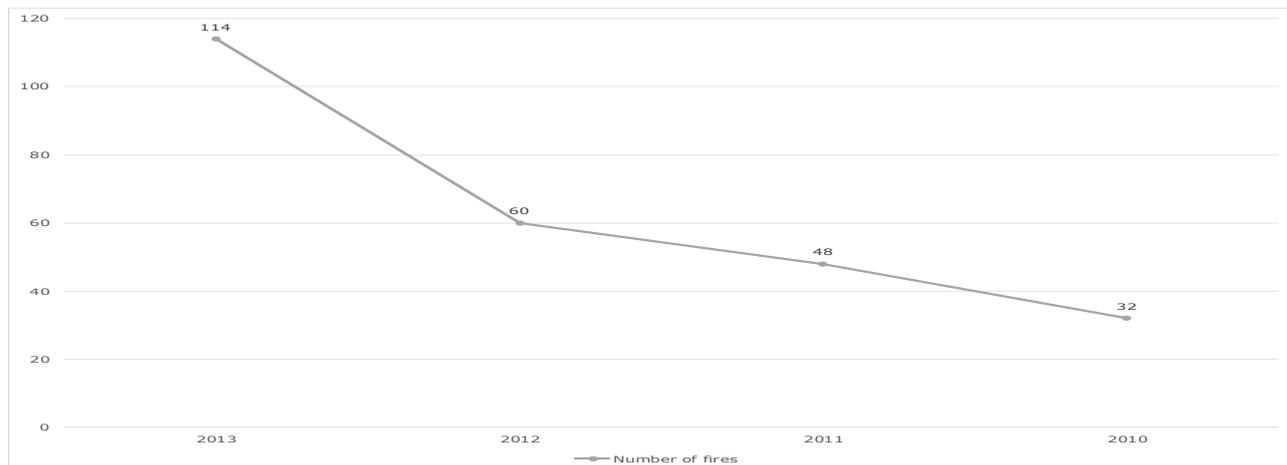
Year	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Number of grass fires	430	824	760	695	054	092	651	083	594	446	594	328	410	024
Total number of fires	-	8536	8120	8087	8997	8967	10179	16295	8853	9525	10574	11620	7479	7554

Source: author's calculations based on the State Fire and Rescue Service (2013)

Of course, the number of grass fires in each definite year depends on the totality of various conditions. The most essential aspects are: meteorology and the time of spring coming. Let us take spring of 2013 as an example. Spring came comparatively late, snow cover remained long, but, as soon as snow melted, it became warm very rapidly and the weather mostly remained sunny. Such weather conditions were a prerequisite for grass fires. Further follow

economic, social, society education level and other compulsory conditions, that can directly or indirectly influence the number of grass fires.

If total number of grass fires increases, the number of fires possibly caused by grass burning also increases. If in 2010 there were 32 fires of such kind, then in 2013 there already were 114 fires. It draws attention to dangerousness and non-predictable consequences that appear while burning last year's grass. The increase in the number of these fires during last four years we can see in Fig.1.



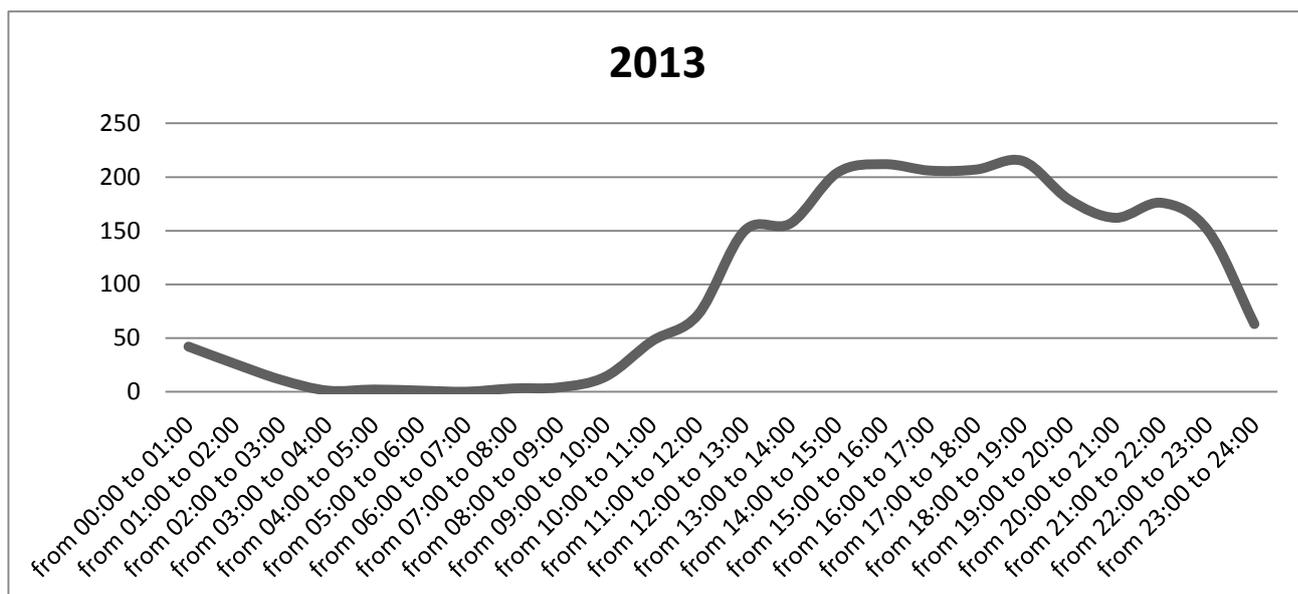
Source: author's calculations based on the State Fire and Rescue Service (2013)

Fig. 1. Number of grass fires possibly caused by grass burning, 2010-2013

The next figure (see Fig.2) shows the summary of the statistic data about grass fire according to the time of their starting. It is clearly seen that the most rapid increase in the number of grass fires can be observed from 11:00 till 16:00. This is the time when the children of school age return back home from school, but the people of working age are at work. It allows concluding, that during this period of time exactly schoolchildren are the ones that burn grass after returning from education institutions. After communicating with teachers, it was concluded, that educational institutions do not dedicate time to a separate lesson about grass fires, their threats and possible consequences. At several lessons children were briefly told about grass burning and its consequences. At the beginning of a school year, schoolchildren are instructed in fire security issues, as well as in actions in case of fire. To improve the situation, it would be necessary to introduce at least one lesson in the beginning of grass burning „season“ about issues of grass burning threats in education institutions.

It is clearly seen that the situation is very similar in all parts and positions every year. Special attention should be paid to the situation in the territories of those parts or positions, where most grass fires occur. There should be special control, if fields and other territories are in order, irresponsible owners should be punished: first, for not maintaining the territory and, secondly, for a grass fire, if it occurs. With the help of mass media, land owners should be recommended to manage their territories, stating that in the opposite case penalty will be inflicted. People also should be educated in grass fire dangerousness and its non-predictable consequences, its effect on nature and penalties applied. In that way, people would

understand real damage from burning grass. While people perceive grass burning as a matter of course, nothing will change.



Source: author's calculations based on the State Fire and Rescue Service (2013)

Fig. 2. Dynamics of grass fires depending on the time of announcement, 2013.

In regions, the number of grass fires depends not only on the number of inhabitants, but also on other essential factors: area of the territory, existence or non-existence of farmers in the region (if agricultural land is managed). But, examining last year statistics, one can find that every year there are such regions in Latvia, where the number of such fires is measured in tens and there are regions where there are no or little grass fires. Every year remarkably great number of grass fires is registered in Daugavpils, Dobele, Gulbene, Jelgava, Ogre, Olaine, Rezekne, Salaspils and Tukums districts. Special attention should be paid to these regions. Firstly, local authorities should be requested to manage their territories and, if it is not done, administrative penalty should be inflicted. Secondly, private properties should be inspected and owners should be informed about the consequences if the territories are not put in order. Thirdly, information campaigns about dangerousness, damage and consequences caused should be conducted. Not all grass fires can be quickly and easily reached by fire automobiles. As, for example, grass fires, that start spreading in remote territories which can be reached by several, in the worst case, by no stable road. As a result flames can spread for a distance of several kilometres already before fire-fighting brigades arrive. April is the most active grass burning period when the threat and danger for the society and environment are the highest. Grass burning starts in March and it ends in May, when new grass outgrows last year's grass. During last four years in grass fires 3 people have died and 7 have been injured. 144 buildings and 2 vehicles have been destroyed (State Fire and Rescue (2013)). Riga is the place where the most grass fires occur. It indicates that the greater possibility of fire occurs in the place where the greater number of inhabitants is concentrated. Comparing to rural regions, a lot smaller areas burn out in towns. But in towns the dangerousness of grass fires is much higher because of dense building and grass fires endanger dwelling houses, historical

monuments and other urban objects. As a result of fires urban territory gets fumed and polluted. Many non-maintained territories are the property of municipalities and the number of administrative violation reports is very little or they are not drawn up at all. To solve this problem situation, it would be necessary to involve municipal supervising institutions – the Ministry of Environmental Protection and Regional Development. As one of possible solutions of the problem, local authorities can organise grass mowing and sawing out bushes in their territories. After that they can be processed into granules and woodchips and used for heating, as in many municipalities there is heating equipment suitable for woodchips.

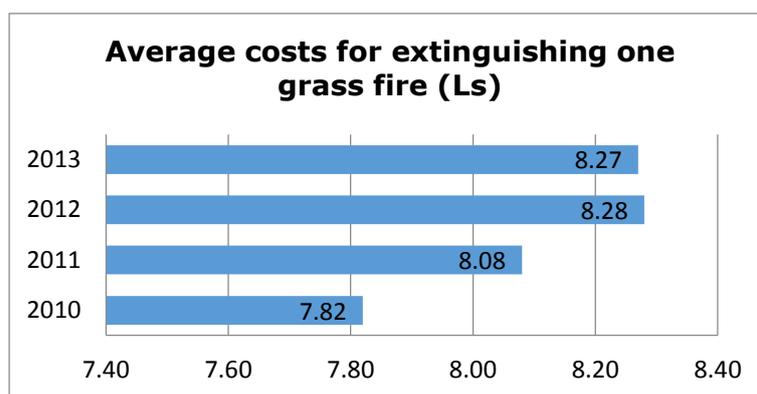
Table 2

Number of buildings, vehicles destroyed, injured, dead in 2010-2013

Year	Dead	Injured	Destroyed buildings	Destroyed vehicles
2013	1	1	44	2
2012	1	1	20	0
2011	1	2	48	0
2010	0	3	32	0

Source: the State Fire and Rescue Service (2013)

As analysed in Goldish M. (2012) and the International Association of Fire Chiefs (2009) extinguishing of grass fire leads to additional costs and is associated with additional requirements, competencies and needs for rescue services. In 2013 the State Fire-Fighting and Rescue Service spent for fighting grass fires the amount of LVL 20100.33 for petrol (the sum was calculated, taking into account prices for petrol in summer, 2013). In fighting such fires 6 vehicles were damaged. The repair works cost LVL 560.99. 2,430 grass fires were registered. In 2012 the sum spent on petrol for extinguishing grass fires was LVL 15099.10 (the sum was calculated, taking into account prices for petrol in spring, 2012). In fighting such fires 7 vehicles were damaged. The repair works cost LVL 481. 1,824 grass fires were registered. In 2011 the sum spent on petrol for extinguishing grass fires was LVL 14221.51 (the sum was calculated taking into account prices for petrol in spring, 2011). In fighting grass fires 4 vehicles were damaged. The repair works cost LVL 1035. 1,760 grass fires were registered. Every year considerable sums are spent on extinguishing grass fires, every year this sum differs, depending on the number of grass fires, petrol price, as well as area of fire. Several SFRS technical units are damaged, their repair works require financial means. On the background of total costs the costs for repair works are not really great, but one should take into account that, fighting grass fires, vehicles go along meadows, bad roads and even cross countries. In long term perspective such use of technical means can cause serious damage, the prevention of which will require large amounts of money. Comparing the costs for extinguishing grass fires with the number of these fires, there appeared an interesting tendency. Dividing the costs for petrol by the number of fires, one can see that every year for extinguishing one grass fire a very similar sum – about LVL 8 – is spent (see Fig.3).



