EUROPEAN RURAL DEVELOPMENT NETWORK

FEDERAL INSTITUTE OF AGRICULTURAL ECONOMICS

INSTITUTE OF AGRICULTURAL AND FOOD ECONOMICS
NATIONAL RESEARCH INSTITUTE

Rural areas and development – vol. 6

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Multifunctional Territories: Importance of Rural Areas beyond Food Production

WARSAW 2009

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PUBLISHED by the Institute of Agricultural Economics and Food Economics, National Research Institute and the Federal Institute of Agricultural Economics

The book is the result of the conference “Multifunctional Territories: Importance of Rural Areas beyond Food Production”, 20-21 November 2008 in Vienna, organised by the Federal Institute of Agricultural Economics (AWI) and in cooperation with ERDN. The conference was kindly supported by the Federal Ministry of Agriculture, Forestry, Environment and Water Management.

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ISBN 978-83-7658-096-8
ISBN 3-901338-29-2

Contents

Posters

Introduction to the volume

The sixth volume within the series published by European Rural Development Network (ERDN) comprises the papers of the sixth ERDN conference held in Vienna in November 2008. The Austrian Federal Institute of Agricultural Economics – member of ERDN since its beginning – organized the conference. Researchers in the field of rural development presented recent studies and experiences, representing Austria, Bulgaria, Czech Republic, Estonia, Finland, Germany, Greece, Hungary, Latvia, Poland, Romania, Serbia, Slovakia, Slovenia, Spain and Ukraine.

The main topic of the conference was "Multifunctional Territories – Importance of Rural Areas Beyond Food Production". It aimed at stimulating theoretical and empirical contributions to the various functions of agriculture and rural areas to picture the importance of multifunctionality. The broad range of different research fields and a great number of different regions and nations of participants provided an inspiring atmosphere offering new insights, ideas and collaborations. International cooperation is of utmost importance, because new ideas and common strategies needed for a more effective rural development can only be generated by mutual support and the exchange of knowledge and experiences across national borders.

Over the past decade of the second pillar of the EU's Common Agricultural Policy a large number of specially tailored bundles of measures have been offered to address a wide variety of sector- and region-specific problems in rural areas. These measures include support for farmers to improve their commercial and competitive situation, environmental measures to protect the quality of soil as well as ground and surface water resources, specialized nature protection measures and efforts to improve economic diversity in rural areas – beyond the focus on agricultural production.

The Conference was organised into four subtopics:
- Assessment of multifunctionality
- New alternatives of income in agriculture, forestry and rural areas
- Sustainability in rural areas
- Effects of rural development policy

Due to the high number of interested researchers, limited time and financial resources it was not possible to consider all received abstracts as paper pre-

sentations. Therefore a poster section gave extended possibilities for contributions. We would like to take this opportunity to thank the authors for their efforts in preparing the articles presented during the conference, the referees for their contribution in evaluation and preparation of the volume and the audience for its valuable comments and discussion during the conference. Special thanks have to be given to the Polish ERDN team for guidance and advice in organising the conference, publishing the volume and keeping ERDN lively and relevant as a researcher's network.

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A model for evaluating the multifunctionality of agriculture in Slovenia

Abstract: *The primary aim of the present paper is to introduce a model which permits relevant, actual and continuous monitoring of the multifunctionality of agriculture in Slovenia and, using the model, to evaluate to what extent key elements of multifunctional agriculture were in fact influenced by recent agricultural policy goals and measures. Said evaluation was performed on various "multifunctionality elements" using available statistical data for the period examined. Based on selected socio-economic and spatial indicators, together with indicators of biological diversity, the model provides an efficient tool for assessing the effectiveness of agricultural policy and its impact on the different functions of agriculture. To evaluate the various multifunctionality elements of agriculture and to assess the effect of agricultural policy measures, the model comprises a qualitative assessment, quantitative assessment and the application of indicators of multifunctionality. Based on the collected set of production, environmental and social indicators used, the study points to an increased multifunctional role of agriculture and agricultural policy in Slovenia. The results furthermore show that the goals of agricultural policy in the period 1994-2004 were achieved to a great extent and that the multifunctional attitude of agriculture in Slovenia is increasing.*

Keywords: *multifunctionality of agriculture, evaluation model, agricultural policy*

Introduction

The "multifunctionality of agriculture" is a political-economic concept first mentioned in 1992 at the UN Earth Summit in Rio de Janeiro. In the professional and scientific literature, the term multifunctionality is often defined differently. Among the best-known and most frequently quoted definitions is the one developed by the Organization for Economic Co-operation and Development (OECD 2001), which

describes the multifunctionality of agriculture as a range of jointly produced commodity (food and fibres) and non-commodity outputs, including (both positive and negative) environmental and social products and services. Non-commodities share the characteristics of externalities, or public goods, which are not directly measurable. Because Slovenia is a member of the European Union, the most relevant definition for our purposes is provided by the socalled "European model of agriculture." Within the EU, agriculture is accepted as having a much broader role than simply the production of food. Thus, apart from its production function, agriculture serves such other vital functions as helping to preserve, manage and enhance rural landscapes, protecting the environment, including against natural hazards, and contributing to the overall viability of rural areas. European agriculture must also be able to respond to consumer concerns, for example those regarding food quality and safety (EC 1999). The EU's multisectoral development concept and diversification of economic activities lead to the creation of new jobs and sources of income whilst also respecting the multifunctional role of agriculture in rural areas. This should ensure both agricultural production and non-commodity outputs for society, whereas the key functions of agriculture in rural areas can be divided into the following categories:

- **The production function:** The primary function of producing food and raw materials for processing in order to secure the food supply and to provide safe, quality food at reasonable prices.
- **The environmental function:** Together, agriculture and forestry manage the largest share of the countryside and thus contribute to the sustainable use of natural resources, the conservation of biological diversity and cultural landscapes, and to the appearance of the natural and cultural heritage which have formed in the countryside over the centuries.
- **The social function:** Preserving the rural population and assuring balanced spatial development across all areas are two of Slovenia's top development priorities. Agricultural activities remain generators of development in remote and outlying areas where a lack of other employment opportunities exist. The continuation of agricultural production and the development of new on-farm and off-farm activities thus contribute to the maintenance of the rural population and labour force.

Slovenia has stressed the importance of multifunctional agriculture in national strategy papers. Indeed, the longterm objectives of agricultural policy as identified in the Slovenian Agricultural Development Strategy of 1993 emphasise the social role of agriculture. In the late 1990s, agricultural policy reforms furthermore enabled the establishment of mechanisms which, for the most part, still today pursue the objective of promoting the non-production functions of agriculture. By joining the European Union and integrating its Common Agricultural Policy (CAP), Slovenia now fully adheres to the European model of multifunctional agriculture.

In the past, monitoring and evaluating development programs and projects was not a regular practice in Slovenia. Whilst the evaluation of EU policies alrea-

dy became an important component of development planning with the reform of structural funds in 1988, Slovenia did not introduce a system of current and multiple evaluation until the country's inclusion in EU development programmes.

Recently, several research projects dealing with the evaluation of agriculture's multifunctional role (MULTAGRI, SEAMLESS, MEA-Scope) have been conducted, resulting in the development of tools and indicator sets for monitoring the production, environmental and social functions of agriculture.

Within the framework of the MULTAGRI project (Zander et. al. 2005) a survey of various models and indicators used for the assessment of policy was conducted. These are grouped as follows:
- Models used for the preliminary evaluation of policy
- Tools used for the implementation of policy
- Tools used for supplementary assessment

Models for the preliminary evaluation of policy are further divided into macroeconomic simulation models and bio-economic models, through which the assurance of commodity and non-commodity goods can be assessed. Macroeconomic models are very adequate for the preliminary analysis of market mechanisms and the study of links between different sectors. However, due to difficulties with respect to joining data, as well as their static character, these models are not suitable for the analysis of environmental and social functions. Among bio-economic models, linear programming is useful on the level of agricultural holdings and on the regional level, and it is the most widely used. Specifically, linear programming is used to present different scenarios related to policy measures in which the environmental function of agriculture serves as the limiting factor for the use of agricultural land. Some models on the regional level combine agri-environmental and economic models to assess the most appropriate use of agricultural land.

Policy implementation tools serve to analyse the effectiveness of agricultural holdings by applying various economic, environmental and social indicators. These tools are used to optimise environmental attitudes regarding agricultural holdings, to help control environmental payments and to help determine the value of compensation payments.

In the Netherlands, supplementary assessment tools are used to examine linkages between the use of agricultural areas and biodiversity. The resulting models serve a limited number of functions (biodiversity and maintenance of the countryside) and are thus frequently applied to specific areas only. Supplementary tools would require further development before they could also be used in preliminary assessments.

The international SEAMLESS project is part of the 6th EU Framework Programme and aims to develop a complex framework for the preliminary assess-

ment of agricultural and environmental policy, which would allow assessment on all levels (on the level of agricultural holdings, and the EU and global level). The framework enables an analysis of the contribution made by the environmental, economic and social functions of multifunctional agriculture towards the sustainable development of rural areas and the vitality of rural regions. It takes into consideration a very broad spectrum of varied content, such as climate change, environmental policy, rural development measures, the impact of EU accession, international competitiveness and influences on developing countries. The project innovatively combines bio-physical and economic models on the farm level using a macroeconomic approach; however, the extent to which it takes into account environmental and social functions is limited. Questions thus arise as to the degree to which these types of approaches are compatible with a qualitative approach for assessing the impact of policy.

Description of Methodology

Our model for evaluating the various multifunctionality elements of agriculture and assessing the impact of agricultural policy consists of three components:

Qualitative assessment: This component examines measures related to market price policy, structural policy and rural development policy to determine the level of representation of individual multifunctionality elements in the goals and content of agripolicy measures as a whole.

Quantitative evaluation: This is an upgraded form of qualitative assessment. We transformed the qualitative assessment results into numerical values and then calculated the relative partial contribution of individual measures of agricultural policy in relation to the total calculated score, whereas the total score stood in direct connection with the amount of annual funding (from the agriculture budget) spent on individual measures. In this fashion, we obtained an overall assessment which indicates to what extent individual agricultural policy measures contribute to selected elements of multifunctionality and the multifunctional role of agriculture.

Multifunctionality indicators: This third component of the model relies on established indicators. Many different concepts of indicators of sustainable development and of rural area development have been developed in the professional and scientific literature and thus have essentially also become indicators of multifunctional agriculture.

Qualitative assessment of multifunctionality in the goals and content of agricultural policy measures

The fundamental purpose of this section is to assess the representation of multifunctionality elements in individual strategy papers and implementation measures of Slovenian agricultural policy during the period from adoption and enforcement of the Agricultural Development Strategy to the country's membership in the EU. First, we shall provide a brief overview of the de-

velopment of agricultural policy in Slovenia during this period, as well as a descriptive analysis of individual strategy papers and a qualitative assessment of the multifunctionality of agriculture at the level of individual measures. The information was derived mainly from the available academic literature, legislative literature and statistical sources.

A qualitative assessment of the multifunctionality of agriculture, which extends to market price policy measures as well as measures of structural and rural development policy, relies on two indicators. Comprising three different levels each, these indicators are:
- The level of representation of individual multifunctionality elements in the objectives of agripolicy measures
- The level of representation of individual multifunctionality elements in the content of agripolicy measures.

For the assessment, we used a "+" sign to indicate those measures on the target or implementing level which were assessed to directly affect individual elements of multifunctionality and the symbol "O" to indicate measures which indirectly impact the multifunctionality of agriculture (see Table 1, page 6). Measures which do not affect elements of multifunctionality are furthermore indicated with a "-" sign, whilst the cells of measures which were not implemented during the observed period remain empty.

We grouped the measures within similar categories, just as they are grouped in a regular analysis of the structure of the agricultural budget. In order to cover the different periods of agricultural policy in Slovenia in terms of content and targetorientation, we performed an analysis covering the reference years 1994-2004, which we then divided into three phases:
- The period from 1994 to 1998, which was the enforcement period for the Slovenian Agricultural Development Strategy
- The period from 1999 to 2003, or implementation period for agricultural policy reforms
- The period after 2004, or period of EU entry and subsequent full membership

The enforcement period for the Slovenian Agricultural Development Strategy

The Slovenian Agricultural Development Strategy is the policy document in which the national agricultural policy for the first time clearly defined the concept of multifunctional development. The longterm development objectives of the strategy are:
- The stable production of quality food at reasonable prices and food security
- Retention of the population in rural areas, the preservation of cultural landscapes and of the agricultural production potential, and protection of agricultural land and water from pollution and misuse
- A permanent increase in competitiveness
- Guaranteed parity income in agriculture (MAFF 1993)

Beyond food production, a significant territorial, environmental and social role of agriculture is given. The Slovenian strategy thus incorporates the ecosocial concept of agricultural development, which emphasises population retention, maintenance of the cultural landscape and ecological acceptability over the production function of agriculture (MAFF, 1993) and which is characterised by moderate intensity, nutrition balance and the cultivation of all agricultural lands. This concept indicates the direction of Slovenian agricultural development whilst at the same time emphasising an active role for the state and a relatively significant amount of funding for the agricultural budget (MAFF 1993).

The ultimate objective of market price policy during this period was to reverse the fall in prices of agricultural products and to increase agricultural incomes. By the mid-1990s Slovenia's growing integration within international markets prompted a new turn in agricultural policies. Not only did WTO membership necessitate a shift to less distortive types of support, but the commitment to decrease the level of border protection also made sustaining open-ended price supports highly problematic. This resulted in a need for more targeted and less productionlinked measures. Thus, in 1995, Slovenia began introducing area and headage payments whilst, in parallel, reducing price aids and input subsidies.