Source: author's calculations based on the State Fire and Rescue Service (2013)

Fig.3. Average costs for extinguishing one grass fire (LVL), 2010-2013

In last years this sum is slightly higher than LVL 8, which, most certainly, is connected with growth in prices. Of course, it is only a number gained by dividing two statistic data, but it shows the tendency, which can be used for predicting costs for extinguishing grass fires depending on their number. One must not, in no case, rely this number to all grass fires, as in some fire there burn out only 1 square meter of grass, and in the other – several tens of hectares.

Plan of action for reducing the number of grass fires

When burning grass, essential damage is done to plants, insects and other invertebrates die, especially those whose evolution starts in early spring. These animals play an essential role in the ecosystem as food for bigger animals. Among them there are rare and protected species. The problem of grass burning cannot be solved in few years; it requires intense work for several years. To solve the problems stated, the authors propose an action plan for reducing the number of grass fires.

1. The Ministry of Environmental Protection and Regional Development should define in normative regulations minimum requirements for land maintenance and management to prevent the growth of last year's grass. The requirements should be equal for all local authorities.

2. Every year, without interruption, more actively in spring and autumn, there should be enhanced monitoring of the observation of requirements defined in normative regulations.

3. Every year in autumn the Ministry of Environmental Protection and Regional Development should gather information about non-maintained and non-mown lands and put this information into the information system of the State Real Estate Service. Municipalities, calculating the land tax, should raise the land tax, if the facts, testifying that the land is not maintained or there has been grass fire in it, are found.

4. Every year in summer and autumn the Ministry of Environmental Protection and Regional Development, the Ministry of the Interior should require from local authorities to maintain their territories already in autumn not to develop the possibility of fire starting in spring. They should send a letter to the Ministry of Environmental Protection and Regional Development,

which will send the letter to all local authorities. They should also control the maintenance of territories. Municipalities that have not maintained their territories should be punished administratively. The State Police, the Municipal Police should be involved in monitoring process.

5. Interdepartmental agreement between the State Land Service and the Information Centre of the Ministry of the Interior about co-operation and providing the data from the State Real Estate Service information system and State Address Register should be signed. Every year co-operation within interdepartmental agreement between the rural Support Service and the State Fire-Fighting and Rescue Service should be continued and information on grass fires should be given.

6. Every year the Ministry of the Interior, the Ministry of Agriculture, the Ministry of Environmental Protection and Regional Development should conduct timely information campaigns on the necessity to maintain territories already in autumn, stating the penalty for not doing it. It can be achieved by spreading the materials, prepared by institutions. In early spring they should conduct propaganda on dangerousness of grass burning as well as on the penalty inflicted (for example, placing the information in shops, at bus stops, etc.). They also should ensure the information for mass media according to institution competence and plans of action.

7. Every year the Ministry of Environmental Protection and Regional Development, the institutions stated in the Law on Protection Zones and the persons in charge of maintenance of protected zones should reduce areas, where last year's grass grows, by sustaining in fire safe condition the protection zones defined in the Law on Protection Zones along roads, railways and woods (land owner or legal possessor has to ensure maintaining road and railway zones, establishing and managing mineralized zones).

8. Every year the Ministry of Education and Science should raise the level of schoolchildren's education by including the issues of fighting grass burning into education program and extracurricular activities. It should include the issues of fighting grass burning in the contents of primary, compulsory and secondary education programs. It also should educate teachers in the issues of fighting grass burning.

9. Every year, on the basis of existing experience, the Ministry of the Interior should at regional level improve co-operation model of the State Fire-Fighting and Rescue Service with the State Police and the Municipal Police departments in the sphere of fighting grass burning, including practicing joint raids, monitoring. Complex of activities should be performed according to institution's annual plans of action.

Conclusions, proposals, recommendations

1. The number of grass fires during last four years has increased. In 2013, 2,430 grass fires were registered in Latvia (including the fires possibly caused by grass burning). As compared to 2012, when 1,824 grass fires were registered, the number of fires increased by 25%.

2. Having analysed the dynamics of the number of grass fires depending on the time of announcement, the most rapid increase in the number of grass fires can be observed from 11:00 till 16:00. This is the time when the children of school age return back home from school, but people of working age are at work. It allows concluding that, during this period of time, exactly schoolchildren are the ones that burn grass after returning from educational institutions. To improve the situation, it would be necessary to introduce at least one lesson in the beginning of grass burning „season“ about issues of grass burning threats in educational institutions.

3. Special attention should be paid to the situation in the territories of those parts or positions, where most grass fires occur. There should be special control, if fields and other territories are in order, irresponsible owners should be punished: first, for not maintaining the territory and, secondly, for a grass fire, if it occurs. In that way, people would understand real damage from burning grass. To improve the situation in land management, it would be necessary to ask for involving the police and the State Environmental Service resources in inspecting non-managed land already in autumn to motivate land owners to put their property in order by administrative penalties and prevent grass fire threat.

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ANALYSIS OF AGRICULTURAL SUSTAINABILITY INDICATORS SYSTEM

Maira Ore¹, Mg.oec⁺

¹ Institute of Social, Economic and Humanities Research of Vidzeme University of Applied Sciences

Abstract. Agriculture provides the population with livelihood. It promotes commercial activities and sustainable employment in rural areas, thus, improving the living quality and retaining density of rural population. Rural development and sustainable agriculture are closely related components of sustainable development. The tool most frequently applied in practice for planning sustainable development and evaluation of the achieved results is a quantitative assessment of selected parameters, the aggregate of which in their mutual interaction constitutes an indicator system.

Vidzeme Planning Region (VPR) of the Republic of Latvia is a typical agricultural region; however, a balanced and sustainable development model for agriculture has not been developed so far, evaluation indicators are not clearly defined. The research summarizes and analyzes policy documents, previous research, international experience regarding long-term development concept based indicator systems; the development principles, methods and constituent parts; properties of the indicators and criteria of their selection. The research focuses on identification and formulation of the specifics of the agricultural sector which would suit as a basis of methodological recommendations for elaboration of a sustainable agricultural development model for the largest planning region of Latvia, improvement of its policy quality and successful implementation of plans. The study concludes that the current theoretical basis of the development of indicator systems is incomplete; there are generalized references, plurality of views and many unanswered questions which complicate the practical establishment of the system and its adaptation and jeopardize the quality and objectivity of the results.

Key words: agricultural sustainability, indicators, agricultural policy.

JEL code: Q

Introduction

"The principle of sustainable development provides for quality environment and balanced economic development for the present and future generations as well as rational use of

⁺ Corresponding author. Tel.: + 371 20218282 E-mail address: maira.ore@va.lv

natural, human and material resources, preservation and development of natural and cultural heritage" (Vidzeme Planning Region, 2014)

Sustainable agricultural development is essential both on the global and local scale as it plays a multidimensional role. The agricultural sector provides staple food for the population. The United Nations Population Division forecasts that world population will continue to increase (UNPD, 2005), "the absolute demand for food will also increase" (Pretty J., 2008). To better provide the increase of food products, it is vital to modernize agricultural production and make it more effective which in its turn may have a negative impact on preservation of environment and employability in agricultural areas.

The most significant aspects of agricultural policy in Latvia are: ineffective production and low competitiveness; inadequate skills and entrepreneurial habits; lack of effective management of nature resources (Ministry of Foreign Affairs, 2012).

Therefore, the developers of strategic goals and policy providers of the respective region should determine the features of sustainable agricultural development and affecting factors to find a balance between management and preservation on the basis of nature resources and economic viability, and social responsibility to achieve better results in the future. One of the most appropriate tools for development of scientifically proven proposals for agricultural policy is a balanced and sustainable agricultural development model providing both the evaluation of the existing economic relationships and the impact of specific decisions on particular indicators as well as possible sector development risks and analysis of other issues depending on specific features of the model.

The aim of the research was to compile and analyze policy documents of various levels, earlier research and international experience in different indicator systems to highlight further development directions regarding development of a balanced and sustainable agricultural model for Vidzeme Planning Region.

The following objectives were set for achieving of the goal: to study international and Latvian agricultural policy documents and scientific literature on sustainable agricultural development models; to carry out analysis of the previous experience and theoretical cognitions regarding the principles, methods and ingredients of the established indicator systems; to identify and formulate the specifics of the agricultural sector; to characterize properties of the indicators and their selection criteria; to draw conclusions and elaborate methodological recommendations. The author applied the following qualitative methods of economic scientific research: monographic and content analysis. The study covers the period up to December, 2014.

Research results and discussion

Methodology

Before starting the planning and implementation of a balanced and sustainable agricultural development model in Vidzeme Planning Region it is important to clearly identify the meaning of "sustainable agriculture" and its characteristic criteria.

Pretty J. maintains that "the interest in the sustainability of agricultural and food systems can be traced to environmental concerns that began to appear in the 1950s–1960s. However, ideas about sustainability date back at least to the oldest surviving writings from China, Greece, and Rome" (Pretty J., 2008).

The concept of Sustainable Agriculture and Rural Development (SARD) was one of a number of concepts that crystallized during the 1980s. SARD as a paradigm developed in response to the growing realization that national and international agricultural policies and programmes should encompass a wide range of economic, environmental and socio-cultural issues in addition to the traditional areas of agricultural productivity, production and food security (Food and Agriculture Organization ..., 1992). The different indicator systems based on this concept can inspect and evaluate the sustainability of the agricultural system, and can improve the sustainable development of agriculture (QIU Hua-jiao et al., 2007).

Since then various term definitions have been offered; however, interpretations of the term and discussions continue to this day. The lack of agreement about the definition has led some researchers to question the usefulness of the concept of "agricultural sustainability" (Binder C.R. et al., 2010).

The concept of sustainable development is an evolving one, and there are many definitions in literature, some very similar, and others markedly different (Food and Agriculture Organization ..., 1997).

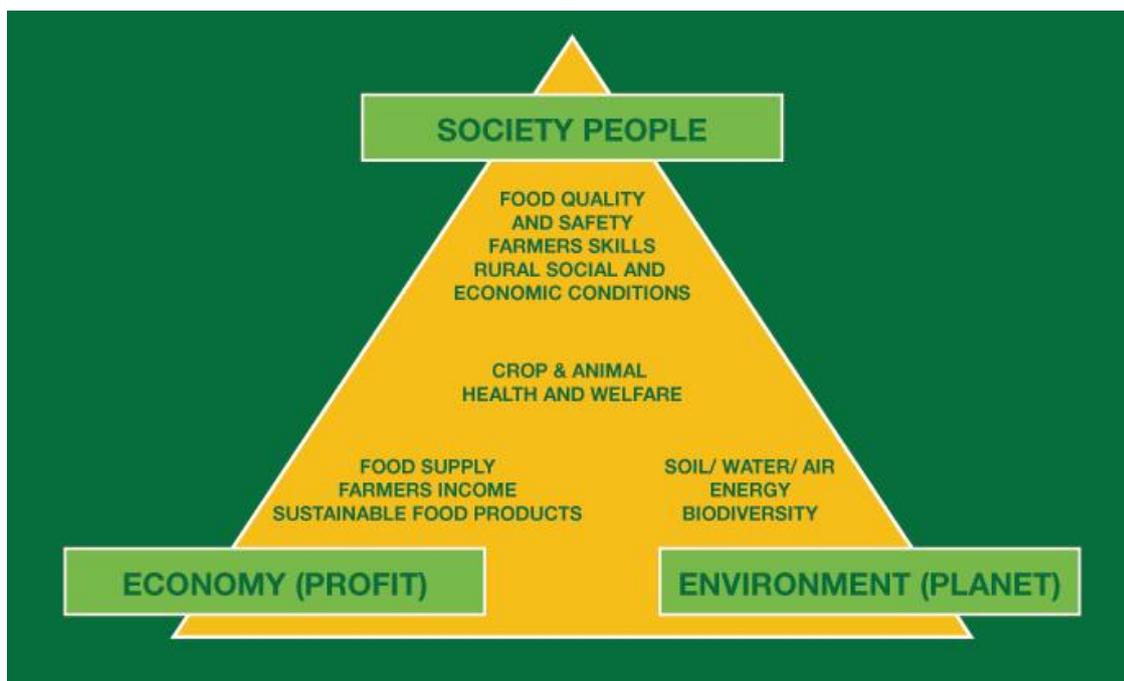


Fig. 1. **The concept of sustainable development**

Source: Sustainable Agriculture Initiative Platform

Researchers have pointed out the problems that may be faced when elaborating and analyzing the concept of sustainability. First, the temporal nature and its factors. Second, identification of features characterizing sustainability of the agricultural sector. (Gomez-Limon J.A, Riesgo L., 2008). Third, it is complicated to define the proportions and weights of the economic, social and environmental criteria and sub-criteria included in the models as these conditions are related to the multidimensional character inherent in the concept of sustainable development. Fourth, regarding sustainability, agriculture is inconsistent in one farming system. Fifth, sustainability indicators systems are created on the basis of different sources of cognition, different offers of statistical data and peculiarities of countries in different stages of development (Gomez-Limon J.A, Riesgo L., 2008; QIU Hua-jiao et al., 2007).

Gomez-Limon et al. propose the following solutions for some of the listed problems: "Sustainability can be interpreted as a social conception that can be changed in response to society's requirements. Thus the meaning of sustainability must be considered local and time specific. Both difficulties have limited for a long time the usefulness of this concept as a criterion for guiding the agricultural development. In order to avoid the difficulties mentioned above, a wide consensus has been built in order to consider that the sustainability embodies three main dimensions: environmental, economic and social" (Gomez-Limon J.A, Riesgo L., 2008).

To identify the future course of the study scenario for evaluation of sustainable agricultural development in VPR, the author has compiled previous research methodology.

Goldberger maintains that "environmental, social, and economic sustainability can be assessed using "objective" or "subjective" approaches. Objective approaches rely on

quantifiable sustainability indicators (Goldberger R.J., 2011). Objective approaches are useful for multidisciplinary research and cross-case comparison, they are limited by what can be measured and counted. Subjective approaches, in contrast, explore individuals' (e.g. farmers') perceptions of sustainability (Goldberger R.J., 2011). "Another relevant distinction can be made between goal oriented and means oriented approaches" (Binder C.R., 2010).

In most cases of previous research the author found "objective" approaches and the research methodology resulting from it.

Gomez-Limon's et al. research course ideologically and chronologically is related to Nardo et al., presented in 2005: 1) development of the theoretical framework; 2) selection of basic indicators; 3) multivariate analysis; 4) imputation of missing data; 5) normalization; 6) weighting and aggregation; 7) robustness and sensitivity; 8) links of composite indicators to other variables; 9) return to the real data; and 10) dissemination (Gomez-Limon J.A, Riesgo L., 2008; Gomez-Limon J.A., Sanchez-Fernandez G., 2010).

Binder et al. argue that "for a long time, sustainability assessment in agriculture has focused mostly on environmental and technical issues", thus, neglecting the social and economic aspects, the multifunctionality of agriculture and the applicability of the results (Binder C.R. et al., 2010). Therefore, several integrative sustainability assessment methods have been developed for the agricultural sector. Binder et al. in their research provide a review of indicator-based assessment methods for agricultural analysis with respect to three dimensions: normative, systemic, and procedural (Binder C.R. et al., 2010).

"Consequently, a wide variety of tools and methods have been developed to assess sustainability in agriculture. These include, among others: indicator lists; environmental assessment of production alternatives; indexes or Ecopoints; linear programming models; trade-off models of production alternatives, considering economic, ecological and health aspects" (Binder C.R. et al., 2010).

Scientists in the Netherlands have created a graphic picture of the study course with actors involved in the processes (Figure 2) which may serve as a basis for the development of VPR development model.

When developing a model, the specific features of the respective country or region should be taken into consideration. Researchers recommend selecting the development indicators based on theoretical guidelines in the given area's sustainable development programmes and plans (Tolon-Becerra A., Lastra-Bravo X., 2009).

Rural development policy has been strengthened and integrated into the Common Agricultural Policy in the second pillar. The aim of the reform is to raise competitiveness of agroforestry, strengthen the links between the primary activity and the environment, and improve the quality of life in rural areas, to promote cooperation and innovation, and economic diversification of rural communities (European Parliament, 2014).

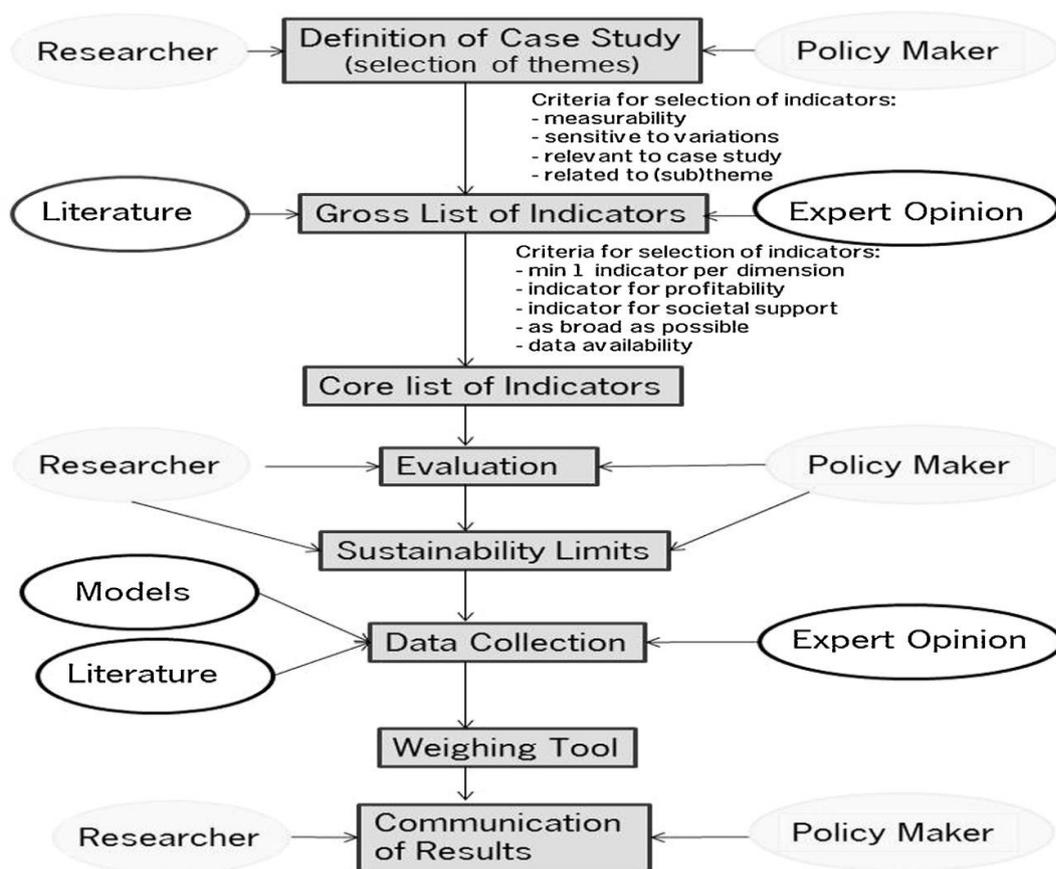


Fig. 2. **Protocol for evaluating the sustainability of agri-food production systems**

Source: Van Asselt E.D. et al., 2014

“Sustainable Development Strategy 2014-2030” for Vidzeme Planning Region, Latvia, is in the discussion stage; it has been developed considering the EU and Latvia’s regional and spatial development policy documents; it has taken into account the vision of the state future and the EU future guidelines (Vidzeme Planning Region, 2014).

The document sets Vidzeme development priorities, goals, and the necessary actions and indicators for achieving them. The regional strategy has been drafted considering requirements of sustainable development; it is permeated with interconnected dimensions: social, economic, and environmental dimensions. Characterizing the region, it is noted that it has an agrarian structure of economy. It is proven by a relatively large number of employees in the agrarian sector and high value added ratio in the industry. Agricultural activities are not diversified in rural areas, and sufficiently strong service economy sector has not been formed so far. In response to the growing demand for food in emerging market countries the impact of large scale intensive farming proportion could increase in Vidzeme. However, introduction of new technologies in production and agriculture leads to reduction in employment. Conservation of natural resources in the region is largely dependent on the economic activity. The strategic part of the document outlines factors influencing the future of the region: population decline and ageing of society associated with it, the country’s economic development rate after the crisis, technological progress, development of transport systems and related changes in

availability of the region, climate changes, scarcity of fossil fuels, national approach to territorial development, the background of international relations (Vidzeme Planning Region, 2014). In the case of a balanced and sustainable agricultural model development, the information provided by the strategic plan is important, yet it is not complete. Consequently, in the course of study it will be necessary to conduct interviews with policy makers of agricultural and territorial development, experts and representatives of agricultural enterprises, and to analyze the experience of other countries.

Indicators

“In the last two decades much attention has been paid to establishing indicator lists. Composite indicators can help in comparing policy options facilitate the decision making process of policy makers” (Van Asselt E.D. et al., 2014). “The indicators selected in terms of the scientific method can reliably reflect the state, development, and function of the systems” (QIU Hua-jiao et al., 2007).

However, the selection of these indicator lists is not always clearly described, the lists contain both qualitative and quantitative indicators, and they do not equally address all three dimensions (Van Asselt E.D. et al., 2014).

Chinese scientists QIU Hua-jiao et al. in their research “Analysis and Design of Agricultural Sustainability Indicators System” have compiled and analyzed recommendations of earlier researchers regarding indicator selection. For example, the Ministry of Agriculture, Fisheries and Food (MAFF) of England require that indicators should have analytical soundness, measurability, appropriate aggregation level, and be representative of social desirability; the Environmental Protection Agency (EPA) of America propose that indicators are important to the overall structure and function of the agroecosystem, and must be responsive to a range of environmental stresses. These must be simple, cheap, easily explainable, not redundant, with little variation, and of historical data. The indicators should be able to cover the system all-around and should be minimized in number (QIU Hua-jiao et al., 2007).

To establish the most appropriate indicators in the environmental sustainability in agriculture in further research and finding what indicators are most appropriate for tracking progress, the World Resources Institute research of 2014 may serve as an important basis for assessing the candidate indicators of environmental sustainability of agriculture and provisionally identify the landscape of existing agri-environmental indicators (Reytar K. et al., 2014). When drawing the list, it is important to take into account the nature of the indicator. The author has compiled insights of various authors regarding indicator pros and cons (Table 1).

“Of crucial importance is whether the indicators are aggregated into groups, e.g. social, economic and ecological, and how the groups are weighted. Finally, the indicators can be assessed in different ways, i.e. with respect to regulatory standards (e.g. nitrogen in groundwater), targets, thresholds, and ranges” (Binder C.R. et al., 2010).