The implementation period for agricultural policy reform

The reform of agricultural policy in 1998 did not lead to significant changes in the definition of the fundamental goals of Slovenian agricultural policy. These remained practically the same and were not substantially deviated from the objectives of the EU Common Agricultural Policy. In 1998 the government adopted the Agricultural Policy Reform Programme 1999-2002, and in 1999 the National Development Programme for Agriculture, Food, Forestry and Fisheries for the period 2000-2002. The main thrust of this reform effort was the reinstrumentation of agricultural policies to achieve their stated goals more effectively and efficiently. This can generally be characterised as a shift from market price support to direct payments and a greater emphasis on structural, environmental and rural development measures. The four major pillars of the reform are:

- Pillar I: Market price policy
- Pillar II: The Slovenian Agricultural and Environmental Programme
- Pillar III: Restructuring of agriculture and the food industry
- Pillar IV: Rural development measures

The resulting agrienvironmental payments aimed at promoting environmentally friendly farming methods which emphasise the multifunctional role of agricultural production as reflected in the public function of maintaining landscapes and biodiversity, as well as preserving the population in the Slovenian countryside by taking into account ecological, social and spatial settlement patterns in rural areas.

Ultimately, the increased number of measures together with the structural reform of market price and rural development policies served to enhance the multifunctionality of agriculture.

The period of full EU membership

The period of agricultural policy reform came to an end upon Slovenia's joining the EU and integrating the Common Agricultural Policy. To a large extent, this resulted in a transfer of competence to the EU in terms of planning and implementing agricultural policy – holding particularly true for the market price policy, which experienced substantial changes after Slovenia became an EU member. With respect to structural and rural development policies, the year 2004 also brought significant changes in the primary area of planning policy, for which Slovenia prepared two important documents: The Rural Development Programme for the Republic of Slovenia 2004-2006 (RDP) and the Single Programming Document for the Republic of Slovenia 2004-2006 (SPD). The two documents served as the basis for comprehensive planning, implementation and monitoring of rural development policy in Slovenia. The priorities of the RDP 2004-2006 were as follows:

- Sustainable agriculture and rural development: This priority led to the implementation of measures targeting less favoured areas and measures deriving from the Slovenian Agri-Environmental Programme.
- Economic and social restructuring of agriculture: This priority led to the implementation of two specific measures: the early retirement of farmers and the meeting of EU standards. In terms of structural policy, the early retirement measure was an entirely new introduction aimed at improving the age structure of farmers and the social status of older farmers. Implementing EU standards for agricultural holdings also represented a novelty, with the intention here being to speed up the adjustment of agricultural holdings in terms of meeting environmental protection, plant health and work safety requirements. Both of these measures will continue to make an important contribution to the social and environmental functions of agriculture.

Adopted in late 2003, the Single Programming Document 2004-2006 (SPD) sets forth how Slovenia will spend available funds from the EU's Structural Fund and Cohesion Fund, and from the national budget. In the field of agriculture the following measures were carried out:

- Improvements to the processing and marketing of agricultural products
- Investments in agricultural holdings
- Diversification of agricultural activities and other activities "close to agriculture"
- The marketing of quality agricultural and food products

The Common Agricultural Policy reform – adopted in June 2003 and fully implemented in all EU Member States in 2007 – places further emphasis on the multifunctional role of European agriculture. The most significant change is the introduction of decoupled payments, in the form of single payment. In

order to obtain direct payments under the CAP reform, agricultural holdings must fulfil the conditions of cross-compliance whilst agricultural areas must be treated in accordance with good agricultural practices.
Table 1 below summarises the results of a sample qualitative assessment performed to determine the representation of multifunctionality elements in the objectives and content of Slovenian agri-policy measures under consideration of the three key functions of agriculture.

Table 1. Sample Qualitative Assessment of elements of multifunctionality in the objectives and content of agri-policy measures (1999-2003)

1999/2003	Production function			Environmental function			Social function	
	Food production	Food safety	Food security	Sustainable use of resources	Bio-diversity	Maintenance of cultural landscapes	Population retention	Employment
Market price policy measures								
Export subsidies	- -	+ O	- -	- -	- -	- -	- -	- -
Direct payments (ha, head)	+ +	O O	+ +	+ O	- -	+ O	+ O	+ O
Reduction of input costs	- -	- -	- -	- -	- -	- -	- -	- -
Consumer support	- -	O O	- -	- -	- -	- -	- -	- -
Structural and rural development policy measures								
Less favoured areas	+ +	- -	+ +	+ +	- -	+ +	+ +	+ +
Reduction of negative impacts of agriculture	- -	+ +	- -	+ +	O O	+ +	- -	- -
Conservation of natural conditions	- -	- -	- -	+ +	+ +	+ +	- -	- -
Maintenance of protected areas	- -	- -	- -	+ +	O O	+ +	+ +	+ +
Investment and restructuring of agriculture	+ +	+ +	+ +	+ +	- -	- -	+ +	+ +
Restructuring of the food processing industry	- -	+ +	+ +	O O	- -	- -	O O	+ +
Diversification of activities in the countryside	- -	O O	+ +	O O	- -	O O	O O	O O
Integrated rural development	+ +	+ +	O O	+ +	- -	+ +	+ +	+ +

+ The measure directly affects the individual elements of multifunctionality of agriculture
- The measure does not affect the individual elements of multifunctionality of agriculture
O The measure indirectly affects the individual elements of multifunctionality of agriculture

Total budgetary expenditures in support of agriculture increased almost sevenfold during the period 1994-2004. In addition, expenditures on market price policy measures amounted to 34% of all agricultural subsidies (on average) for the years 1994 to 1998, with the share increasing to nearly 50% during the period 1999-2003. The transition to direct payments per hectare was thus determined to increase the multifunctional orientation of agriculture.

With respect to structural and rural development policy measures, expenditures averaged roughly 35% of the total budgetary support to agriculture from 1994 to 1998. In the period 1999-2003, this share fell to approximately 25% due to increased spending on market price policy measures. However, in 2004 it again increased to 34%.

Structural policy measures can be broken down into compensatory payments and development support. These payments are market-neutral and directly emphasise the multifunctional role of agriculture. In the first period, 45% of all funding for structural policy measures was spent on compensatory payments, with nearly 95% dedicated to the support of less favoured areas and only 5% being agri-environmental payments. After the Slovenian reform of agricultural policy, the share of agri-environmental payments increased significantly, amounting to 20% in the years 1999-2003 and 47% in 2004, on average. Support for less favoured areas provides a typical example of the changing forms of payments and increasingly multifunctional role of agriculture. Before the reform, more than half of all support to less favoured areas was in the form of price allowances whilst only 40% was via crop-specific payments paid per head or per hectare. Since 2000, all farms with land listed among less favoured areas have been entitled to compensatory payments and the absolute amount spent on less favoured areas has thus increased significantly.

A similar situation can be observed for agri-environmental measures. The budget share dedicated to agri-environmental payments during the period 1994-1998 amounted to less than 1% of total expenditures in support of agriculture. After the reform of agricultural policy during the period 1999-2003, this percentage increased to 3% as a result of the adoption of the Slovenian Agri-Environmental Programme (SAEP) and the addition of new sets of measures. By 2004, the share had increased to almost 7%.

Measures related to investment and the restructuring of agriculture and rural development received over half (54%) of all structural policy funding during the first period, with expenditures growing each year within the period and reaching a peak in 1998. In the next period, budgetary support for this group of measures began to decline and dropped to 46% in 2002. Finally, budgetary support for the group increased significantly in 2004, to 58%.

Quantitative evaluation of multifunctionality elements

Quantitative evaluation is an upgrade of the qualitative assessment of multifunctionality previously performed on the goals and content of agricultural measures. For the first phase of the quantitative evaluation we changed the qualitative assessments into numerical values as follows:

- Each “+” received 2 points
- Each “O” received 1 point
- Each “-” received 0 points.

Using the numerical values, we first calculated the relative share of each agricultural policy measure in relation to the total score for each period. In the next stage we combined these shares with the annual funding (from the agricultural budget) for each measure and in this fashion determined point estimates. These point estimates show how the multifunctional role of agriculture changed during the examined years in relation to the individual measures, whilst the sum of all point estimates indicates which measure contributed the most to the individual elements of multifunctionality and to the overall multifunctionality of agriculture.

Table 2 shows the funds spent on the market price support measures and structural policy measures which best promote the multifunctionality of agriculture. In the period 1994-2004 the majority of funds were dedicated to direct payments, export promotion payments and measures for the reduction of input costs. Among the measures contained in structural and rural development policies, the majority of funding went to less favoured areas and investment in the restructuring of agriculture. In recent years the share of agri-environmental payments has increased.

The results of our quantitative analysis (Table 3) indicate that direct payments, with 37%, had the greatest impact on promoting the production and non-production functions of agriculture. Support for less favoured areas follows with 26% whilst support for investment and the restructuring of agricultural production has a 15% share.

With respect to the key functions of agriculture during the period, the importance placed on the production function continually decreased, with its share dropping from 47% to 39% in the period 1994-2004. A changing relationship within the production function of agriculture was also observed. The basic agricultural function of “food production” fell during the period from 21% to 13% whilst “food security” declined from 20% to 12%. However, the impact of “food safety and quality” increased significantly, as this share increased from 5% in the period 1994-1998 to 14% in 2004.

In the same period, the role of the environmental and social functions of agriculture increased markedly, with the share for the environmental function of agriculture alone growing from 22% in the period 1994-1998 to 29% in 2004. Measures to ensure the preservation of the rural population and employment – which are elements of the social function of agriculture – were implemented continuously throughout the period 1994-2004. The effort to ensure the environmental and social functions of agriculture furthermore fully complies with the second objective of agricultural policy as defined in the Slovenian Agricultural Development Strategy, which emphasises the preservation of population, cultural landscapes and agricultural land, as well as the protection of agricultural land and water from pollution and excessive use.

Table 2. Agricultural budget for market price policy measures and structural and rural development measures 1994-2004 (m €)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Market price policy measures												
Export promotion payments	7.3	9	9.2	12.8	15.1	32.3	26.8	34.5	25.4	29.4	26	227.8
Other measures for market stabilisation	0.8	0.6	0.1	0.1	1.6	5.4	0.4	0.4	1.4	0.9	0.2	11.9
Price aids per tonne, l	2.3	0.8	1.4	0.7	2.3	2	0	0	0	0	0	9.5
Direct payments per hectare, head	0	3.5	3.8	7	9.2	18.9	29.5	37.9	46	49.5	59.3	264.6
Reduction of input costs	7.1	7.5	6.6	6.1	3.3	0.3	1.1	1.8	3.1	3.1	2.4	42.4
Consumer support	0	0.2	0	1.5	1.7	1.6	0.5	1.2	2.7	1.7	1.2	12.3
Structural and rural development policy measures												
Less favoured areas	7.5	11.4	11.2	11.6	10.8	10	18.2	16.6	21.1	18.8	17.7	154.9
Reduction of negative impacts of agriculture	0	0	0	0	0	0.8	1.7	3.6	5	5.2	8.1	24.4
Conservation of natural conditions	0.9	0.6	0.5	0.5	0.4	0	0	2.8	2.9	2.7	6.6	17.9
Maintenance of protected areas	0	0	0	0	0	0	0	0	0,3	0.4	0.6	1.3
Investments and restructuring of agriculture	6.4	6.2	8.7	9.4	13.5	12.6	7.1	7	4	7.1	16.6	98.6
Restructuring of the food processing industry	0	0	0.4	2.5	2.4	1.3	5.6	3.9	2.3	8.3	17.2	43.9
Integrated rural development	1.5	1.7	1.9	3.2	4.2	5.8	2.6	6.1	5	5.8	9	46.8
Total	**33.8**	**41.5**	**43.8**	**55.4**	**64.5**	**91**	**93.5**	**115.8**	**119.2**	**132.9**	**164.9**	**956.3**

Source: MAFF 2006

Table 3. Quantitative evaluation of the elements of multifunctionality for selected groups of measures

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Market price policy measures												
Export promotion payments	0.15	0.18	0.18	0.26	0.30	0.62	0.52	0.67	0.49	0.57	0.62	4.56
Other measures for market stabilisation	0.02	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.06
Price aids per tonne, l	0.19	0.06	0.12	0.06	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.61
Direct payments per hectare, head	0.00	0.55	0.61	1.12	1.47	2.69	4.19	5.38	6.53	7.03	8.42	38.00
Reduction of input costs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer support	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.01	0.03	0.02	0.01	0.11
Structural and rural development policy measures												
Less favoured areas	1.50	2.28	2.23	2.33	2.15	1.62	2.94	2.67	3.40	3.03	2.61	26.76
Reduction of negative impacts of agriculture	0.07	0.05	0.04	0.04	0.03	0.07	0.16	0.32	0.45	0.47	0.77	2.48
Conservation of natural conditions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.22	0.21	0.78	1.43
Maintenance of protected areas	0.51	0.49	0.70	0.75	1.08	0.00	0.00	0.00	0.04	0.05	0.07	3.70
Investments and restructuring of agriculture	1.09	1.05	1.48	1.60	2.29	1.94	1.10	1.09	0.63	1.09	2.36	15.73
Restructuring of the food processing industry	0.06	0.06	0.09	0.09	0.13	0.14	0.58	0.41	0.23	0.86	1.22	3.87
Integrated rural development	0.03	0.03	0.04	0.06	0.08	0.83	0.37	0.87	0.71	0.83	1.17	5.02
Total	**3.61**	**4.78**	**5.50**	**6.32**	**7.77**	**7.93**	**9.86**	**11.64**	**12.73**	**14.16**	**18.04**	**102.34**

Source: MAFF 2006, calculations by the Agricultural Institute of Slovenia

Indicators for the evaluation of the multifunctional role of agriculture

Many different concepts of indicators of sustainable development and of rural area development have already been developed in the professional and scientific literature and thus have essentially also become indicators of multifunctional agriculture. An indicator shows how things change in space and time. In addition, an indicator has a meaning which surpasses the communication properties directly associated with the given data value; it has a synthetic role and has been developed for a purpose determined in advance (Radej 1999).