Table 1

Pros and cons of composite indicators

Pluses	Minuses
Indicators are used to make a complex system understandable and to give meaningful information.	The content of the indicators system is different from each other for different countries, regions, and development stages, and is of great subjectivity.
Indicators enable policymakers, farmers, businesses, and civil society to better understand current conditions, identify trends, set targets, monitor progress, and compare performance among regions and countries.	Indicators may send misleading policy messages if poorly constructed or misinterpreted.
They also enable us to visualise farm heterogeneity within a single agricultural system with respect to sustainability as well as to analyse the structural and decision-oriented variables that influence it.	They invite simplistic policy conclusions.
Indicators can summarise complex, multi-dimensional realities (such as agricultural sustainability) with a view to supporting decision-makers.	Indicators may be misused, e.g. to support a desired policy, if the construction process is not transparent and/or lacks sound statistical or conceptual principles.
They are easier to interpret than a battery of many separate indicators.	The selection of indicators and weights could be the subject of political dispute.
Indicators help assessing progress of farms, agricultural systems, regions and countries over time.	Indicators may disguise serious failings in some dimensions and increase the difficulty of identifying proper remedial action.
Reduce the visible size of a set of indicators without dropping the underlying information base.	Use of indicators may lead to inappropriate policies if dimensions of performance that are difficult to measure are ignored.
Place issues of farms, agricultural systems, regions or countries performance at the centre of the policy arena.	As indicators have different dimensions or operate at different levels, it is difficult to compare and assess sustainability.
Facilitate communication with general public (i.e. citizens, media) and promote accountability.	
Help to construct/underpin narratives for lay and expert audiences.	
Enable users to compare complex dimensions effectively.	

Source: author's construction based on Gomez-Limon J.A., Sanchez-Fernandez G., 2010; Reyta, K. et al. 2014, Van Asselt E.D. et al., 2014.

Conclusions, Proposals, Recommendations

1. The concept of sustainable development is a long-term balance between economic profitability, environmental stewardship and community vitality. Sustainability should be understood as a social construction which changes in certain geographical and temporary conditions.
2. Previous research of sustainability assessment in agriculture has highlighted the following main shortcomings: multifunctionality of agriculture, imbalance regarding ecological, economic and social dimensions of sustainability; the researchers' wish to fill

missing knowledge and technologies but to neglect to apply the knowledge for the benefit of the society; the evaluation results are difficult to be implemented in decision making as conflicting goals and the interaction between indicators have not been sufficiently considered.

3. The following issues have to be considered: the underlying sustainability concept; goal setting; and assessment type.
4. Although VPR is a typical agricultural region, the strategic plan of the area in the stage of discussion does not give a clearly defined sustainability goals and objectives for the agricultural sector. So far a balanced and sustainable agricultural development model has not been drafted for the area, there is no study to what degree farmers are achieving sustainable agriculture goals and producers moving in the right direction; and what prevents farmers from achieving better long-term results.
5. The author recommends involvement of researchers, policy makers and agricultural entrepreneurs in the development process of sustainable agricultural indicators as it is vital to consider farmers' perceptions of sustainability of their operations. Both "objective" and "subjective" approaches may be used to ensure that results reflect a realistic and comprehensive evaluation of sustainability.
6. It is important to understand the character of indicators for selection of sustainable development indicators on the basis of the following criteria: the indicator should be measurable; sensitive to variations; relevant to the case study; related directly to the theme.
7. Candidate indicators should be assessed by the following features: availability of data, accuracy and consistency in how data are gathered, frequency of data, data's proximity to reality, relevancy of data, and ability for data to differentiate among countries.
8. Agricultural, environmental and macroeconomic policy should provide conditions for sustainable agriculture and rural development. The main tools are: policy, participation, income diversification, land conservation and improved management of inputs. Success in development of sustainable agriculture and rural space development will depend largely on the support and participation of rural people, national governments, the private sector and international cooperation, including technical and scientific cooperation.
9. Indicator systems are increasingly applied as a tool for policy planning, result evaluation and as an instrument for observation of interaction of different processes and factors; they provide comprehensive information for decision makers. As concerns the elaboration and adaptation of the indicator systems, the previous studies manifest many variations, subjective attitudes, contradicting viewpoints and unanswered questions that threaten the result relevance, credibility, reliability, comparability and understandability.

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REGIONAL DIFFERENTIATION OF FINANCIAL SUPPORT FROM THE EUROPEAN UNION AND ITS IMPACT ON AGRICULTURAL EFFICIENCY IN POLAND

Joanna Baran¹, PhD +

¹ Warsaw University of Life Sciences (SGGW)

Abstract. Main objective of this article is to establish whether there is dependence between how intensively EU agriculture-dedicated funds in individual voivodeships are utilized and the pace of efficiency improvement of that agriculture. During the first stage of study the level and dynamics of the EU funds utilized in agriculture across voivodeships were examined for the period between 2005 and 2011. Further, efficiency of agriculture in individual voivodeships was analyzed using traditional indexes (productivity of land and work), as well as multidimensional indexes based on Data Envelopment Analysis and Malmquist Productivity Index. The conducted study indicated lack of dependence between the extent to which financial aid funds from the EU budget were utilized and the pace of agricultural efficiency improvement.

Key words: agriculture, efficiency, Common Agricultural Policy

JEL code: Q10

Introduction

Between 2004 and 2011 Poland received from the EU budget the amount of EUR 76.8 billion (after deducting contributions paid to the budget, which amounted to EUR 22.8 billion, the positive balance of EUR 50.2 billion remained), due to which it was possible to accelerate the expansion and modernization of national technical and social infrastructure. Over 30% of the received EU funding has been allotted to agriculture as part of the Common Agricultural Policy (CAP) (Figure 1) (Czubak, 2012).

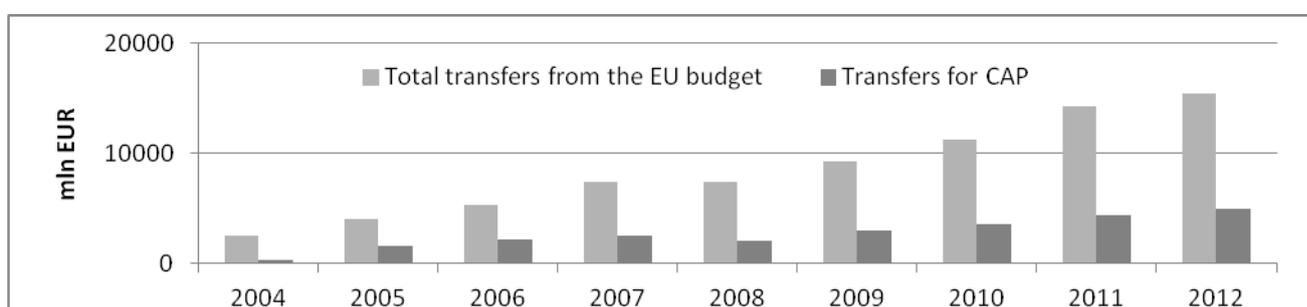
The main objectives of the CAP were balanced development of rural areas and improving competitiveness of agricultural food production economy (Golasa et al., 2014). A number of studies indicate that the accession and related changes in economic conditions of farming operations have led to a significant improvement in the income situation of Polish agriculture (Poczta, 2008; Czyzewski, Matuszczak, 2014). Many studies point to the fact that supporting agricultural investments from the EU budget contributes towards improved economic efficiency of farms. This, in turn, allows for implementation of biological, technical, economic and

+ Corresponding author. Tel.: +48 225934260 fax: + 48 225934256
E-mail address: joanna_baran@sggw.pl

organizational progress which furthers the development of production capacity of agriculture, improves productivity of plants and animals, enhances the effectiveness of management and decreases the impact agricultural production has on the environment (Dziemanowicz et al., 2008; Rokicki, 2013).

It should be noted, however, that the impact of integration on the monetary income of agriculture within the country is diverse, due to the fact that agriculture in different regions of the country exhibits higher or lower levels of variation. This stems mainly from the scale of production and the structure of agricultural production, as well as the different levels of marketable agricultural production (Poczta, 2008).

The main purpose of this article is to describe the relation between the intensity of utilizing the EU funds for agriculture, and the pace of agriculture efficiency improvement in the respective Polish voivodeships. To achieve the aim, several research tasks were set: 1) to identify the level and the dynamics of support of agriculture sector with the EU funds in individual voivodeships of Poland; 2) to identify the efficiency of agriculture in Polish voivodeships. For the purpose of this study the following hypothesis was assumed: the voivodeships in which agriculture received the most support from the EU funds per 1 hectare of agricultural area achieved the fastest rate of work, yield and efficiency indicators between 2005 and 2011.



Source: <http://www.mf.gov.pl/ministerstwo-finansow/dzialalnosc/unia-europejska/transfery-finansowe-polska-ue>

Fig. 1. **Transfers to Poland from the EU budget between 2004 and 2012**

The study used Central Statistical Office of Poland data for the period 2005-2011 on agriculture, in particular, voivodeships published in the Statistical Yearbooks of Agriculture and data from the reports on the activities of the Agency for Restructuring and Modernisation of Agriculture (ARMA) for the period 2005-2011 as source materials. In the article, most valuable variable is expressed in PLN. The exchange rate for converting Polish zloty to Euro is 1 PLN = 0.23926 EUR (23.02.2015).

The Data Envelopment Analysis (DEA), Malmquist Productivity Index (MPI) and the Kruskal-Wallis test were employed in order to verify the research hypothesis on the basis of data for the agricultural sector in individual voivodeships. DEA is the non-parametric approach relied on

the linear programming (Baran, Zak, 2014). The DEA model may be presented mathematically in the following manner (Cooper et al., 2007):

$$\max \frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \quad (1)$$

$$\frac{\sum_{r=1}^s u_r y_{rj}}{\sum_{i=1}^m v_i x_{ij}} \leq 1$$

$$u_r, v_i \geq 0$$

where:

s – quantity of outputs;

m – quantity of inputs;

u_r – weights denoting the significance of respective outputs;

v_i – weights denoting the significance of respective outputs;

y_{rj} – amount of output of r -th type ($r = 1, \dots, R$) in j -th object;

x_{ij} – amount of input of i -th type ($n = 1, \dots, N$) in j -th object; ($j = 1, \dots, J$).

In the DEA model m of inputs and s of diverse outputs come down to single figures of “synthetic” input and “synthetic” output, which are subsequently used for calculating the object efficiency index (Rusielik, Switlyk, 1999). The quotient of synthetic output and synthetic input is an objective function, which is solved in linear programming. Optimized variables include μ_r and v_i coefficients which represent weights of input and output amounts, and the output and input amounts are empirical data (Cooper et al., 2007).

By solving the objective function using linear programming it is possible to determine the efficiency curve called also the production frontier, which covers all most efficient units of the focus group. Objects are believed to be technically efficient if they are located on the efficiency curve (their efficiency index equals 1, which means that in the model focused on input minimization there is no any other more favourable combination of inputs allowing a company to achieve the same outputs). However, if they are beyond the efficiency curve, they are technically inefficient (their efficiency index is below 1). The efficiency of the object is measured against other objects from the focus group and is assigned values from the range (0, 1) (Charnes et al., 1978).