The greatest difficulty may be presented by the aggregation of indicators, since the multifunctional role of agriculture is influenced by a broad spectrum of factors described with various measurement units and systems which are not directly comparable with another. For the standardisation of indicators, the model uses the method of standardised value (z score[1]). This statistical method allows comparisons of different data series and expresses the relative position of individual data in the series. In the form of a relatively simple expression it may be illustrated as:

$$z = \frac{X - \overline{X}}{\sigma_X}$$

z: standardised value
X: individual data in a series

$\overline{X}$: average of a series
σ_X : standard deviation

In the paper a slightly modified method of standardised value is used since all indicators are shown in the form of marks. The highest absolute deviation of the average value within the period discussed was presented as a criterion.

a: relative assessment
X: individual data in a series
$\overline{X}$: average of a series

The value of calculated assessment ranges from +1 to -1. In order to avoid assessment to several decimal places we chose to assess in the range from -5 to +5.

$$TO = a * 5 = \frac{X - \overline{X}}{\max\left|X - \overline{X}\right|} * 5$$

1 http://www.mathtools.net/Java/Statistics/

TO: assessment for individual indicator in a series
X: individual data in a series
$\overline{X}$: average of the series

In this fashion all indicators in a time series are assessed uniformly, but at the same time these assessments point at all characteristics of original series of indicators. Indicators expressed in the form of assessment have the following characteristics:

If TO>0<=+5 then X> $\overline{X}$
If TO<0>=-5 then X< $\overline{X}$
If TO=0=then X= $\overline{X}$

The relation of original indicators to the assessment is as follows:

$$X = \overline{X} + \frac{TO}{5} * \max\left|X - \overline{X}\right|$$

TO: assessment for individual indicator in a series
X: individual data in a series

$\overline{X}$: average of the series.

The effectiveness of agricultural policy on the different elements of multi-functional agriculture is described with numerical values. Each indicator is assessed with numerical values from -5 to +5. If the assessment approaches the value +5 the agricultural policy goal was fulfilled.

In order to make such an interpretation universal, a positive assessment means approaching a goal also in cases where the target value of an indicator is lower, meaning that the level of the indicator must be lower to be able to accomplish the goal (e.g. the use of mineral fertilisers). To conform to such an understanding of assessment some indicators require correction of the sign of this type of assessment.

$$TOgoal = TO * f$$

Target value<from the starting $\longrightarrow f$ =-1
Target value>from the starting $\longrightarrow f$ =1

For the assessment of the realisation of agricultural policy goals we also used linear trend calculations, which especially ensure assessment when the oscillations within the individual data in the series are large (Volk 2004). In terms of calculating the linear trend (y‘ = mx+b; x=1, 2… n) we were interested

in the trend coefficient (m), which reflects the direction and intensity of the change. The trend coefficient is calculated as:

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum(x^2)) - (\sum x)^2}$$

m= trend coefficient
n= number of years
x= serial number of years (1,2...n)
y= individual data in the series (TO goal)

The interval which defines whether the goals of agricultural policy were achieved is calculated as follows:

$|m| = \leq \frac{1}{n} \longrightarrow$ No change "="

$m = < \frac{1}{n} \longrightarrow$ Positive trend towards agricultural policy goals "Yes"

$m = > \frac{1}{n} \longrightarrow$ Negative trend towards agricultural policy goals "No"

In the observed period 1994-2004 (n=11) the interval for positive or negative assessment of agricultural policy goals is ±1/11= ±0.091.

The assessment system described was used for all indicators over the complete time series (on a yearly basis). For purposes of illustration, a uniform table of indicators was prepared which contains the name and definition of each indicator, the source of data used or available, the temporal scope and territorial level, and the element of multifunctional agriculture to which each indicator applies.

The proposed system of indicators presents an additional policy evaluation tool and assessment option. Indicators used to assess the effectiveness of agricultural policy and the multifunctionality elements of agriculture were grouped under the three basic functions of agriculture. We thus distinguished between the indicators according to their ability to describe the production, environmental or social function of agriculture.

The production function is divided into the following multifunctionality elements:

- Production of food (indicators: index of agricultural production volume and import-export balance), assurance of food safety and quality (indicator: funds invested in the food processing industry).
- Assurance of food supply (indicators: share of expenditures spent on food production by agricultural holdings and the self-sufficiency level for major agricultural products)

- For the assessment of the environmental functions of agriculture we used indicators which were developed within the research project "Biodiversity as a Source of Economic Development" (Slabe Erker 2003) and agricultural-environmental indicators developed within the framework of the project "Preparation of Indicators of Agriculture and Environment" by the Agricultural Institute of Slovenia.
- The environmental function is divided into the following elements of multifunctionality:
- Sustainable use of natural resources (indicators: area of agricultural land in use, area of land with applied agricultural-environmental measures, share of agricultural land applying ecological agriculture, use of mineral fertilisers in agriculture and the number of participants active in education as part of the SAEP)
- Assurance of biodiversity (indicators: total number of varieties of agricultural plants registered for selling and the hectare yield of wheat)
- Preservation of the cultural countryside (indicator: increase in the share of protected natural regions).
- The social function of agriculture is described by two elements of multifunctional agriculture:
- Preservation of the rural population (indicator: the share of population living in rural areas in relation to the total population – since population preservation is indirectly influenced by the degree of education and improvement in employment opportunities, in future it would be reasonable to also use the following two indicators: number of farmers with a formal agricultural education and share of agricultural holdings with supplementary activities).
- Assurance of employment for the rural population (indicators: number of full-time labourers employed in agriculture according to the economic budget of agriculture, index of factor income according to annual work units (AWU) with regard to the index of average annual wages)
- Selected indicators were classified in groups as per the agricultural policy goals defined in the Slovenian Agricultural Development Strategy. Table 4 presents the results and the trend of changes indicating to what extent the goals of agricultural policy were realised during the observed period.

Table 4. Assessment of relative changes in basic indicators of multifunctional agriculture used for assessing the realisation of agricultural policy goals

Assessment												
Goal/Indicator	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**Trend**
Stable production of quality and affordable food, and assurance of food safety												
Index of agricultural production volume	0	-2	0	0	0	-1	0	-1	2	-3	5	+0.24
Import-export balance	1	-4	-2	-2	0	1	2	2	4	3	-5	+0.22
Share of expenditures for food	5	3	3	0	0	-2	-2	-2	-2	-3		- 0.83
Degree of self-sufficiency (%) Cereals	0	0	-1	2	3	-1	-2	-3	3	-5	2	- 0.11
Degree of self-sufficiency (%) Beef	-4	-3	-2	1	0	-1	-1	5	4	2	-1	+0.58
Degree of self-sufficiency (%) Pork	-1	0	5	-2	-1	2	-3	0	-3	4	-1	- 0.01
Degree of self-sufficiency (%) Poultry	5	5	2	-1	-2	-1	-2	-1	-2	-1	-1	+0.62
Degree of self-sufficiency (%) Milk	-3	-2	-3	-5	3	5	2	2	0	2	-1	+0.48
Restructuring of the food processing industry				-1	-1	-2	0	-1	-1	1	5	+0.68
Increased competitiveness of agriculture												
Average UAA/holding				-4			-1			5		+4.72
Maintenance of production potential, environmental protection, rural development												
Agricultural land in use (total)	5	3	1	-2	-3	-2	0	0	0	0	-3	+0.41
Surface of land with agricultural environmental measures						-3	-3	0	0	1	5	+1.50
Share of UAA with ecological agriculture						-5	-3	-1	1	3	5	+1.97
Use of mineral fertilisers	2	-3	-3	2	3	4	-1	1	0	0	-5	-0.18
Number of varieties registered and certified for selling				-5	-5	1	1	0	3	3	2	+1.09
Hectare yield of wheat	0	0	-2	-1	3	-3	0	2	4	-5	2	+0.06
Share of protected natural districts in Slovenia									-3	-2	5	+3.91
Assurance of adequate income												
Share of population in rural communities (vs. total population)						5	0	-1	-1	-1	-2	-1.11
Number of employed persons (thousand AWU)	-2	1	2	3	0	0	-1	4	1	-5	-2	+ 0.27
Index of factors income acc. to AWU/Index of average yearly gross wages	4	-3	-2	1	-2	-1	0	-2	2	-3	5	+ 0.12

The production function of agriculture played a major role in the observed period. The quantitative assessment of the multifunctionality element "stable production of quality and affordable food, and assurance of food safety" shows the changes in indicator values during individual years. Assessment of the change trend shows that the applied measures of agricultural policy contributed a great deal to realising this agricultural policy goal.

The index of agricultural production volume increased slightly during the observed period, however it should be pointed out that the weather conditions, primarily, have a great influence on plant production volumes. This is clearly evident for 2003, when the weather conditions for plant production were extremely unfavourable. The share of household expenses for food decreased throughout the period, which indirectly means that Slovenia produces relatively affordable food having a high quality. Our assessment of the degree of self-sufficiency for major agricultural products indicates an increase in self-sufficiency for beef and milk. This is reflected in the processes of specialisation for these two product types, which may have an unfavourable impact with respect to assuring the multifunctionality elements relevant to the environmental function of agriculture.

A positive trend was also observed regarding the restructuring of the food processing industry, for which substantial funds were devoted to modernising production lines and to assure environmental and hygienic standards, as well as the production of safe, quality food during the recent period. This would also mean that the element directly contributes to assuring the non-production functions of agriculture.

It may be argued that the competitiveness of agriculture has also increased, since the utilised agricultural area (UAA) per agricultural holding increased significantly in the period from 1997 to 2003. Essentially, this is due to the reduction in the number of agricultural holdings, which in turn has not brought about an increase in the intensity of agricultural production – whilst the latter may be attributed to the introduction of agri-environmental measures.

The results also indicate that agricultural environmental measures directly influenced the assurance of the environmental function of agriculture. In addition, the quantitative assessment of indicators shows that after 1999 the importance of the environmental function increased significantly and that the related measures received a favourable response among producers.

The social function of agriculture serves the fundamental role of preserving population and employment in rural areas. The trend for both of these multifunctionality elements during the observed period would indicate that agricultural policy measures which promoted the two goals were relatively successful, in spite of the fact that the number of persons employed in agriculture and the share of inhabitants living in rural areas decreased during the period. The reason for this conclusion is that we were able to confirm that both decreases would have been significantly larger had the agricultural policy measures not been applied.

Conclusions

The meaning and role of multifunctional agriculture was originally set forth in the Slovenian Agricultural Development Strategy of 1993. Our application of the described model for assessing the influence of agricultural policy on the multifunctionality elements of agriculture has confirmed that important linkages exist between the objectives of Slovenian policy measures, selected sets of indicators and the elements of multifunctional agriculture. The results indicate that the agricultural policy goals were achieved to a great extent during the observed periods and that the multifunctional attitude of agriculture in Slovenia is on the rise. In addition, it may be concluded that Slovenian agricultural policy measures have become increasingly target-oriented, which in turn has had an indirect impact on improving the assurance of agriculture's non-production functions. At the same time, increasing the available set of indicators would undoubtedly contribute to a better applicability of the model for the evaluation of multifunctionality, planning and implementation as these relate to the policy measures which influence the different functions of agriculture.

References

Bedrač M., Cunder T., 2005, *Slovenian agricultural policy and multifunctional role of agriculture*, Moravske toplice 10.-11. November 2005, Društvo agrarnih ekonomistov Slovenije, 243-257.

Bedrač M, Cunder T., 2007, *Evaluation of multifunctional role of agriculture in Slovenia*, Moravske toplice 8.-9. November 2007, Društvo agrarnih ekonomistov Slovenije, 63-75.

Cairol D., Perret E., Turpin, N., 2006, *Results of the Multagri project concerning indicators of multifunctionality and their relevance for SEAMLESS-IF*, SEAMLESS Report No.11, SEAMLESS integrated project, EU 6th Framework Programme, contract no. 010036-2, www.SEAMLESS-IP.org, 100 pp, ISBN no. 90-8585-040-1.

EC (European Commission), 1999, *Contribution of the European Community on the Multifunctional Character of Agriculture,* Info-Paper, October 1999, Bruxelles.

European Commission, 1999b, *Safeguarding the multifunctional role of EU agriculture: which instruments?* Info-Paper, October 1999, European Commission. Directorate General of Agriculture. Brussels.

EC, 2001, *A Framework for indicators for the Economic and Social Dimension of Sustainable Agriculture and Rural Development*, Brussels, European Commission 39 p.

Juvančič L., Cunder T., Slabe-Erker R., Bedrač M., Hočevar V., 2007, *Policy of Multifunctional Agriculture in Slovenia and its Evaluation*, Zaključno poročilo o rezultatih opravljenega raziskovalnega dela v okviru ciljnega raziskovalnega programa (CRP)«Konkurenčnost Slovenije 2001-2006«:V4-0102. Ljubljana, Ministrstvo za kmetijstvo, gozdarstvo in prehrano.

MAFF, 1993, *Strategy of Slovenian Agriculture-Summary*, Ljubljana, Ministry of Agriculture, Forestry and Food.

OECD, 2001, *Multifunctionality: Towards an Analytical Framework*, Paris, Organisation for Economic Co-operation and Development.