Malmquist Productivity Index is the most frequently used approach to quantification of changes in total factor productivity. MPI first introduced by Malmquist has further been studied and developed in Färe (Malmquist, 1953; Färe et al., 1992; Färe et al., 1994). Färe constructed the DEA-based MPI as the geometric mean of the two Malmquist productivity

indices - one measures the change in technical efficiency and the other measures the shift in the frontier technology. Färe developed it into the output-based Malmquist productivity change index (Färe et al., 1994). The input-oriented Malmquist productivity index of a DMU can be expressed as

$$M(y_{t+1}, x_{t+1}, y_t, x_t) = \left[\frac{D^t(y_{t+1}, x_{t+1})}{D^t(y_t, x_t)} x \frac{D^{t+1}(y_{t+1}, x_{t+1})}{D^{t+1}(y_t, x_t)} \right]^{\frac{1}{2}}$$

(2)

where x_t and x_{t+1} are input vectors of dimension l at time t and $t+1$, respectively. y_t and y_{t+1} are the corresponding k -output vectors. D^t and D^{t+1} denote an input - oriented distance function with respect to production technology at t or $t+1$, which is defined as:

$$D(x, y) = \max \{ \rho : (s / \rho) \in L(y) \}$$

(3)

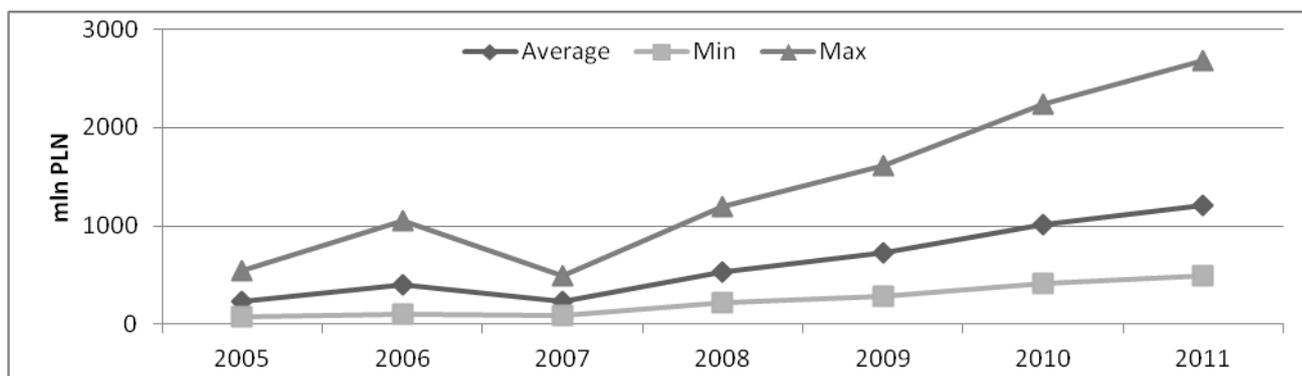
where $L(y)$ represents the number of all input vectors with which a certain output vector y can be produced, that is, $L(y) = \{x: y \text{ can be produced with } x\}$. ρ in eq. (3) can be understood as a reciprocal value of the factor by the total inputs could be maximally reduced without reducing output.

M measures the productivity change between periods t and $t + 1$, productivity declines if $M < 1$, remains unchanged if $M = 1$ and improves if $M > 1$. The frontier technology determined by the efficient frontier is estimated using DEA for a set of DMUs. However, the frontier technology for a particular DMU under evaluation is only represented by a section of the DEA frontier or a facet.

The DEA method and MPI were used to evaluate and create efficiency rankings of various entities, such as hospitals, educational bodies (schools, universities), banks, farms, agribusiness companies, industrial enterprises (Rusielik, Switlyk, 1999; Lenort et al., 2014; Wysokinski et al., 2014).

Research results and discussion

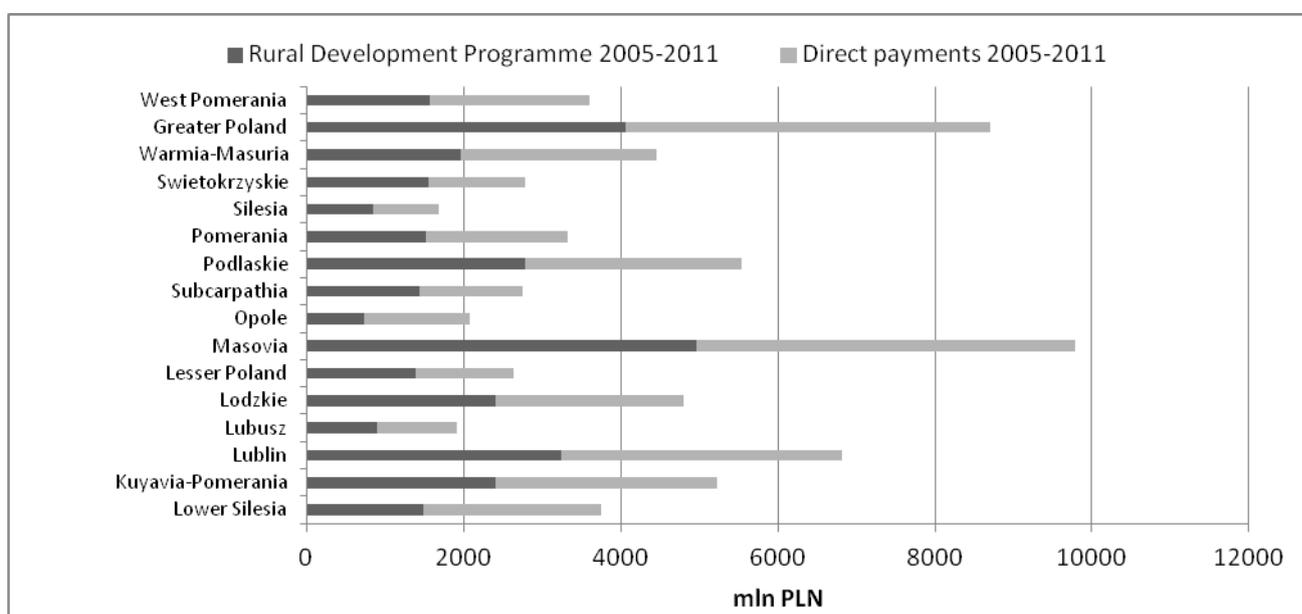
During the first stage of study, the level and dynamics of the EU funds utilized in agriculture across voivodeships was examined. The study took into account the following categories of expenditures as part of financing the CAP activities: direct payments and tasks performed within the Rural Development Programme (RDP) in the periods from 2004 to 2006 and from 2007 to 2011.



Source: author's calculations based on the reports of the ARMA, 2005-2012

Fig. 2. **General expenditure financed within the CAP (minimal, average and maximal value per voivodeship between 2005 and 2011)**

Between 2004 and 2011 total expenditures for the CAP in all voivodeships of Poland amounted to PLN 70090 million. It is notable that over 50% of all expenditures were made in the period between 2010 and 2011. Average annual spending for the CAP per voivodeship in the analyzed period increased from PLN 232.7 million to PLN 1214.5 million, which is a fivefold increase (Figure 2). It is also visible in the studied period that agriculture support varies greatly from one voivodeship to another, which is shown in large differences between minimal and maximal values in Figure 2.

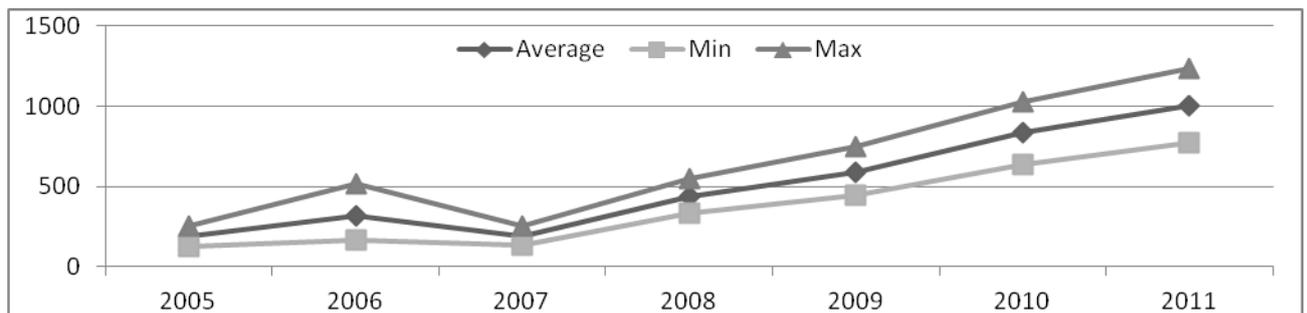


Source: author's calculations based on the reports of the ARMA, 2005-2012

Fig. 3. **Total expenditures financed as part of the CAP across the voivodeships**

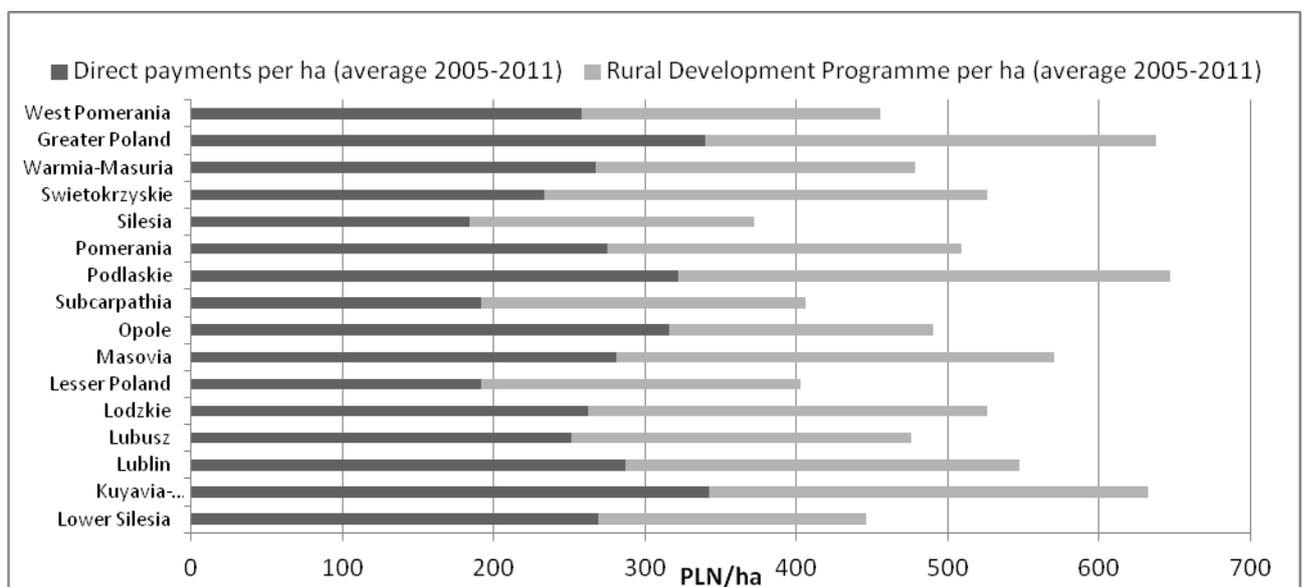
The distribution of total expenditures (sum from 2005 to 2011) as part of the CAP across voivodeships is shown in Figure 3. The amounts of general EU agricultural support vary greatly – from PLN 9790 million in Mazovia voivodeship to PLN 1681 million in Silesia voivodeship and PLN1902 million in Lubuskie voivodeship. The CAP expenditures in Mazovia voivodeship were almost six times higher than in Silesia voivodeship and over five times higher than in Lubuskie

voivodeship. It can be observed that out of PLN 70 billion which has been spent as part of the CAP in Poland since 2004, over 30% was used in three voivodeships: Mazovia, Silesia and Lubelskie. Accounting for the difference between individual voivodeships with respect to agricultural area, number of workers, structure of the economy, urbanization level and many other aspects that are of vital importance for division of public funds for agriculture it seems more justified to analyze the distribution of expenditures financed with the EU funds when we consider not the global expenditure sums per voivodeship, but the amounts per 1 hectare of agricultural area or per agricultural worker. Having carefully considered the above, the CAP expenditures per 1 hectare of agricultural area were analyzed.