Radej, B., 1999, *Razvoj indikatorjev za vrednotenje okoljske kakovosti gospodarske rasti. Delovni zvezek*, 7, 10, Ljubljana, Urad RS za makroekonomske analise in razvoj.

Slabe Erker R., Hlad B., Juvančič L., 2003, *Biodiversity as Source of Economic Development, Ljubljana*, Inštitut za ekonomska raziskovanja

Statistical yearbook (different numbers), Ljubljana, Statistical office of Republic of Slovenia.

Volk T., 2004, The influence of agricultural policy on the developmentof Slovenian agriculturedуring the transitionan the process of accession to the European Union, ponatis doktorske disertacije, Domžale, DAES.

Zander P., Karpinski I., Knierim A., 2005, *Multifunctionality Indicators and Methods to measure and assess*, Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) http://www.zalf.de/home_zalf/download/soz/Poster/ab1_multagri_wp3.pdf.

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Comparative analysis of territorial impacts of multifunctional agriculture

Abstract: *Due to the increasing priority orientated towards more integrated policy concepts, such as rural development policy, there is a growing need to address the concept of multifunctionality for policy assessment. In particular, the dependence of the various tasks and services provided by agriculture on the territorial contexts is a key issue in valuing adequately the potential of agriculture and forestry in diverse types of rural regions. These questions were therefore the main aims of EU FP6 research project TOP-MARD [2] which tried to develop the concept of multifunctionality as a rural development policy instrument that is sensitive to economic, social, cultural, environmental and geographical context. The project was designed to analyze how the various functions of the agricultural sector in any given territory affect the sustainable economic development and the quality of life of that territory, and how different policies affect these relationships. In a sample of 11 EU countries specific study areas were selected to explore the diversity of multiple functions, co-production, and impacts on rural development across Europe. One of the main objectives and outputs of the research project was to improve our knowledge about the relationships affecting multifunctional tasks. A core project deliverable was to characterize these driving forces and interrelations in a policy model (called POMMARD) which would allow the simulation of the dynamic economic, social and environmental impacts of different future policy scenarios in different rural contexts.*

The paper presents an overview of the objectives and structures of the project, including a comparison of the case study areas and an overview of the POMMARD

2 TOP-MARD (Towards a Policy Model of Multifunctionality and Rural Development, Contact No. 501749). 3-year Specific Targeted Research Project funded by the European Union's Sixth Framework Programme for Research and Technology Development. http://www.uhi.ac.uk/policyweb/topmard

model. As the provision of tasks going beyond agriculture is particularly expressed in contexts of less-favoured and mountainous areas, a comparative analysis of territorial impacts of multifunctional agriculture in two mountain regions will be presented here: the Pinzgau-Pongau region (Austria), and the Gorenjska region (Slovenia). A set of policy and market scenarios (five policy scenarios) that were tested across all the study areas are summarized for these two regions by analysing the model results and focusing on major conclusions of the project.

Keywords: *multifunctionality, rural development, policy model, Austria, Slovenia*

Introduction

Most researches until now used a narrow definition of multifunctionality. The focus is mainly on the simultaneous production of private and public goods, produced alongside the act of farming. Because of this 'joint' production characteristic for many aspects, the research interest has concentrated mainly on 'environmental goods' such as pleasant landscapes and other environmental features.

However, with the increasing priority orientated towards more integrated policy concepts, such as rural development policy, there is a growing need to broaden also the concept of multifunctionality to wider territorial contexts. The discourse on multifunctional agriculture (within the so called 'New Rural Paradigm' as labelled by OECD) explores the ways in which both the market and non-market 'functions', particularly public goods, of agriculture and farm households link with the economic development and quality of life in different geographical territories. Different levels (EU, national, regional, local) of policy interest are concerned with the impacts of agricultural non-market 'functions' on the development of rural localities and regions and in particular on rural development and the quality of life. Little is known about the relationship between these public goods/bads and territorial rural development in different European contexts.

The EU-funded research project TOP-MARD has attempted to explore and extend the multifunctional concept into some new, up to now undefined areas (territorial development, quality of life, labour markets, demography). Empirically, the approach undertaken in modelling territorial impacts of agriculture on rural territory took into account some 'standard' relationships (regional economy, environmental indicators), alongside with some new ones (quality of life, labour market and demographical indicators). A system modelling approach has been undertaken, making use of the Stella® software, which allows exploration of the dynamics of complex systems. The various components shaping the development of rural areas all affect each other and cannot be understood in isolation. The so called POMMARD (Policy Model of Multifunctional Agriculture and Rural Development) has been designed as a tool for understanding multifunctional role of agriculture with its effects on selected geographical areas, i.e. selected regions (mainly on NUTS3 level).

Different policy scenarios were applied to the model. Unlike many models of economic relationships the POMMARD tempts to explore the dynamic relationships between agricultural multifunctionality, territorial rural development and quality of life, and the impacts of different kinds of policies on these relationships.

The paper presents an overview of the main issues and structure of the project, a comparison of the case study areas and an overview of the POMMARD model elaboration and results. A comparative analysis of territorial impacts of multifunctional agriculture in two mountain regions will be shown: the Pinzgau-Pongau region (Austria), and the Gorenjska region (Slovenia). It seems particularly interesting to explore the different relationships against the background of integration of new Member States. While the two regions exhibit similar topographical characteristics (both are typical Alpine regions) there are differences in practice of mountain farming relationship due to the regional economy and divergent approaches in policy implementation. They developed in different institutional settings, which have resulted in profound differences in the level of economic development, structural characteristics, and in the structure of economic activities. Similar policy and market scenario will be tested on these two regions (eg. reduction of single farm payments, shift of CAP funds between axes of pillar 2, increase of cohesion expenditure, and increase of tourism). The results are reported and commented for the two study areas and some important conclusions are drawn from the project results.

The EU research project TOP-MARD

The main aim of the EU FP6 research project TOP-MARD was to develop the concept of multifunctionality as a rural development policy instrument that is sensitive to economic, social, cultural, environmental and geographical context. It was designed so as to analyze how the various functions of the agricultural sector in any given territory affect the sustainable economic development and the quality of life of that territory, and how different policies affect these relationships. One of the main objectives and outputs of the research was to produce a model, called POMMARD, which would allow the simulation of the dynamic economic, social and environmental impacts of different future developments which were made visible through several policy scenarios in different rural contexts.

A central hypothesis underlying the construction of the model is that both market and non-market functions of agriculture can, and often do, act as ‘inputs’ into the production of non-agricultural goods and services in local economies. Some of these functions are seen as a relevant input into the quality of life of residents. However, these production relationships differ according to a rather wide range of institutional and other factors that vary between places as well as policies. The relationships are also potentially highly dynamic with numerous feedback loops.

Comparison of the case study areas

In TOP-MARD a wide range of countries each with a 'study-area' was chosen to explore the diversity of multiple functions, co-production, and impacts on rural development across Europe. In this way it was possible to examine key features of the problematic across a variety of both natural environments and institutional arrangements. The empirical work was undertaken in eleven study areas. Each of the study areas was selected because of specificities addressing the characteristic set of farm management types within the national and /or the European context of agricultural structures. The result was a sample of study areas that were different from one another, including differences within the areas from community to community and from valley to valley. There were differences in farm structure, in income, in topography, in climate, in type of farming, in farm production. There were also differences with regard to the composition of economic sectors, in the importance of tourism, in population density, structure and growth, in ruralurban dynamics, in migration, and in rural quality of life in general. Finally, and what seems important for regional development aspects, the governance structures and policy regimes also varied considerably within the sample of regions. Nevertheless, the study areas faced many similar problems and challenges, and there were many similarities in the range of public goods associated with agriculture. Although only a minor part of the study areas' economic performance is derived from agriculture, farming was still considered to be an important aspect of these rural regions, with a large influence on people's welfare, as well on other businesses, especially tourism. The study areas basically were NUTS 3 areas (county) or selected at an equivalent scale (with the main exceptions in the countries Spain, Ireland and Scotland).

The study areas were spread over a large part of Europe, from Västerbotten in Sweden on the border with the Arctic Circle in the north, to Latina (Italy), Berguedà (in Spain) and Trikala (in Greece) in the south, and from Mayo in the far west of Ireland, to Bàcs-Kiskun (in Hungary) and Trikala (in Greece) in the east.

The total population living in these eleven study areas in total exceeded 2.5 million people. The greatest number of people lived in the Hungarian study area (more than half million), while the smallest numbers of population were found in the Spanish and Scottish study areas (both having a population of around 38 thousand inhabitants). Västerbotten in Sweden is the most sparsely populated with a population density of 4.6 inhabitants per km², and the German study area on the other extreme is the most densely populated with 271 inhabitants per km².

Table 1. Demography and surface characteristics of study areas

Country	Study area	NUTS 3 Code *	population 2002	Population density (in-hab./km²)	Portion mountain area
Austria	Pinzgau-Pongau	AT322	162.300	37,2	1,00
Germany	Wetteraukreis	DE71E	298.120	271,0	****
Greece	Trikala	GR144	132.600	39,0	0,86
Hungary	Bàcs-Kiskun	HU331	541.000	64,1	****
Ireland	Mayo	IE013*	117.446	21,0	****
Italy	Latina	ITE44	519.850**	219,7	0,49
Norway	Hordaland	NO051	448.343**	33,0**	1,00
Scotland (UK)	Caithness and Sutherland	UKM41*	88.600	6,9	0,54
Slovenia	Gorenjska	SI009	197.100	92,4	1,00
Spain	Berguedà	ES511*	39.224***	33,1	0,81
Sweden	Västerbotten	SE081	255.200	4,6	0,90

*= Study area within the NUTS 3 code. For Spain Berguedà lies within ES511, Barcelona province; **=2005 numbers; ***2004 numbers ; **** no numbers, but relatively mountainous in Ireland, mainly flatland in Hungary and Germany
Source: UHI Millenium Institute 2008, p. 50

The unemployment rate for all the study areas was on average 5 percent in 2001. The proportion of unemployed was the lowest in Norway (2.5 percent) and Austria (3.4 percent). The unemployment rate among primary graduates was more than twice the average in Slovenia (15 percent), while it was the lowest in Norway (2.9 percent) and Italy (3.2 percent). Those with secondary education were in the worst situation in the Greek study area, as 14 percent of them could not find a job. The lowest unemployment rate in this educational group was reported by Norway (2.8 percent) and Austria (3.2 percent). The highest unemployment rate in the tertiary educational group was 11.9 percent in Greece.

The functions of agriculture were quite similar in character between all study areas, nevertheless there were clear signs for the influence of regional aspects. In particular, there was a divergent appreciation of the (local) population's concerns and problems, related to the presence of farms and farming. The understanding of these issues differs largely between (and within) the sample of study areas. The 'non-commodities' emphasised in the analysis of the study areas to be important for the quality of the area and for people's valuation of quality of life differ also to some extent between the study areas.

In comparison to other industries, agriculture is a very land-intensive activity. It is therefore unique in the way how it shapes the cultural landscapes in which people reside and organise their livelihoods. Many of the local traditions and cultural activities originate from farm practices. Even if many people have a distant relationship to farming itself nowadays, everybody living in the area or

visiting the area from outside is clearly affected by and experiences the cultural landscape as an outcome that is produced by farm management and shaped by types of farming activity.

Tourism activities, both mainstream and niche market profiles, indeed make a substantial contribution to economic development in many of the regions, and particularly in the case of mountain regions, with Pinzgau–Pongau being the most prominent example within the Alpine area in this respect.

As a consequence of the differences in physical, social and historical conditions, both the styles and the scales of agriculture vary and differ among the study areas. In the Hungarian area for instance, almost half of the cultivated area is occupied by large corporate (formerly cooperative) farms. The average size of these corporate farms is 500 ha, whilst the average farm size in the Greek study area is down to 3.9 ha. Also the main agricultural production sectors vary considerably across the study areas from more livestock focus, like in sheep, beef, meat and milk production, to oil, a significant role for permanent cultures and wheat and other crop products.

European analysis of survey results

In order to produce region specific information on the relevant farm management groups within the study areas the database on contextual features had to be improved. One of the main project tools to find this information was a series of surveys of actors in the study areas. In particular, a survey on farm households and entrepreneurs aimed at assessing the local perspectives towards the provision of public goods by agriculture and the valuation of agricultural performance in this regard. As this is a highly localised contextual issue interviewees provided specific examples of these activities in the interviews. The project also included other surveys with population groups particularly affected by in- and out-migration considerations, like younger population groups. These were thought to be able to address the aspect of quality of life and its implication on migration issues to a large extent. To control their assessment against other parts of the local population an old age person group was also interviewed to find out specific differences in the valuation of quality of life aspects and changes of the assessment in the course of lifetime or due to different attitudes. The Quality of Life survey of rural residents, focusing on young people, the elderly, and women with children was undertaken to explore the importance of different elements of quality of life (using the 'capitals' approach), the role of agriculture in terms of these elements, and their relationship to decisions to leave, enter or remain in the study area as a resident (i.e. migration decisions).

Data for the Quality of Life survey was gathered using a carefully designed questionnaire, usually applied in focus groups to allow careful explanation and discussion of the surveys intention and content. The overall quality of life was rated 4.1 on a scale of five. Irish respondents rated their quality of life the

best while Hungarians evaluated it the worst. In the open countryside people gave a higher ranking to their quality of life (4.3) than people living in "larger towns" (mainly this term would mean actually in smaller towns; 3.9). The differences for other aspects were not as clearly expressed, indicating an overall high valuation of quality of life aspects, with some relevance of lifecycle changes and personal backgrounds.

Table 2. Integrated level of satisfaction with living standards by study areas (using the five-point Likert scale, with 0=low and 5=high)

Country	Mean
Austria	4.4
Germany	4.1
Greece	3.4
Hungary	3.3
Ireland	4.7
Italy	3.7
Norway	4.4
Scotland (UK)	4.2
Slovenia	3.8
Spain	3.9
Sweden	4.2
Total	4.1

Source: UHI Millenium Institute 2008, p. 71

Moreover, linkage to governance aspects was achieved through a National User Group (NUG) that was set up in each of the study areas. The particular aim here was to discuss the main considerations on the concept of multifunctionality with local representatives and the relevance for these local actors within their context. In the end, all the information served as a prime base for estimations of indicators that were required as model input. The need was to address the region specific value of these items so that the regional experience and evaluation adequately influences the model indicators.

Case study area Pinzgau-Pongau

The case study area Pinzgau-Pongau (administrative district NUTS 3: AT 322) has been selected to represent the most widespread farm management types and regional contexts of Austria characteristic for the situation in mountain areas. It is part of the Austrian province (Land) Salzburg which is to a large part characterised by the location in the Central Alps of Austria. All the municipalities of the study area are classified as mountain area, according to article 18 of Council regulation (EC) No. 1257/1999. It is marked by a diversified mountain landscape with the characteristic mixture of high shares of forests, grassland, alpine pastures and rocks. The area of permanent settlement is very limited (only 14.2 per cent of the total area), which results in a rather high

density of 259 inhabitants per km2 permanent settlement area (slightly above the Austrian average). The region is one of the most intensive tourist regions of Austria (and the whole Alps). The area as a holiday location with intensive winter (skiing) and summer tourism (mountain walking trails etc) is therefore under a significant tourist pressure.

Almost all farms in the area are classified as mountain farms and the proportion of organic farms (44 per cent) is the highest for all regions of Austria. The study area is characterized by small scale farming and a very high portion of pluriactivity of farm households. The predominant farming systems are milk production and livestock grazing. The alpine pasture areas account for 71.4 per cent of the agricultural land in the case study area. The forest area covers 37% of the total farm area (Bergmann et al. 2007, p.23).

The management of these extremely sensitive eco-systems by farms (mountain farms) therefore is of great importance in the multifunctional context. This importance is not only relevant for tourism development, but also significant from the point of view of society as a whole, maintaining biodiversity, protection against natural hazards, issues of nature protection and general environmental performance being the main aspects of social demand (Dax and Hovorka 2004). In the study area the Alpine national park "Hohe Tauern" plays a core role for the protection of the environment in these highly sensible mountain areas, with an exemplary role for other regions of Austria as well.

Case study area Gorenjska

Gorenjska is an area with extreme natural and cultural diversity. The alpine area presents 70% of Gorenjska and 40.2% of the region lies at least 1000 meters above sea level. The forest area covers 70% of the total territory. Economy of Gorenjska is characterised by an above-average representation of industrial sector (43.5% of regional value added).

With regard to the natural and geographical characteristics (high percentage of mountain area), the predominating farming type in the region is grazing livestock (especially cattle breeding). It involves more than half (62%) of all farmers in the whole structure. The second considerably important farming type is mixed livestock production. Less than 10% of farming is recognised as mixed crop and livestock production.

In this study area the major part of the agricultural areas belongs to farmers as their own agricultural land. Within the farms' structure family farms are predominating. Most of the agricultural commodities are conventionally produced and local market targeted. Agricultural cooperatives are quite well spread through the region. They take care for collecting and buying agricultural commodities (especially milk, beef, crop and potatoes), wood and other

farm products. Bigger processing plants are relating to slaughterhouses, while the small one are most of all located on the farms or are in private hands (Gorenjska Regional Development Programme 2007-2013).

In the northwestern part of Gorenjska region the only national park of Slovenia, Triglav National Park (TNP), is situated. This national park is especially interesting due to the diversity of its landscape and preserved natural mountainous features which are also important for tourism development as a main economic activity in the area.

Comparison of the study areas Pinzgau-Pongau and Gorenjska

The areas in Slovenia and Austria are located on the southern and northern side of the Alps respectively, experiencing a high altitude inland climate. Tourism and farm tourism have both become an important business in the two study areas.

In Table 3 some key social and economic indicators of the two regions are compared. Both areas are mountainous and have a lower population density than the national average, but in Pinzgau-Pongau the population density (37.2/km2) is much below that of Gorenjska (92.2/km2). With relation to agricultural structures, the number of farm units is very similar, being slightly above 4,000 in the last agricultural census. Net farm income as well is at the same level, despite the different history of agricultural policy over decades in the second half of 20th century. This underscores the production difficulties of mountain farms which largely limit the production potential and farm income chances in these areas. On the other hand, one can see the comparably higher share of farmed and forested land in the Austrian study area.

In contrast to these similarities regional economy is more advanced in Pinzgau-Pongau. The GVA per capita is in the Austrian study area more than double of that in the Slovenian study area. Any kind of regional policy aid is thus very relevant to Gorenjska region (see Gorenjska Regional Development Programme 2007 – 2013), but of less influence for Austrian study areas, like Pinzgau-Pongau.

Table 3. Key socio-economic data in study areas Pinzgau-Pongau and Gorenjska (2001)

		Pinzgau-Pongau	Gorenjska
Number of farms	number	4,370	4,680*
Net farm income	€1,000	8.48	10.91*
Average ESU per farm	ESU	7.15	5.01*
Labour demand agric.	head	4,510	5,420*
Farmed and Forested land	hectar	176,410	32,460
surface	hectar	435,500	212,400*
Population size	head	161,996	195,885
Under 20	head	42,361	45,457
Over 65	head	20,939	27,938
population density in km²	km²	37.2	92.2*
GVA per capita	€/head	22.2	9.9
GVA land use	1,000 €	105,107	42,337
Regional employment	head	73,484	92,458

* data for 2003
Source: Bergmann et.al 2008

In both areas the main functions of agriculture, beside the production of food and fibre, are to maintain the high quality of environment and to ensure the social viability of rural areas. Both areas have agricultural and rural development support schemes including programs directed towards the protection of natural habitats and more environmental-friendly production such as special support schemes to increase organic farming.

In Austria, the maintenance of natural and cultural rural landscapes is supported unanimously by the stakeholders and policy makers. The most important Rural Development Programme (RDP) measures in the study area are the Less-Favoured Area (LFA) compensatory allowance (LFA and areas with environmental restrictions) and the agri-environmental measures in ÖPUL (agri-environmental measures), both together building the main measures of RDP and subsumed in axis 2 of RDP 2007-2013. This is, of course, due to the high proportion of mountain farms, alpine pastures and organic farms in the area which address the aims of the measures to a very high extent. Another important feature of the Austrian rural development policy is the long lasting priority and experience for programmes and measures of a Leader-like type (OECD 1998). This approach has been started even before EU accession in 1995 and therefore Austria disposed of a high administrative knowledge and regional and local interest to engage in these activities from the beginning of Leader support. As for large parts of Austria, the study area comprises significant activities of LEADER+ groups (in the past programme period, but also up new Local Action Groups for the current period have already been set up). 47 of all the 53 municipalities in the study area were members of the three active LEADER + Groups in the period 2000-2006.

In Slovenia, the problems related to post-war agricultural policies were different from the other countries in the study, and, until at least the pre-accession period, have been dealt with by other types of initiative and technologies. The transition into a new economic system and new governing bodies has faced farming and the agriculture industry with huge challenges. The national policy in the new member states has to work towards compliance with the EU system (Hočevar et. al. 2007).

After the transition and EU-membership, Slovenia lists the following rural development measures: LFA support; agri-environmental measures; food quality schemes; support for economic diversification of agricultural households. In addition, the rural areas take part in several cohesion policy measures.

The POMMARD policy model

The TOP-MARD policy model POMMARD (Policy Model of Multifunctional Agriculture and Rural Development) is a dynamic simulation model, programmed in STELLA™. It links EU, National and regional policies, governance, resources, and regional activities to social, economic and environmental outcomes in each region. A single core model has been built from which the 11 adapted regional models were derived. This allows regional differences to be incorporated into the models, yet ensures that the results of policy simulations from the 11 regions are comparable (Bryden et al. 2008, p.31).

POMMARD is largely supply oriented (with demand constraints). The model contains 10 modules: Initial Conditions, Policy Controls, Indicators, Land, Non- Commodities, Agriculture, Quality of Life, Human Resources, Region, and Tourism. In Figure 1 below the general relationships between the different components of the model are shown.

Land use is the primary economic driver in this model. Land use determines agricultural production of commodities and non-commodities. It also determines the amount of labour employed in agriculture. The regional economy is, in turn, driven by the supply-oriented agriculture module (and other special modules) and demand drivers from the larger (state or global) economy. The initial conditions and policy controls provide inputs to the model for scenario analysis. Finally, indicators allow the user to monitor changes in key variables.

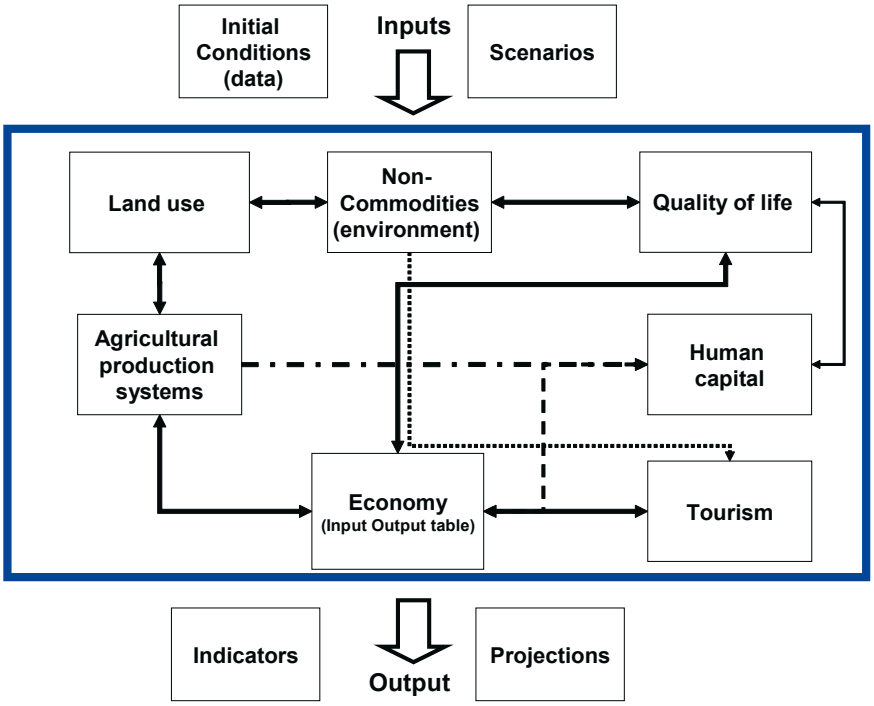

Figure 1. Overall Structure of the POMMARD
Source: Bergmann and Thomson 2008; Bergman et al. 2008

The Agriculture Module (Agricultural production system)

Agriculture is assumed to be supply-oriented and is organized into alternative production systems. Farmers make decisions about the production systems they will adopt based on policy and other exogenous information. The choice of production systems determines land use. Agricultural production, determined by the amount of land allocated to each production system and the agriculture output coefficients, adds to the agriculture output inventories. Agriculture production is linked to the Region Module by agriculture labour demand, purchase of locally produced inputs and agricultural income which induces some consumption demand. Policy changes are introduced through exogenous changes in the prices of agricultural commodities and in policy subsidies and payments. Changes in prices of agricultural commodities are introduced through a commodity price change vector. Net farm income is calculated from changes in production systems, changes in commodity prices and commodity, production system and land subsidies.

The important innovative element of the model is its structure implying a comprehensive assessment of the different relationships and sectoral contributions to tasks and services provided by agricultural within the regional context. The modules of Quality of Life, Human Capital and Tourism are

therefore direct indicators for this approach. In this structure, these are influenced by farm management decisions and different farming types so that the impact on the regional economy and the non-commodities can reflect these elements as well.

POMMARD was designed for policy analysis. The first step in analysing policy is to generate a baseline projection for the regional economy. Alternative scenarios are then developed by introducing changes in the policy controls converters, or more commonly, by discrete changes in the exogenous drivers of the model. A wide variety of exogenous variables, especially policy intervention variables, have been built into the model, including final demand growth rates, changes in land use, mix of production systems, agricultural prices, subsidies, exogenous expenditures and income and transfer income.

Model results for the case study areas

The selection of a series of scenarios should present a first impression on the potential use of the model for dealing with policy change issues. Each of these scenarios form the basis for separate POMMARD simulations (projections into the future, in our applications to the year 2025), and comprise:

1. two "Base Scenarios", one using data for 2001 (or a nearby) initial data year, and the other defined to include changes to date (2007) and to be used as a comparator scenario
2. eight "Alternative Scenarios", each representing a reasonably conceivable change in policy conditions after 2007. The eight Alternative Scenarios were specified as below at EU level; teams were required to apply these scenarios as appropriate to their country and case study area.

In this paper the results of the main baseline in the year 2025 are compared with the results of the following four scenarios[3] for results in the year 2025:

A1. Direct (Single) Farm Payments Cut by 50%: a 50% cut in annual direct payments (DPs) to farmers (both rates and totals) starting in 2007, with no reallocation of funds e.g. to Pillar 2 or Structural Funds (and no change in farm commodity prices: see below).