Source: author's calculations based on the reports of the ARMA, 2005-2012

Fig. 4. CAP expenditures per 1 hectare of agricultural (minimal, average and maximal value per voivodeship between 2005 and 2011)



Source: author's calculations based on the reports of the ARMA, 2005-2012

Fig. 5. CAP expenditures per 1 hectare of agricultural area across the voivodeships

Despite the decreasing role of land as a production factor, it is still the essence of agriculture and it is the decisive element in terms of production potential and economic strength of farming (Wysokinski, Dziwulski, 2013). In the period between 2004 and 2011 the

level of annual EU expenditures in agriculture made in voivodeships per 1 hectare of agricultural area, increased fivefold. On average in the studied period the CAP expenditures amounted to PLN 507 per hectare, whereas Podlasie, Wielkopolska and Kujawy-Pomerania voivodeships dominate with relation to the average value, while Silesia, Małopolska and Podkarpacie voivodeships close the list with the lowest values. In direct payments, values of average amount for a voivodeship per 1 hectare change from 69 to 128 percent of national average; in case of RDP the distribution of voivodeship averages is somewhat higher – from 72 for Opole voivodeship to 135% for Podlasie voivodeship (Figure 5).

In the subsequent stage of study a question was posed: did the voivodeships which in the period between 2005 and 2011 benefited the most from the EU agricultural support also improve their agricultural efficiency the most? In order to answer that question, single and multi-dimensional agricultural efficiency indexes were calculated. Further analysis was based on the following indexes:

- productivity of work in agriculture calculated as the value of sold agricultural goods per 1 agricultural worker (in PLN per person) and the dynamics of this index between 2005 and 2011 (in percent);
- productivity of the land calculated as value of final product per 1 hectare of agricultural area (in PLN per hectare) and the dynamics of this index between 2005 and 2011 (in percent);
- Data Envelopment Analysis index illustrating efficiency of individual voivodeship's agriculture in comparison with efficiency of other voivodeships' agricultures;
- Malmquist Productivity Index, comprehensively illustrating the change of agricultural productivity in the period between 2005 and 2011 in individual voivodeships.

Table 1

Productivity and efficiency indexes across voivodeships

Group	Voivodeship	Productivity of work [PLN/person] 2005	Productivity of work [PLN/person] 2011	Land productivity [PLN/ha] 2005	Land productivity [PLN/ha] 2011	Dynamics of work productivity 2005=100 [%]	Dynamics of land productivity 2005=100 [%]	Efficiency according to DEA (average 2005-2011)	Malmquist Index (2005-2011)
Group 1	Lower Silesia	2152	3691	2627	3295	171	125	1.00	2.33
	Lesser Poland	4406	3850	3243	4137	87	128	0.75	1.78
	Subcarpathia	3973	3326	2102	2274	84	108	0.66	1.27
	Silesia	10761	13239	3209	4403	123	137	0.80	1.96
	Average	10178	14334	2795	3527	116	125	0.80	1.84
Group 2	Lublin	8419	13835	2564	4036	164	157	0.80	2.23
	Lubusz	30569	37267	2270	3113	122	137	0.98	1.17
	Lodzkie	13410	21503	3716	5287	160	142	0.86	1.69
	Opole	21944	43587	2989	4444	199	149	0.98	1.76
	Pomerania	18439	48327	2316	3959	262	171	0.79	2.47
	Swietokrzyskie	4767	7971	3155	4636	167	147	0.64	2.13
	Warmia-Masuria	31476	59460	2473	3231	189	131	1.00	1.95
	West Pomerania	35920	61695	1920	2735	172	142	1.00	1.88
	Average	20618	36706	2675	3930	179	147	0.88	1.91
Group 3	Kuyavia-Pomerania	24197	44670	3509	4138	185	118	0.95	1.85
	Masovia	13805	29921	3490	5367	217	154	0.96	1.73
	Podlaskie	18183	30685	2603	3732	169	143	0.99	1.59
	Greater Poland	28389	46399	5153	5429	163	105	1.00	1.30
	Average	21144	37919	3689	4667	184	130	0.98	1.62

Source: author's calculations based on Statistical Yearbooks of Agriculture, 2005-2012

In order to analyze the differentiation of efficiency of agriculture depending on the amount of the EU support used, the voivodeships were divided into three groups with the use of quartiles. The following divisions were formed: Group 1 (25% of the data set) characterized by the lowest level of utilized EU support per 1 hectare of agricultural area, Group 2 (50% of the data set) characterized by the average level of utilized EU support per 1 hectare of agricultural area, and Group 3 (25% of the data set) characterized by the highest level of utilized EU support per 1 hectare of agricultural area (Table 1).

Conducted analysis showed that agriculture characterized by the highest level of EU support per 1 hectare of agricultural area indeed noted the highest work productivity and land productivity as well as a faster change of land productivity.

In order to determine efficiency and changes in total productivity of agricultural production in individual voivodeships, the input-oriented DEA model and Malmquist

Productivity Index were used. The models have been oriented to input minimisation, since in the light of current EU legislation on environmental policies and the disseminated principles of sustainable development, it is assumed that currently the only option for the development of European and Polish agriculture is to increase agricultural production through innovation and investment deintensification. The calculated models use the following variables: output y_1 – value of sold agricultural goods (million PLN), input: x_1 – agricultural land area (ha), x_2 – number of people employed in agriculture (people), x_3 – NPK and CaO fertilization (t), x_4 – number of tractors (pcs), x_5 – livestock (thousands).

Considering the agricultural efficiency indexes average for the group, determined with the use of DEA method, it is visible that efficiency was enhancing along with the increase of EU agricultural support. In turn, when analyzing the improvement of agricultural efficiency in the period between 2005 and 2011, it is visible that the groups which received the smallest and medium support from the EU funds in the studied period have achieved the biggest improvement in agricultural efficiency.

Subsequently, in order to verify the statistical relevance of differences, variance analysis was carried out on the variables illustrating efficiency, productivity and agricultural efficiency as dependent variables with level of EU expenditures per 1 hectare of agricultural area as the grouping variable. In the first stage of the analysis, the premises regarding normal distribution were verified, while the second stage involved the verification the premise of homogeneousness of dependent variable variance in groups. Due to formal imperfections of the variance analysis (not fulfilling the conditions regarding homogeneousness of the variance), an alternative, non-parametric method was agreed upon - the Kruskal-Wallis test. It was used to verify the zeroth hypothesis stating that all groups were extracted from a population with the same distribution or distributions with the same median.

The Kruskal-Wallis test result is the following: for all studied indexes, that is, land productivity, work productivity, efficiency measured with the use of DEA method and change of agricultural productivity measured according to MPI, there are no grounds for dismissal of the zeroth hypothesis on relevance level of 0.05, which means that the level of EU support per 1 hectare of agricultural area does not substantially differentiate individual voivodeships' agricultures based on efficiency (Table 2). The conducted analysis did not confirm the assumed hypothesis that the voivodeships in which agriculture received the most support from the EU funds per 1 hectare of agricultural area achieved a better growth rate than the agriculture of remaining voivodeships.

The Kruskal-Wallis test result

Variables	H	p-value
Productivity of work	4.25	0.12
Land productivity	4.34	0.11
Dynamics of work productivity	4.34	0.11
Dynamics of land productivity 2005=100	4.96	0.08
Efficiency according to DEA	2.02	0.36
The change of agricultural productivity based on Malmquist Productivity Index	2.13	0.34

Source: author's calculations

The analysis may lead to the conclusion that the EU funds were not the substantially decisive factor of agricultural efficiency improvement in the individual voivodeships and that the voivodeships developed "at their own pace", regardless of the size of the EU help.

Conclusions, proposals, recommendations

The analyses conducted in this article can be used to draw the following conclusions:

1. In the period between 2004 and 2012, Polish agriculture received from the EU budget PLN 70090 million, of which over 1/3 was used in three voivodeships: Mazovia, Lubelskie and Wielkopolska. Considering the above, it should be stated that in the period between 2004 and 2011 the goal of increasing social and territorial cohesion was not reached because more support was directed to the voivodeships which at the point of Poland's accession to the EU already were in possession of better infrastructure and greater potential for agricultural development.

2. The conducted analyses point to lack of relation between the size of financial aid from the EU budget used by the agricultural sector, and the pace of land productivity, work productivity or agricultural efficiency measured with the DEA method and the Malmquist index. Therefore, it can be assumed that in the period between 2004 and 2011 the EU funds were not the substantially decisive factor of agricultural efficiency improvement. The present study is supported by analyses of other authors (Misiąg et al., 2013; Kuszewski, Sielska, 2012). This phenomenon requires further and more detailed analysis aimed at explaining its causes.

3. One of the manners of explaining the above situation can be the fact, that the use of EU funds in agriculture is only one of the factors influencing the pace at which agricultural efficiency improves. Other external factors also influence agricultural efficiency. Assumption can be made that in the studied period, agricultural efficiency was negatively influenced by ongoing global economic crisis. Explanation can also be sought in the EU funds distribution mechanisms among individual voivodeships as well as in procedures of establishing the directions for using those funds.

4. It seems fit to recommend a proposition of changes regarding the rules of funds distribution, leading to, for example, a decrease in differentiation of fund flow values as per 1 hectare of agricultural area across the voivodeships.

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ENGAGEMENT OF AGRICULTURAL NONGOVERNMENTAL ORGANISATIONS IN MAKING THE COMMON AGRICULTURAL POLICY

Kristaps Zdanovskis¹, Mg.oec.; **Irina Pilvere**², Dr.oec., professor;

^{1, 2} Faculty of Economic and Social Development, Latvia University of Agriculture

Abstract. The Common Agricultural Policy (CAP) is one of the oldest, competent and complicated policies in the European Union (EU). As the number of the Member States increased, making identical government policies became more complicated. With the number of the Member States and the number of individuals engaged in governmental decision-making increasing, an increasing role is played by various nongovernmental organisations that advocate the interests of farmers and the rest of society. The purpose of nongovernmental organisations is to advocate the interests of farmers at national and international institutions as well as not to allow organisations unrelated to agriculture make decisions instead of them. The EU nongovernmental organisations, of course, most actively advocate producer interests in the agricultural industry, which also includes fisheries and forestry. This is also evidenced by the large number of agricultural organisations involved in cooperation with national institutions in the EU compared with other industries. The research aim is to analyse the historical development of the CAP and the engagement of agricultural nongovernmental organisations (NGOs) in making the CAP. Methods used in the research: the monographic and descriptive methods, analysis and synthesis, the logical and constructive methods. The paper concludes that is important to encourage farmers of all types to engage in NGOs, which would actualise the problems of not only large industrial farmers and result in making a common not a similar agricultural policy.

Key words: Common Agricultural Policy, nongovernmental organisations, COPA-COGECA, farmers' organisations.

JEL code: N50, O10, O13

Introduction

At the early stages of economic development in countries, agriculture played the leading role in national economies. Agricultural products had the dominant position in exchange of goods and in the subsequent exchange of goods and money (Upite I., Pilvere I., 2013). The agricultural industry becomes especially important after wars or economic crises. It is understandable that agriculture provides people with food; agricultural goods may be sold,

thus, earning revenue for investment in economic development. Yet, agriculture is also very complicated, which according to Balaceanu C. (2013) is affected by the special economic and social problems which normally do not affect the other sectors. The most significant factor affecting agricultural production is climatic conditions, the unpredictability of which makes impossible to forecast the quantity, quality and production cost of agricultural products to be produced; this finally affects farmers' revenues. Upite I. and Pilvere I. (2013) in their research indicate that other affecting factors are as follows: price fluctuations, market inelasticity, high capital intensity, slow turnover of capital, irreplaceability and immobility of land as the main resource in agricultural production, low labour mobility etc. Agricultural professionals are aware of the fact that this industry is not able to exist and develop without government support owing to its specifics. The purpose of this support is to equalise farms' revenues under the changeable market and climatic conditions. Balaceanu C. (2013) states that in agriculture, absence of an official support, the prices of the agricultural products tend to decrease, while the prices of the raw materials and other industrial products, tend to increase. It is important that farmers' incomes and living standard are not lower than of those being employed in cities, as only then the industry's development can be sustainable. In this context, Matthevs A. (2012) points out that agriculture is an integral part of the European economy and society. In terms of indirect effects, any significant cut back in European farming activity would in turn generate losses in GDP and jobs in linked economic sectors – notably within the agri-food supply chain, which relies on the EU primary agricultural sector for high quality, competitive and reliable raw material inputs as well as in non-food sectors. Rural activities, from tourism, transport, to local and public services will also be affected. Depopulation in rural areas would probably accelerate. There would, thus, be important environmental and social consequences.