B. All Axis 2: in this Alternative Scenario, spending on rural development (i.e. Pillar 2, in EU) in 2007-13 (and beyond) in the study area remained as in the EU budget but all Pillar 2 spending was reallocated to Axis 2, i.e. to agri-environmental land management (and none to Axis 1 farm development, nor to Axis 3 rural infrastructure and diversification). Pillar 1 spending stayed the same.

3 The main scenarios caried out and documented in the final report focus on an increase of regional funding (scenario D: 50% more regional funding in the study area), and a 100% increase in energy prices (scenario E: doubled energy prices) which are either less relevant in the study areas or reveal less region specific features, and therefore are not reported here in more detail (see UHI Millenium Institute 2008, 96 et seqq.)

C. All Axis 3: in this Alternative Scenario, rural development (i.e. Pillar 2, in EU) spending 2007-13 in the study area remained as in the EU budget but all Pillar 2 spending is reallocated to Axis 3, i.e. to rural infrastructure and diversification (and none to Axis 1 farm development, nor to Axis 2 agri-environmental land management). Pillar 1 spending stays the same.
F. Intensification of Tourism: this Alternative Scenario involved a gradual increase in tourism demand (i.e. tourist expenditures) from its 2006 (or the latest available year) level(s) to reach a 100% increase by 2013, and thereafter constant. Teams decided on the timing, seasonality and tourism type (e.g. day trippers and hikers, or "long stay" tourists/hunters/ anglers), and implemented these via the appropriate converters in POMMARD.

The output and outcome indicators of the model show the economic, social, demographic and environmental consequences of the various scenarios for the range of rural regions represented by our study areas. The reference years for analysing the model results in this paper are 2007 and 2025.

As the study areas differ in physical, socio-economic and institutional and governance conditions, the parameters of the adapted POMMARD models necessarily vary. The outcome indicators will therefore be influenced not only by the model input data but also according to differences in the relevant parameters. In addition, these indicators will also be influenced by the existing (baseline) importance of each policy element examined (Pillar 1, Pillar 2, the three axes etc.), which also varies between study areas. Pinzgau-Pongau and Gorenjska belong to areas with relatively low gross value of agriculture in relation to land area.

Table 4. Scenario results for Pinzgau-Pongau in 2025 in percent

	Main Baseline	Main Baseline	Scenario A	Scenario B	Scenario C	Scenario F
	(2025/2007) x100	2025	2025	2025	2025	2025
Total Population	119.7	100	103.5	99.7	113.0	120.0
Per Capita Income	98.5	100	100.3	100.1	101.0	100.9
Non-ag employment	116.5	100	103.9	99.6	114.5	122.2
Total Migration	103.0	100	120.6	97.3	173.9	136.9
UAA	98.5	100	98.0	100.3	93.9	99.1
GVA (Gross Value of Agriculture)	98.4	100	97.8	100.3	93.5	99.1
Ag Employment	99.7	100	99.4	101.1	98.3	99.6
Excess Nitrogen	96.5	100	96.2	100.0	90.5	98.7
Biodiversity	100.0	100	99.9	100.0	99.8	99.9

Source: own calculation with POMMARD

Table 5. Scenario results for Gorenjska in 2025 in percent

	Main Baseline	Main Baseline	Scenario A	Scenario B	Scenario C	Scenario F
	(2025/2007) x100	2025	2025	2025	2025	2025
Total Population	95,4	100,0	100,5	101,7	100,7	99.5
Per Capita Income	102,3	100,0	99,7	100,5	99,9	99.9
Non-ag employment	100,3	100,0	100,6	102,1	100,8	99.4
Total Migration	122,5	100,0	100,4	112,8	103,7	96.5
UAA	101,5	100,0	99,7	100,3	100,0	98.4
GVA (Gross Value of Agriculture)	112,2	100,0	99,7	100,2	100,0	96.9
Ag Employment	101,0	100,0	99,7	100,3	100,0	99.5
Excess Nitrogen	101,5	100,0	99,7	100,3	100,0	98.1
Biodiversity	100,4	100,0	99,7	100,4	100,0	100.2

Source: own calculation with POMMARD

According to the main baseline results for 2007 with those for 2025, agricultural policy changes have significant positive impacts in both study areas. Comparison of results of different scenario runs for 2025 reveals that in both regions, the total population rises in relation to the main baseline (the only exception being scenario B in Pinzgau-Pongau and Scenario F in Gorenjska). In Pinzgau-Pongau the highest increase in total population and total migration can be expected with scenario C and F, whereas differences in overall population change between the scenarios for Gorenjska is only incremental. Not much change is to be seen for the development of per capita income. In Pinzgau-Pongau results reveal a slight increase, and in Gorenjska a slight decrease of per capita income. With respect to non-agricultural employment, the scenarios tested do not tend to bring significant changes in Gorenjska as the region has a relative low agricultural employment and the scenarios tested affect agriculture the most. It must be mentioned that scenario F cannot be esteemed to be realistic for Pinzgau-Pongau since the high level of intensive tourism already achieved at present can hardly be doubled (without significant drawbacks) in the future, as is the underlying assumption for this scenario.

As for the migration flows, the regions reveal varied results. In the case of Gorenjska, the scenarios tested reveal a general decrease of in-migration. On the opposite, main baseline assumptions would result in a slight migration decrease until 2025. Comparison of different scenarios reveal that potential for annual net migration increases significantly with increased RD Axis 3 expenditure or increased tourist demand (with the same disclaimer as in the case of this scenario for non-agricultural employment).

Total agricultural area and agricultural employment seem to remain relatively unaffected throughout the analysed period. As expected, the indicators would be adversely affected by a switch of RD expenditure to Axes 1 or 3 . Simi-

lar effects are reflected also in the case of gross value-added for agriculture, where the figures for Pinzgau-Pongau are reflecting almost identically the land use changes. Results for Gorenjska suggest deterioration of both, gross value-added in agriculture, which can be a combination of the expected fall of agricultural prices with respect to the (bumper) 2007 level and low competitiveness of agriculture's upstream (i.e. food processing) sector in the region.

The non-commodity (i.e. excess nitrogen and biodiversity) indicator in both cases see its highest change with the continuation of the Main Baseline (with a strong Axis 2 expenditure in both cases), or with Scenario B (increased Axis 2 RD expenditure) suggesting that high(er) public support on environmental and spatial public goods would reinforce the environment as well as profit rural viability.

Overall, the comparison of the results given by the scenario runs reveals that scenario B is a less attractive option for the non-agricultural sector but an attractive option for the agricultural sector. Scenario B is likely to indicate that preservation of farming and the environment in this area also preserves the settlement structure.

Difference in the scenario results between the regions underpins the hypothesis that policy reform impacts for agricultural sector and general socio-economic variables are largely dependent on the structure of actual policy priorities. The divergence in the policy approaches and the financial spending of existing measures has a clear impact on future policy outcomes. On the contrary, the impacts on the non-commodity (public-good) outcomes are more straightforward: higher public expenditure on provision of public goods in agriculture results in greater provision of these.

Conclusions

POMMARD deviates from the 'conventional' modelling approaches in analysing multifunctional agriculture. It has adopted a 'system dynamics' approach, which is a new approach towards modelling of rural policies. This approach has been utilised in order to explore complex and dynamic relationships between various components of rural economies. POMMARD has the ability to model the dynamic impacts of policy changes after 2013, and also to represent very long run developments. Various policies affecting economic, social or environmental welfare of a chosen region are treated as a separate model component and can be adapted.

The results for the two case study areas Pinzgau-Pongau and Gorenjska show that analysing common scenarios by using the features of this policy model leads to results that vary to a significant extent. It can be shown that the impact of policy reform is largely dependent on the starting situation and level of policy application. Moreover, regional indicators, the linkage of agriculture to the regional economy and the valuation of aspects of quality of life

are relevant elements influencing the outcome on the provision of multifunctional services within the regions and have an impact on the effectiveness of policy changes.

Multifunctionality in agriculture is generally considered as the joint production of both a physical commodity such as wheat or beef, and of a non-commodity output (NCO) such as landscape or wildlife. The lack of a market for NCOs (or at least a direct one for most of them; tourism, and to some extent desired inmigration, clearly rely openly on such NCOs) poses a problem for policy makers in deciding whether and how far to modify commodity policy instruments such as production subsidies to take account of NCOs, or whether to design and implement two separate sets of instruments.

The policy implications of the results of the TOP-MARD project – as derived from both its survey and modelling elements – can be drawn at a number of levels, from farms or farm households, through regions and countries, to EU level. Similarly, implications can be analysed in economic, social (e.g. demographics, education), or environmental terms, taking into account the various actual or potential policy instruments available in these areas. It is however fundamental to this analytical approach that future policy should be considered in a more "territorial" (i.e. regional) sense. In some cases, this may suggest more "integration" of existing policy design and implementation, whereas in other cases more fundamental changes in government structures and in governance may be involved.

References

Bergmann H., Thomson K., 2008, *Modelling Policies for Multifunctional Agriculture in a Remote EU Region* (Caithness & Sutherland, Scotland UK), 107th EAAE Seminar in Seville (Spain), http://ageconsearch.umn.edu/handle/6596 , (accessed 30.10.08).

Bergmann H., Dax T., Hovorka G., Thomson K., 2007, *Pluriactivity and Multifunctionality in Europe – a comparison between Scotland and Austria*, In: Pöchtrager S. (ed), *Jahrbuch der Österreichischen Gesellschaft für Agrarökonomie,* Band 16, Facultas Verlags- und Buchhandel AG, Vienna, 17-28.

Bergmann H., Dax T., Hocevar V. Hovorka, G., Juvancic L., Kröger M., Thomson K., 2008, *Reforming Pillar 2- Towards Significant and Sustainable Rural development?* Presented paper at the 109th EAAE seminar in Viterbo, Italy.

Bryden J., Johnson T., Refsgaard K., Dax T., Arandia A. 2008, *Scientific Approach*, Chapter 3 of the final TOP-MARD report to the EC, Inverness, 31-45.

Dax T., Hovorka G., 2004, *Integrated rural development in mountain areas,* In: Brouwer F. (ed.), *Sustaining Agriculture and the Rural Environment – Governance, Policy and Multifunctionality,* Edward Elgar, Cheltenham, UK, 124-143.

Gorenjska Regional Development Programme 2007 – 2013, Regional Development Agency of Gorenjska, http://www.bsc-kranj.si/Documents, (accessed 04.11.2008).

Hočevar V., Golemanova A., Juvančič L., 2007, *Estimation of different policy affects on regional economic performance – case of Gorenjska.* In: Kavčič S. (ed), *Slovensko kmetijstvo in podeželje v Evropi, ki se širi in spreminja*. Slovenian Society of Agricultural Economists, Ljubljana, 245-257.

OECD - Organisation for Economic Co-operation and Development 1998, *Rural Amenity in Austria,* A Case Study of Cultural Landscape, Group of the Council on Rural Development, C/RUR(98)4, Paris.

UHI Millennium Institute, 2008, *Towards a policy model of multifunctional agriculture and rural development* (TOP-MARD), Final activity report to the EU, Inverness.

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Modelling and valuing ecosystem goods and services of multifunctional landscapes using GIS and remote sensing

Abstract: *Landscape change today is occurring more rapidly than in any other time in history. Among other influences such as global warming these changes are also driven by political decisions affecting ecosystem services. The overall research objective is to define how the European Union's political strategies implemented through rural development programmes and the Common Agricultural Policy (CAP) are influencing or changing ecosystem goods and services in the future. This contribution aims at outlining the research framework and especially focuses on a ground rent approach to model the spatially explicit distribution of subsidy cash flows on farm and parcel level. Experiments with changing political strategies and incentive payments were carried out in the Mondsee catchment (Austria) using GIS and remote sensing for facilitation. The results were visualised and show the dominant (inter-)national and regional funding programmes of this area. They further display the likely effects of changing political strategies on the monetary value of certain parcels and the overall farm-parcel balance. The validation of an aggregated set of funding measures reveals 15% deviation between the model framework and real subsidy payments. Thus, this model is suitable for estimating the impact of changed funding strategies at EU level and also supports farmers in indentifying the best economic income sources on parcel and farm level. Embedded in the overall research objective, the results constitute the basis for opening a discussion on how ecosystem services might change with political intervention strategies in rural areas and resulting landscape changes in the future.*

Keywords: *ecosystem goods and services, environmental eccounting, environmental economics, GIS, remote sensing, spatial planning, rural development*

Introduction

In the early period of the European Union, 80% of the EU‘s budget was used to finance the agricultural sector. Since then, European and national funding for sustainable land management is subject to a decline from 47% in the year 2001 (43.3 billion EUR total budget) to presently 38%. Due to the agricultural policy compromise adopted in October 2002 in Brussels, this trend is predicted to continue down to 32% in the year 2013 (Auswärtiges Amt 2006).

We argue that this forecasted decline of funding resources puts substantial pressure on landscapes. This pressure is, among other factors, caused by land abandonment, bush encroachment and afforestation which are the direct results of reduced labour effort spent on farming practices. These changes have also consequences for ecosystem goods and services associated with landscape scenery (i.e. recreation activities).

To maintain relevant services and to develop a landscape of tomorrow, it is necessary to create and establish an inventory of spatially explicit environmental goods and services (yellow, green and blue services) present in a landscape. This inventory postulates a comprehensive understanding of landscape complexity and should define which products are intangible and important for the prosperity and wellbeing of the local population. It should also identify which ecosystem processes and functions are necessary in order to provide specific ecosystem service products.

Further development of natural resources mandates the support of agricultural businesses by adequate payments in order to manage and maintain those ecosystem services demanded by society in the future. After all, landscapes comprise an economic value which needs to be captured besides food production. We frame the hypothesis that the value of ecosystem services we use is much higher than the subsidy payments disbursed for their maintenance. Unfortunately we cannot answer this question here but instead establish a framework within which it is possible to analyse and model past and present subsidy cash flows and forecast future developments based on specific assumptions for scenario building.

In response to this complex challenge, the overall research objective is to present a methodology developed for spatially explicit describing, modelling and classifying the impact of political decisions on ecosystem goods and services in the future using scenario techniques for visualisation. The authors propose a methodology combining Ernst Neef‘s School of Landscape ecological theory and land surveying techniques to capture the natural states, conditions and potentials of landscapes. Process-oriented classification methodologies and concepts for ecosystem analysis and assessment provide information on distinguishable functions working in landscapes (Bastian and Steinhardt 2002). The units derived from landscape analysis capture the multifunctional and multidimensional space of ecosystem services. Combined with theories and

concepts from Economy and Social Science the value of functions for society can be determined and clustered at parcel level for the purpose of regional planning, landscape planning, nature conservation and environmental protection. These land use / land cover units are acquired from satellite imageries or aerial photographs using remote sensing techniques and change detection methods (Klug et al. 2007).

Economic-political guidance and control of financial resources is strongly recommended if we want to handle the limited resources that are available for society and environment to our best knowledge. This requires spatial explicit modelling of subsidies based on farm and parcel level. The results should reveal spatially explicit regional disparities based on changed funding structures. Based on new concepts and methodologies, this decision support tool predicts the likely consequences of future regulation and political decisions on the landscape of the Mondsee catchment study area. The two main objectives of this contribution are: 1) conceptualising a methodology that is able to capture scenarios of likely consequences of political interventions in regard to the agrarian funding system and 2) investigating the amount of subsidies employed by farmers and its share in the farmers' annual balance sheet.

Methods

This chapter outlines the overall concept and the materials used to facilitate the ground rent approach. The first section introduces a) a general approach of ecosystem goods and services (section 2.1) which b) results in an inventory of spatially explicit ecosystem services (section 2.2). The inventory aims at understanding the claimed natural resources and functions as a basis for a general discussion of the benefit of such a tool for society. With the inventory at hand we face the problem of environmental accounting in terms of money (section 2.3). This problem will only be discussed briefly, because it is not the focal point of the paper. However, the spatial units taken for service evaluation are necessary elements for the approach submitted here (section 2.4). Farmers receive subsidies from (inter-)national and regional funding bodies based on parcel level if they comply with the framework of cross compliance (VO [EG] Nr. 1782/2003 and VO [EG] Nr. 796/2004). Thus, the knowledge of available funding programmes triggers the cash flow of subsidies. The Mondsee catchment served as a case study area to model this proposed approach (section 2.6).

The concept of Ecosystem Goods & Services

Landscapes consist of a multitude of ecosystems. These ecosystems are based on a certain environmental structure which is reflecting imminent landscape processes. The processes shaping landscape structures are inherently complex and interrelated with certain ecosystem components (soil, water, relief, geology, flora and fauna) as well as human land use patterns. While taking advantage of these natural resources for human benefit, intervention is increasing with demand. As human populations grow rapidly, so do the resource demands.

Ecosystem services are, however, not invulnerable and infinitely available! Since society has realised that ecosystem services are not only threatened and limited, but also that pressure is rising, an evaluation of trade-offs between immediate and long-term societal demands is urgently needed. A landscape inventory system is required to capture these services, to estimate the relevance and sustainable use of this resource and to value the benefits of these resources in terms of money.

According to the Millennium Ecosystem Assessment (MEA 2005, p. xvi / 28) ecosystem services can be subdivided into five categories:

- provisioning services: e.g. the production of food and clean water
- regulating services: e.g. the control of climate and air quality and water flow regulation
- supporting services: e.g. as nutrient cycles and crop pollination
- ultural services: e.g. spiritual and recreational benefits
- preserving services: e.g. maintenance of diversity and good water quality

Inventory of spatially explicit environmental services

Provision of ecosystem services and their maintenance by farmers are not captured in commercial markets or politics nor are they adequately quantified; so far they have been given little attention in political decision making. Only when services are overexploited or stop working, re-active actions are denoted to turn back to previous conditions or to eliminate consequences induced (e.g. flooding due to decreasing retention areas).

It is argued that the neglect of valuing ecosystem services has consequences which ought to be considered today rather than tomorrow.

Ecosystem goods and services can be unitized into three categories:
1. *green services:* environmental and landscape services,
2. *blue services:* water resources services, and
3. *yellow services:* socio-economic services.

All three services are strongly interacting and partly superimposing. Capturing these services and the benefits for society enables one to identify those products that are intangible and important for a specific landscape. Impacts of anthropogenic use and abuse for these three service categories are becoming ever more apparent; – air and water quality and quantity are compromised, biodiversity is decreasing and partly genepools from vanished red list species decrease, deforestation and land amelioration is eliminating water retention possibilities and flood control around human settlements and pests and diseases such as the cow disease are extending beyond their historical boundaries. Guidance on general types of ecosystem services is given by the Millennium Ecosystem Assessment Report (MEA 2005, 165 et seqq) and de Groot et al. (2002).

Regional authorities or landscape stakeholders need to capture local services demanded by society. Public participation approaches identifying the requirements, needs and value of resources are a first step (Klug 2007a). Especially the valuation of ecosystem services needs such kind of approach since their economic value is associated with personal values and hence the respective stake considered. The main challenge of assigning economic values to natural units is prompting transdisciplinary shifts in the recognition and management of the environmental, social, economic and political responsibility and multidisciplinary opportunities of resources use.

The complexity of ecosystems poses a tough challenge for scientists as they try to understand how spatio-temporal relationships are interconnected with processes and functions (de Groot 2006). Therefore, understanding ecosystem services requires a strong foundation in landscape ecology, which describes the underlying principles and interactions of environment and people in a transdisciplinary way. Valuing these ecosystem goods and services relates to Environmental Accounting (EA). EA aims at measuring the contribution of natural capital to societal benefits and to document recent, present and future costs resulting from the overuse or damage to services provided by nature. The Intergovernmental Panel for Climate Change (IPCC) is for instance reporting effects of climate regulation due to an increase of CO2 in the atmosphere (IPCC 2007). While contributions to account ecosystem services on a global level (Costanza et al. 1997) are necessary and strongly supported by the authors of this article, practised methodologies reveal conflicts at larger spatio-temporal scales:

- Ecosystem services (ES) work at a certain spatial and temporal scale. Interpreting ecological information collected at a certain reference scale cannot necessarily be transferred to another scale.
- ES do not carry the same value in the world but are changing locally due to their fundamental anthropocentric character. Demands on ecosystem services spatially vary among countries, regions as well as social and ethical groups.
- ES retain a disparity between actual and perceived values. This relates possibly to peoples' limited acknowledgment of the interrelatedness of societies and the natural environment.
- ES depend on the local properties of land use / land cover, soils, water distribution, geological underground, climate / air, and relief.
- The services might change periodically or in a certain time period (seasonal changes).
- The preconditions to provide certain ecosystem services strongly depend on the natural background of a region.

According to Farber et al. (2002) six major methods for valuing ecosystem services in monetary terms include:

1. Avoided Cost: ecosystem services allow society to avoid costs that incur in the absence of those services (e.g. water purification in the absence of nutrient filtering infrastructure in the landscape)
2. Replacement Cost: ecosystem services can be replaced with man-made systems (e.g. restoration, maintenance or build up of structures in the catchment cost less than the construction and permanent use of a water purification plant)
3. Factor Income: established and maintained ecosystem services provide enhancement of local incomes (e.g. improved water quality increases tourism which in turn provides income for local shops, hotels, bars, etc. and the local fishing industry)
4. Travel Cost: ecosystem service demand may incur travel costs e.g. the toll roads (e.g. high mountain recreation - based on the value of people willing to pay to get there)
5. Hedonic Pricing: ecosystem service costs might be reflected by a specific location (e.g. houses with castle view or near the shoreline of a lake are more costly than houses in remote areas)
6. Contingent Valuation: ecosystem service can be valued according to presently used and passive values (not used) (e.g. asking people how much they are willing to pay for a specific service)

Despite the value of these six methods for environmental accounting we did not apply them because our question is: „How much is presently paid in subsidies to maintain ecosystem goods and services?“ This question leads to the question which spatial units are available for calculating present payments in order to maintain ES.

The spatial units

A Land Accountancy System (LAS) specifically attempts to interpret natural properties and their changes in terms of processes that transform one service to another. This is enabling the assessment of subsequent changes. These changes are based on spatial locations. Spatially explicit units need to be combined with economic valuation practices mentioned in the previous chapter. As an emerging field, spatial econometrics is combining GI-Science with Economics including findings from Environmental and Social Sciences. Valuation in this respect refers to the process of giving a monetary value to a particular unit that is representing one or more ecosystem goods and services (Farber et al. 2002, p. 376).

When trying to apply monetary values to certain landscape units we need to determine how these units should be framed. They can either be based on locations determined by the natural or by administrative boundaries. The latter can be equivalent to farm parcels which play a crucial role in EU agrarian funding schemes. According to the Common Agricultural Policy these units

need to be captured in an Integrated Administration Control System (IACS) if EU subsidies want to be claimed. In Austria, the Agrar Market Austria (AMA) is providing the IACS service including a huge amount of spatially explicit information (e.g. land use, crop rotation system, intensity of use, subsidy measures taken for each field). These administrative units refer to the farm owner and those people who are shaping and embossing the landscape with their business. Farmers can be entitled the ecosystem service providers (ESPs) receiving money from the EU and national funding bodies to maintain the services provided.

Spatial decision support

The main driver of applied Geoinformatics in the field of environmental economics is the effort to inform decision-makers of present versus future costs and about the benefits of certain spatial resources. This involves a) defining the ecosystem service relevant for a region, b) translating scientific knowledge from several natural and social science disciplines and c) organizing the knowledge into economic values of comparable spatial units.

Understanding the dynamics of political decisions and their ecological and economic effects relative to the ecosystem services is essential when assisting political decision makers. Thus conceived, the basic notion of value that guides political decision is inherently anthropocentric, or instrumental. To the decision maker „value“ is equivalent with the contribution of politics to the goal „satisfaction“. While this value is related to the use of a specific thing (maize crop) or object (parcel), the actual determination of a value price requires some objective measure if one should be able to estimate the degree to which the thing or object improves income benefits and services for society. In a finite world of available financial resources politics are interested in economic and environmental forecasts and strategies of incentive implementation. While economists have developed an extensive theory of how people behave in the presence of political constraints and incentives (Varian 1992), GIS can help to spatially explicit model this behaviour using scenario techniques. The working hypothesis in our study case is that farmers make decisions in order to optimize satisfaction. Satisfaction is referring to maximizing income and/or reducing work load. This optimization process always takes place in the presence of certain constraints, such as present income of the farm, time resources available, local resource supply and many others. In this respect, optimization yields a deterministic set of possible decisions relevant for most real-world situations. This hypothesis is reflecting the fact that when constraints (subsidies or incentives) change, so do decisions. A deterministic set of decisions enables the modelling approach to reflect and respond to changes in a predictable fashion. This allows forecasting certain political strategies and to intervene in the European agricultural funding system in order to manage sustainable natural resources.

A set of relevant criteria is important for this spatially explicit approach: fair distribution of resources among member states and regions as well as an efficient allocation of available resources (Daly 1992).

Considering the requirements for decision support by stakeholders and politicians we apply a ground rent model on farm and parcel level helping to balance the a) costs allocated for certain regions, b) for the annual farm balance, and c) single parcels of a farm. This model framework has been applied to the case study area of the Mondsee catchment.

The Mondsee case study area

The catchment area of lake Mondsee is about 30 km northeast of the city of Salzburg and has an area of 248 km² (Figure 1). The majority of the study area lies in the Alpine foreland and it is politically divided by the Austrian Federal States „Upper Austria" in the East and „Salzburg" in the West. The area is characterized by its hilly appearance; only the south of the study area is dominated by the northern edge of the limestone Alps (Klug 2007b). The catchment is small structured by meadows and pastures and some smaller remaining areas of arable land. Of the 414 farmers (mainly cattle farms) more than half (232) are working on a small farm scale of 10 to 20 ha (Asamer and Klug 2008). According to the data collected by Statistics Austria (www.statistik.at) the years 1981 to 1991 show a trend in decreasing labour force in the primary sector (approx. -30%) causing a trend from full time to part time farming practices (Oberösterreichische Landesregierung 2004).

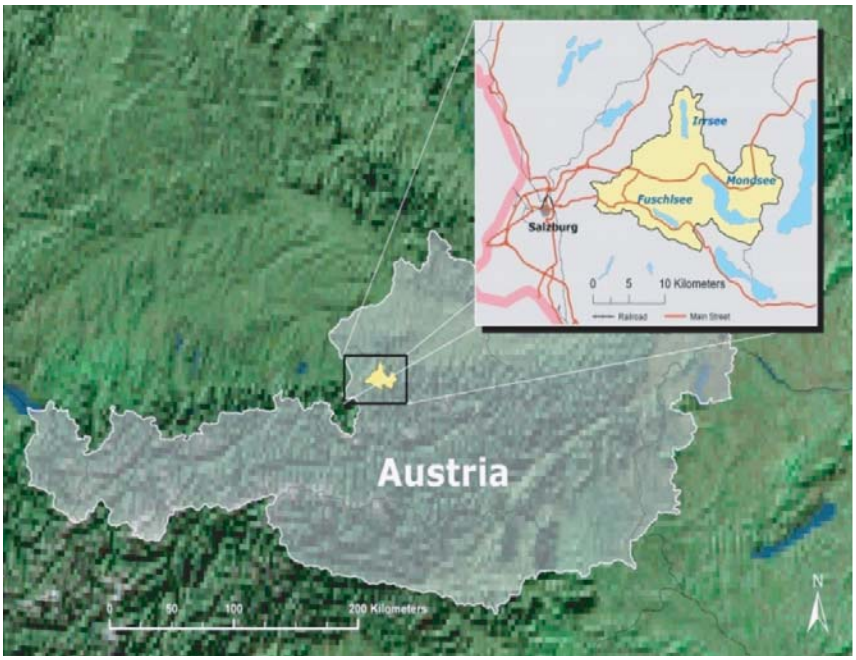

Figure 1. The case study area Mondsee, Austria

Supporting decision makers with problem tailored modelling tools means to assist politicians in finding solutions for emerging problems. Solutions can be framework directives, obligations, subsidies or incentives making a specific direction of development more attractive for people than another. Beside environmental, social, and economic aspects, politics must be included in the process of valuing ecosystem services.