The research aim is to analyse the historical development of the CAP and the engagement of agricultural NGOs in making the CAP.

The following research tasks were set to achieve the aim:

- 1) to analyse the historical development of the EU CAP and the engagement of the Member States;
- 2) to assess the performance of the largest nongovernmental organisations in advocating the interests of EU farmers;
- 3) to examine the performance of Latvia's agricultural NGOs in the EU farming organisations and in other institutions;

In order to carry out the present research, the authors have used research papers related to the topic, and the information published by the European Commission (EC), the National Rural network and the information available on the websites of agricultural NGOs.

Research methods: the monographic and descriptive methods, analysis and synthesis, the logical and constructive methods.

Research results and discussion

Historical development of the Common Agricultural Policy

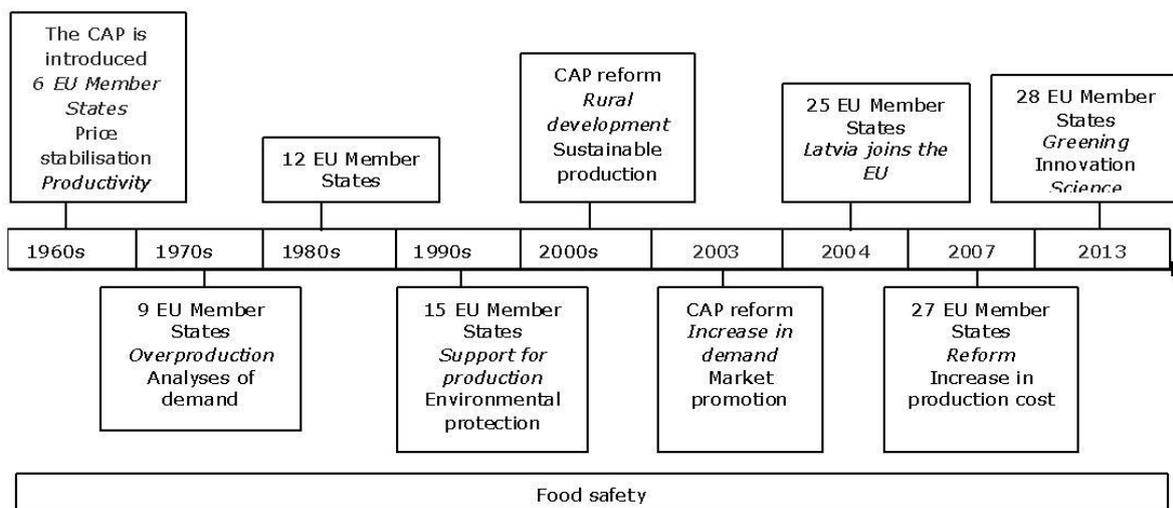
In 1957 in Rome, six European countries – Belgium, France, Germany, Italy, Luxembourg and the Netherlands – decided to establish a union of countries – the European Economic Community. According to Balaceanu C. (2013) in order to establish a common market, they were using various customs taxes, variable taxes, subventions for production and market intervening methods, so that they could protect their markets from “the negative effects of importations” and sustain the prices of their farmers.

After establishing the union of countries, common policies had to be made as well. Undergone changes, a few of the common policies are still functioning. One of them is the CAP, which has been in force since 1962. Initially, the CAP was mainly used for price support, while today the CAP is a complex system for price support, import tariffs, export subsidies, quotas and reserves and direct payments (Oxford Economic Forecasting, 2005). During the course of time, this policy has changed and undergone many reforms to adjust to the changes in climatic conditions, markets and other processes in the world, which affected agricultural production and consumer purchasing power.

Initially, the CAP had to ensure stable prices on agricultural products, increases in the output of food and availability of food. The output of agricultural products increased, and problems with surpluses of food emerged in the 1970s. Changes were made to adjust production to market needs. A substantial CAP reform was implemented in the beginning of the 1990s when the CAP was oriented towards support for production, reducing assistance for price stabilisation. The next considerable changes or reforms in the CAP took place in the 2000s, when according to Lucian P. (2014) the reform policy was reorganized into two complementary pillars, funded through entirely different funds. Thus, the rural development policy becomes separate and specific, rather than common. Within the new system of pillars, the CAP does not focus only on support for agricultural production; it retains the existing market and direct support system (Pillar 1) complemented with a rural development system (Pillar 2) whose purpose is to ensure long-term investment in rural development through other support instruments that do not directly focus on production (European Commission, s.a.). In 2003, the reform’s purpose was to motivate farmers to produce products based on market demand, reducing direct support for production, yet, retaining compensations if market prices were volatile in export markets. Stricter standards on environmental protection, animal welfare and food quality were set for farmers. The goal of these standards was to foster organic farming. Lucian P. (2014) indicates that the purpose of reform since 2013 is to bring new several new challenges: maintaining competitiveness of European agriculture within global markets and the promotion of organic farming and creating new jobs (Figure 1).

Making policies is affected by the large number of the Member States, the strong positions of the old Member States and the inability/reluctance of young entrepreneurs to engage in

agriculture in order to provide a similar standard of living for their families as in cities. In the result, to ensure prices on agricultural products are adequate to consumers' purchasing power, it is required to contribute to science and innovation in agriculture, use new technologies and regulate agricultural activity through reducing food waste (Milestones of the CAP, 2013).



Source: authors' construction based on Milestones of the CAP, 2013

Figure 1. **Historical development of the Common Agricultural Policy in the period 1960-2013**

With the accession of every new Member State to the EU, the CAP and other policies become more complicated. The EU Member States feature diverse climatic and geographic conditions; accordingly, support payments under Pillar 1 and rural policies under each Member State's Rural Development Plan (Programme) are different. The CAP is no longer the same, only similar, across all the Member States. However, the CAP's historical principles concerning food quality and providing people with food are still effective.

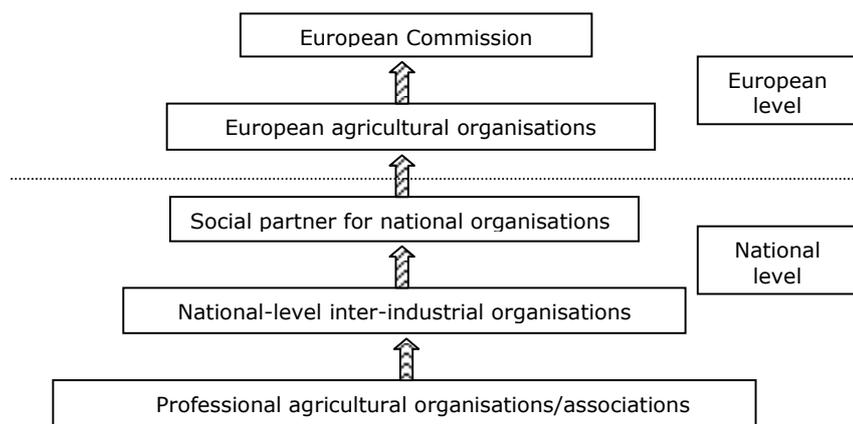
In the authors' opinion, educated individuals are the most necessary resource for rural areas and agricultural production. Problems with the rapid migration of people to cities emerged in the world already in the 1950s. Cities grow faster than rural areas develop, and rural territories close to large cities are especially endangered, as they decline at the expense of the expansion of urban territories. In this context, Keller W.J. (2000) stresses that the key factor of urbanisation is the low standard of living in rural areas and the limited availability of services; individuals prefer territories with developed infrastructures, public safety, communal, medical and education services available etc. Even though in the 1970-80s agricultural professionals understood that urbanisation had increased too fast and it was necessary to stimulate the return of people to rural areas, in the authors' opinion, until today nothing had changed regarding reducing migration. The year 2014 was declared the International Year of Family Farming; during this year, various activities aimed at popularising agriculture and educating the population about the role of agriculture in food security and the need for a new generation working innovatively and efficiently in rural areas were carried out.

Rivza B. with co-authors (2013) highlights that a great example of economic growth and use of the EU funds is Ireland in which, after signing the union's agreement in 1992, the priorities of the state were defined: education, idea sharing, training, youth issues, health care, culture and human rights.

The part of society that represents farmers has to actively engage in shaping agricultural policies. Pertev R. (1994) reveals that if there is one principal lesson farmers can draw from history, it is the following: that, when farmers are not strong, many sections and sectors of the society are ready not only to tell the farmers what they should do but even worse, to speak on their behalf. He also points out that in the world, there are millions of farmers. To engage in any sensible dialogue with the rest of society, farmers need their representative organizations, the farmers' organizations, structured from grassroots to the international level, as their legitimate voice.

The leading agricultural nongovernmental organisations in the European Union

Historically, the public has made its contribution to shaping any government policy through NGOs. An analysis of industries shows that the greatest number of NGOs is reported in advocating the interests of farmers and environmentalists. Sources of information define these agricultural organisations as farmer organisations and nongovernmental farmer organisations. In agriculture, NGOs are classified into various levels, and their cooperation with the EC is important at the EU level (Figure 2).



Source: authors' construction

Figure 2. **Desired hierarchy of farmer organisations in the EU**

The smallest organisations are farmer associations or professional organisations that contribute to the professional growth of a particular industry. The next level is national-level inter-industrial organisations (horizontal organisations) whose members are farmer associations and individuals. At national level, the key organisation is the social partner for national institutions; its activity is regulated by a law and the heads of inter-industrial organisations participate in making its decisions on rural development. This social partner is responsible for information exchange with the national government and European-level farmer organisations, the EC and other institutions. Given the specifics of agriculture, the models of farmer organisations are similar across the Member States.

The key European-level farmer organisation in communication with the EC – the agricultural policy maker – is the Committee of Professional Agricultural Organisations and Agricultural Cooperatives (COPA-COGECA). When establishing the European Community in 1957, the Treaty of Rome envisaged that the formation and further development of the CAP would take place in close cooperation with farmers, and in 1958 farmers were invited to participate in the Stresa Conference as observers. Stresa is a city in Italy where many historic meetings on designing or approving policies have taken place. The farmers were convinced they had to participate in shaping the policy, and the Committee of Professional Agricultural Organisations (COPA) was founded on 6 March 1958; the General Confederation of Agricultural Cooperatives (COGECA) was established a year later. However, the unification of both organisations took place in 1962 (COPA History, s.a.). Initially, COPA included 13 member organisations from the then six Member States. Its membership rose, as new countries joined the EU, and in 2015 COPA was represented by 60 agricultural NGOs from the EU Member States and 36 partner organisations from such European countries as Island, Norway and Switzerland. COPA has 50 various working groups – horizontal and those on crops and livestock – for tackling agricultural problems. In decision-making and in everyday work, COPA and COGECA closely cooperate, while in cooperation with agricultural organisations they used to work individually, based on the specifics of problems tackled. However, COGECA represents 38 agricultural nongovernmental cooperative organisations from the EU Member States (COGECA History, s.a.). Farmers from each EU Member State are represented in COPA-COGECA, including those engaged in forestry and fisheries.

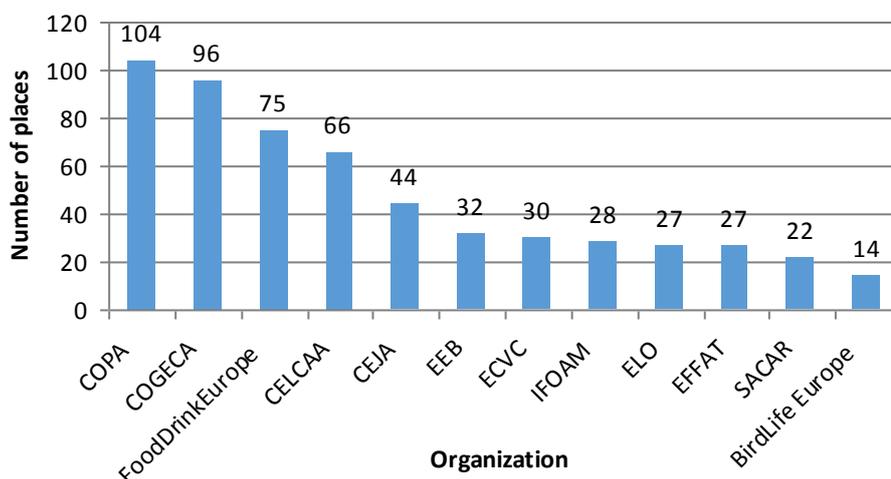
The organisations having the right to participate in the EC civil dialogue groups (CDG) may be regarded as the most important advocates of interests of agricultural NGOs. An organisation's influence in any particular CDG is determined by how many participants from the organisation are allowed by the EC to participate. In the EC civil dialogue groups, COPA-COGECA has the largest number of representatives, including farmers of the Member States and employees of the Secretariat. Before changes in the EC CDGs were adopted in July 2014, any representative of each Member State had a possibility to participate in person; yet, due to spending cuts, the number of representatives in the civil dialogue groups was reduced and, as a result, the civil dialogue groups were attended by the representatives of those Member States whose agricultural problems were the most essential in their country. Expenses on trips to meetings of these CDGs were covered by the EC, and a significant amount of funding was saved by reducing the number of participants.

The decisions made by the EC affect a broad spectrum of the public; accordingly, environmental and food producer organisations are also invited to the civil dialogue groups. After a unification of the civil dialogue groups, thirteen ones have remained, and the authors will examine those organisations that have places for representatives in all the civil dialogue groups; the organisations with a few places for their experts have specialised in a certain agricultural sector and attend only one or two civil dialogue groups.

The total number of places for experts in the EC CDGs is equal to 773 but Figure 3 shows only 12 largest organisations that occupy only 565 places or 73% of their total number, although, there are 68 organisations having the right to participate in the civil dialogue groups, which, of course, confirm the decisive role of the largest organisations in making political decisions (Civil Dialogue Groups, s.a.).

The organisations may be classified into four categories:

- nongovernmental farmer organisations:
 - COPA – the Committee of Professional Agricultural Organisations;
 - COGECA – the General Confederation of Agricultural Cooperatives;
 - CEJA – the European Council of Young Farmers;
 - ECVC – the European Coordination Via Campesinal;
 - ELO – the European Landowners’ Organisation;
 - IFOAM – the International Federation of Organic Agriculture Movements.
- organisations of environmentalists:
 - BirdLife Europe;
 - EEB – the European Environmental Bureau.
- organisations of food marketers and producers:
 - CELCAA – the European Liaison Committee for Agricultural and Agri-Food Trade;
 - SACAR – the Joint Secretariat of Agricultural Trade Associations;
 - Food Drinks Europe.
- organisations for employment and social issues – EFFAT – the European Federation of Food, Agriculture and Tourism Trade Unions.



Source: authors’ construction based on Civil Dialogue Groups, s.a.

Figure 3. Number of places for the experts of the largest EU farmer organisations in the EC CDGs from July 2014

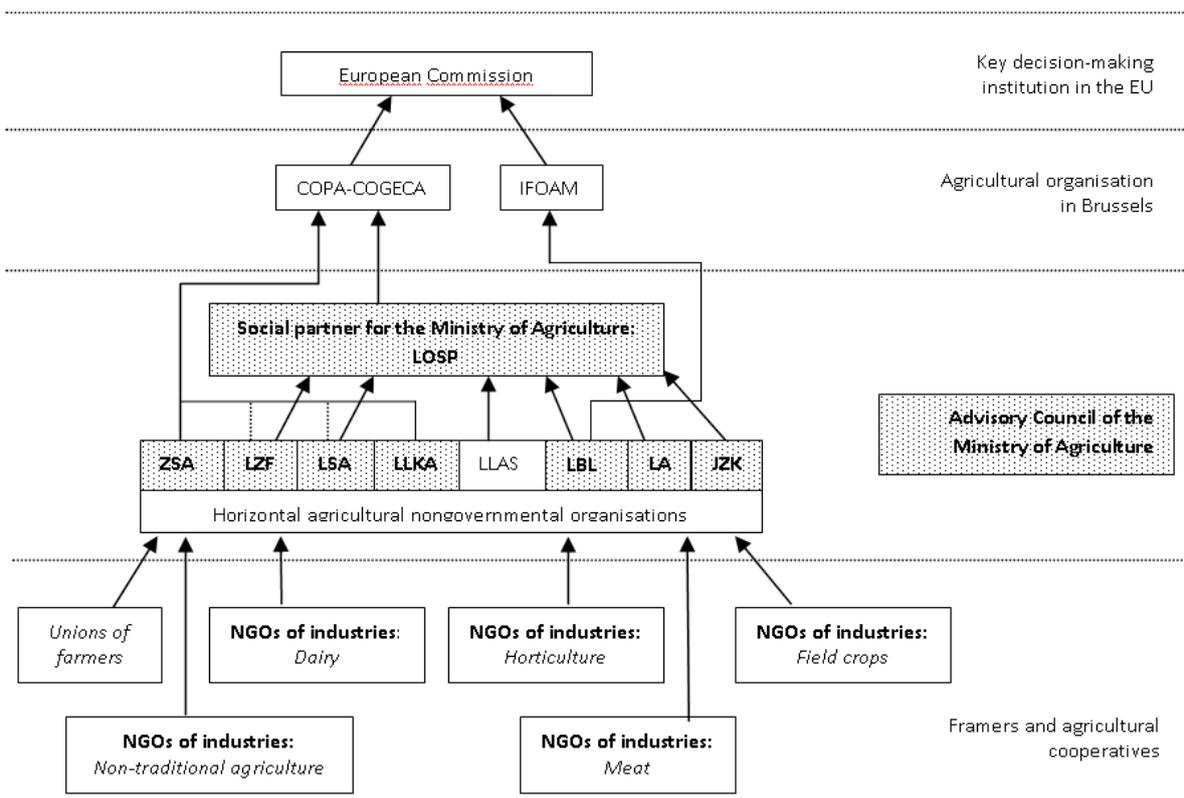
The largest number of places, 329, belongs to farmer organisations, and food seller and producer organisations have 163 places. The third group is environmental organisations with 46 places, which, perhaps, is not many, given the number of large farmer organisations; yet, the opinions of these organisations have the decisive role, as the CAP objectives involve

environmental protection. The environmental organisations actively struggle for environmentally-friendly management practices, demanding to ban many chemicals used in conventional farming. EFFAT, however, has 27 places, and this organisation advocates employee safety at workplace and fair international employment (Civil Dialogue Groups, s.a.).

Nongovernmental farmer organisations in Latvia

Just like in the other EU Member States, in Latvia farmers have to defend their interests in order that no restrictive and unfavourable conditions are adopted by the EC. Cooperation between farmers and legislative institutions has to take place through agricultural NGOs.

In Latvia, the smallest agricultural NGOs are producer associations or professional organisations that may be classified by the kind of products they produce, such as meat, milk, vegetables etc. (Figure 4). However, the horizontal level organisations unite small organisations and provide support for cooperation with the Ministry of Agriculture (MoA) and European-level farmer organisations. The producer associations or professional organisations play a significant role in shaping agricultural policies, providing information and statistical data to the MoA on the real situation in agriculture. In terms of influence on decision-making and cooperation with the MoA, the horizontal level organisations are the most influential. The agricultural NGOs are partially funded from the national government's budget in order that they regularly provide reports to the MoA regarding the situation in Latvia's rural areas. Those agricultural NGOs that participate in the Advisory Council of the MoA are also funded from the national government's budget; they are: the Farmers Parliament (ZSA), the Latvian Farmers Federation (LZF), the Latvian Agricultural Cooperatives Association (LLKA), the Latvian Agricultural Organisation Cooperation Council (LOSP), the Latvian Young Farmers Club (JZK), the Farmers Association (LA) and the Latvian Organic Farmers Association (LBLA) (Regulations regarding National..., 2013).



Source: authors' construction

Figure 4. **Hierarchy of farmer organisations in Latvia in 2014**

After joining the EU, Latvia has to coordinate any amendments in its legislation with the European Commission. A position on agriculture is shaped from two sides, the first one is the MoA and the second one is agricultural NGOs. The MoA as a government institution immediately defends its position at the European Commission, whereas agricultural NGOs have no such an opportunity; thus, they need to use some of the above-mentioned agricultural NGOs, recognised by the EC, in Brussels. Latvia's agricultural NGOs defend their interest through COPA-COGECA. There are some agricultural NGOs in Latvia, such as LBLA and the Forest Owners Association that believe COPA-COGECA is too weak to defend their interests and, hence, use other agricultural organisations in Brussels, such as IFOAM (International Foundation for Organic Agriculture) and CEPF (European forest owners organization). It is understandable that COPA-COGECA cannot equally defend all agricultural sectors just as specialised producer organisations do it. According to LBLA and the Forest Owners Association, COPA-COGECA mainly focuses on large agricultural industries and fields such as grain, oil crops, meat livestock, dairy, rural development, the CAP, international trade etc.

LZF is the only NGO from Latvia that has joined some European-level organisation focusing on employment and social issues. This organisation is the Employers' Group of Professional Agricultural Organisations (GEOPA-COPA). GEOPA-COPA actively cooperates with EFFAT, and this cooperation gives an opportunity for GEOPA-COPA members to participate in the EC civil dialogue groups. In recent years, there have been discussions on potential gains if both organisations unite, as presently meetings of their members are jointly held and their decisions are made jointly.

The experience of Latvia's farmers and their NGOs in being members of European-level organisations is still small compared with the NGOs of the EU Member States that have functioned since the foundation of COPA-COGECA. Latvia's farmer organisations joined COPA-COGECA in 2006. Initially, a lot of efforts were made to introduce and explain why such a small country should be taken into consideration. Latvia's farmers gained the greatest recognition in 2011 when intensive work started on equal direct payments. It became clear very soon that in order to attract attention, the farmer organisations of the Baltic States and Finland had to act together, thus, stressing problems of a considerably larger region, which increased the probability to achieve the necessary outcome. In 2015, Latvia's recognition increased, and its NGO representatives held three important positions in the organisations (head of the COPA-COGECA Working Group for Rural Development, a member of the COPA Executive Board and head of the EC CDG for Direct Payments and Greening). As the presiding Member State of the Council of the European Union in the first half of 2015, Latvia has opportunities to positively prove itself and to stress essential agricultural and rural development problems in order that the EC solves them as soon as possible.

Conclusions and recommendations

1. Since the origin of the CAP, many changes have taken place adapting to the production and market conditions, while the largest reforms were implemented in the year 2000, introducing a two pillar support system; the purpose of Pillar 2 is to ensure sustainable and targeted economic, social and cultural development in rural areas.
2. The key European-level farming organisation for cooperation with the European Commission is COPA-COGECA, which represents farmers from all the EU Member States.
3. One agricultural nongovernmental organisation, which is the social partner for national institutions, is needed, whereas in Latvia this function is performed both by NGOs and LOSP.
4. Latvia's agricultural NGOs actively participate in European-level farming organisations; it is confirmed by some leading job positions in the COPA-COGECA Working Group for Rural Development, in the COPA Executive Board and in the EC CDG for Direct Payments and Greening.
5. The NGOs and educational institutions have to continue perfecting cooperation in order to engage youths in agriculture and in making agricultural policies both at the national and European levels.

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