Since the farming system in Austria is not economically viable per se, key subsidy payments are necessary to retain agricultural practices. These payments are coupled with the Common Agricultural Policy (CAP) which has been implemented by the EU to guarantee a stable price system for producers and to preserve our rural heritage and ecosystem services. The CAP is based on the Cross Compliance where both regulations (VO (EG) Nr. 1782/2003 and VO (EG) Nr. 796/2004) are mandatory in order to be eligible to receive subsidy payments since the beginning of January 1, 2005. The company Agrar Market Austria (AMA) is legally obliged to promote agricultural marketing and thereby coordinates the funding payments in Austria. AMA employs an Integrated Administration Control System (IACS) to register the subsidy payments based on the farmers' parcel and farm level. This spatially explicit inventory serves as a validation dataset for modelling.

The developed model is founded on collected information on all subsidy programmes of international, national and regionalised agreements which can be employed by farmers in the Mondsee catchment. Here, the national Austrian Agri-Environmental Programme (ÖPUL) is of significant importance to the farmers. We complemented this database by the farmers' real-life experiences for e.g. fuel, pesticides and nutrient costs or yield gained per hectare to capture their income and expenditures.
The ground rent approach employed after von Thünen (1826) is based on the theory that spatial context and present place conditions matter for the net income of farmers. The model tries to systematize the economic principles of location based factors such as income and expenditures and maps them spatially explicit with Formula 1 (see Schroers 2006).

Formula 1: $$LR = ((y * (pf + iv) + sv) - (sc + nc + pc + lc + pc + mc + tc + rc)$$

LR: land rent; y: yield; pf: production fee; iv: improvement value; sv: subventions; sc: seed costs; nc: nutrient costs; pc: pesticide costs; lc: labour costs; pc: production costs; mc: machine costs; tc: transport costs; rc: rental costs

Together with the previously mentioned database on funding programmes we developed a scenario for the year 2005 at parcel and farm level to assess the economic balance. We used ESRI's ArcGIS 9 with the Model Builder and Python scripts to semi-operate the model framework. In this framework we coupled the spatial explicit dataset from IACS with the developed funding database. In a first step we modelled income (e.g. subsidies, yield) and expenditures (e.g. fuel, work labour, seeds) at farm and single parcel level. In a

second step, we compared the modelled farm balances with real payments farmers received from AMA for validation. In a third step we employed a possible short term scenarios to get an idea what might happen in the near and mid future. The scenario is based on a statement of the Austrian ministry of the Environment. The ministry argues for a strong reduction in the subsidy payment to maintain an open cultural landscape (OFFENKUL, Table 1). Effects on possible landscape changes caused by the exchanged agricultural funding bodies are assessed on the basis of the Rural Development Programme from 2007 to 2013 and the draft of the following period 2013 - 2019.

Results

The result of this ground rent model approach is a general assessment system adapted to the regional, natural, cultural, political and economic conditions of the given case study area in the province of Salzburg and Upper Austria, Austria. As a first result, the goal oriented planning procedure is shown to be a useful tool to enhance communication, scenario development, and planning of potential land use developments. Especially the analysis of subsidy programmes and their frequentation by farmers give insights into present shares of funding compared to the overall income. Furthermore, likely changing subsidy programmes causing spatial explicit changes give decision makers indicators of rural disparities.

Subsidy programmes

The cataloguing and the analysis of funding programmes, their content and designations as well as the amount of subsidy payment per area are developed in a database. Table 1 shows that particularly programmes on grassland funding dominate the acquisition by farmers in this area.

Table 1. Used programme measures in the Mondsee catchment

Measures	**Participation [%]**
Baseline funding (GRUND)	100,00
Renunciation of silage (VERSIL)	77,29
Renunciation of yield increasing measures in grassland areas (VBG)	76,33
Maintenance of slopes (OFFENKUL)	65,46
Maintenance of valuable areas (WERTV)	31,88
Biological practices (BIO)	17,63
Salzburg regional project ground water protection and maintenance of grassland areas (REGSALZ)	10,63
Renunciation of yield increasing measures in arable areas (VBA)	8,21
Maintenance of orchards (ERHSTREU)	8,21
Others	40,82

Spatially explicit results

The development of a semi-operational GI toolbox helped to model the net yield for each parcel and farm. Considering Formula 1, income from agricultural yields and subsidies as well as expenditures (e.g. fuel costs, insurance, and seeds) could be established on a hectare basis. Referring to the balance information in Figure 2 (showing a part of the Mondsee catchment) one can see that the areas in green and yellow mark the highest yield per parcel whereas parcels in red have a negative or equal to zero balance.

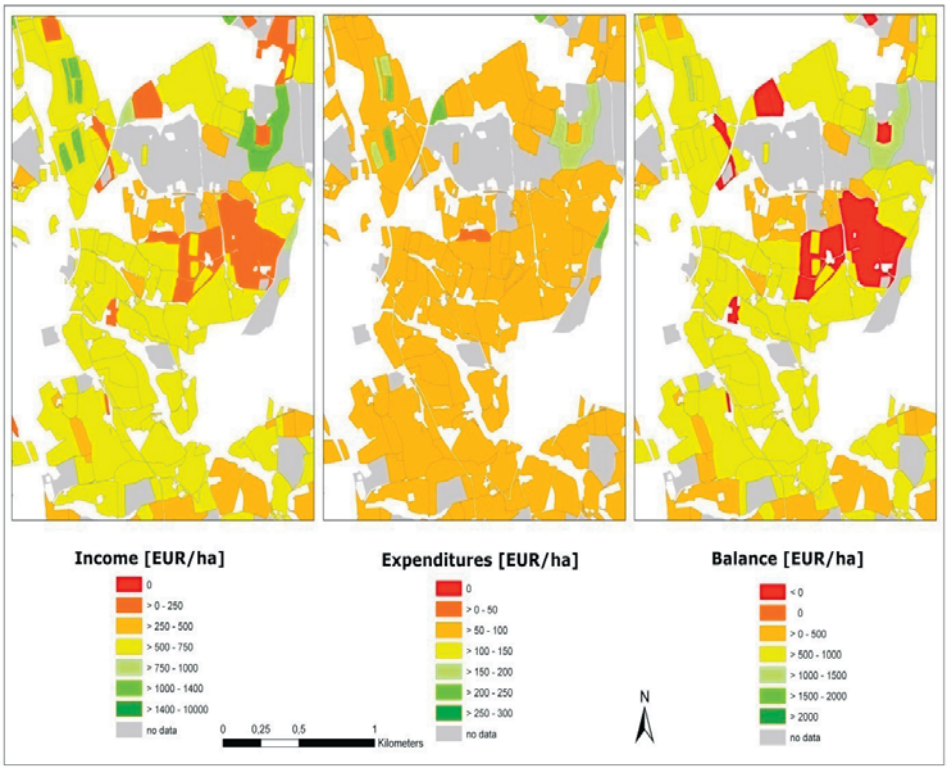

Figure 2. Calculation of the ground rent per hectare

Model validation

A comparison of the results of the ground rent model and the real payments from AMA is used for model validation (Table 2). Of the considered programme initiatives GRUND, VERSIL, VBG, and OFFENKUL an average level of 85% correctness is reached while some measures reveal more or less variance between modelled output and real payments.

Table 2. Comparison of model results and real payments from AMA in %

Measures	AMA [%]	model [%]	variance [%]
GRUND	17,05	11,11	34,81
VBG	32,64	32,64	0,00
VERSIL	47,04	37,67	19,92
OFFENKUL	3,27	3,36	-2,75
total	100,00	84,79	15,21

Envisioning the future

With a reduction of subsidy payments „maintaining an open cultural landscape“ (OFFENKUL) as forecast by the Austrian ministry, we demonstrated that the annual balance for some parcels in the case study area will definitely be negative. The farmers‘ expenditures are higher than their income. Hence, with decreasing funding the farming of land is not profitable anymore and can lead to abandonment of farming and ultimately the abandonment of land. This causes either a reduction of work labour in farming forcing the farmer to take on a second job or surrender farming all together or to retire. Especially parcels in remote areas and barren land with partly steep slopes are at particular risk of losing their cultural landscape characteristics which in turn has consequences for the tourism industry and biodiversity and hence important services in the Mondsee catchment are at risk.

Discussion

Present agrarian funding mechanisms at international, national and regional scale cannot be maintained in the future. There is a strong need to find strategies out of the dilemma of financing agricultural practices. According to our present knowledge, far reaching changes - especially in remote areas - are expected. If we cannot cope with these changes or compensate the decreasing financial payments with other funding strategies, landscape change will - without doubt - happen on high income parcels as well as low income parcels. This trend is still in process as outlined by Heißenhuber (2003) who reported the abandonment of parcels due to non-profitable yields. Furthermore, Silber et al. (2006) noted that since 1960 the forested area in Austria has increased by approx. 2700 km^2.

This approach cannot solve the problem of decreasing funding bodies, but the toolbox can offer help to identify the main areas at risk. It can be an instrument for stakeholders and decision makers to develop an action plan towards the maintenance of those areas. This model framework is able to run a monetary indicator system able to capture the basic characteristics of the spatially adapted distribution of financial resources.

To conclude, this model serves as a decision making tool for policy makers. Policy makers are able to predict the consequences of reduced subsidies for

certain areas and can assess whether the instruments used and the policies implemented for rural development have an efficient and effective impact on rural areas in Europe.

Furthermore, this model serves as a tool for farmers and the farm advisory service. Applying this model can supply farmers with information regarding land use strategies which are financially feasible. This paper contributes to the development of tools supporting policy makers and farm advisory services in the implementation of Strategic Guidelines for Rural Development Policies.

References

Asamer V., Klug H., 2008, *Evaluation des Einflusses agrarökonomischer Subventionen auf den Zustand der Landschaft.* In: Strobl J., Blaschke T., Griesebner G. (eds.), *Angewandte Geographische Informationsverarbeitung XX,* Wichmann Verlag, Heidelberg, 508 - 517.

Auswärtiges Amt, 2006, *Die gemeinsame Agrarpolitik*, http://www.auswaertiges-amt.de/diplo/de/Europa/Aufgaben/Landwirtschaft.html [accessed 26.01.2008].

Bastian O., Steinhardt U., 2002, *Developments and Perspectives in Landscape Ecology,* Dodrecht/Boston/London. ISBN 1-4020-0919-4.

Costanza R., d'Arge R., de Groot R., Farber S., Grasso M., Hannon B., Limburg K., Naeem S., O'Neill R., Paruelo J. et al., 1997, *The value of the world's ecosystem services and natural capital*, Nature, 253-260.

Dal, H.E., 1992, A*llocation, distribution, and scale: towards an economics that is efficient, just, and sustainable*, In: Ecological Economics, 6, 185–193.

de Groot R., 2006, *Function-analysis and valuation as a tool to assess land use conflicts in planning for sustainable, multi-functional landscapes.* Landscape and Urban Planning, 75, 175-186.

de Groot R., Wilson M., Boumans R., 2002, *A typology for the classification, description and valuation of ecosystem functions, goods and services*, Ecologcial Economics, 41, 393-408.

Farber S.C., Costanza R., Wilson M.A., 2002, *Economic and ecological concepts for valuing ecosystem services.* Ecological Economics, 41, 375-392.

Heissenhuber A., 2003, *EU-Direktzahlungen – hängen davon die Zukunftschancen der Unternehmer ab?* http://www.wzw.tum.de/wdl/lehre/vorlesugen/skripten/ unternehmensanalyse/2.eu_direktzahlungen_zukunftschancen_der_unternehmer.pdf [accessed 26.01.2008].

IPCC, 2007, *Climate Change. The Physical Science Basis,* Contribution of Working Group I to the Fourth Assessment Report of the IPCC. ISBN 978 0521 88009-1.

Klug H., 2007a, *Participative landscape planning using a GIS approach for facilitation*. In: Mander U., Helming K., Wiggering H. (eds.): *Multifunctional Land Use: Meeting Future Demands for Landscape Goods and Services*, Berlin, Heidelberg, Springer, 195-233.

Klug H., 2007b, *Die naturräumliche und sozio-ökonomische Gliederung des Mondsee Einzugsgebietes,* http://www.hermannklug.com/images/downloads/2007_06_25_Naturraum.pdf [accessed 11.02.2008].

Klug H., Lang S., Pernkopf M.-L., Zeil P., 2007, *Vorstellung einer Methode zur Ermittlung der Nutzungsintensität auf Grünlandflächen unter Einbezug von Fernerkundungsdaten und objekt-basierter Klassifikation,* Schriftenreihe BAW, 26, 51-65.

Millennium Ecosystem Assessment (MEA), 2005, *Ecosystems and Human Well-Being: Synthesis,* Island Press, Washington. 155.

Oberösterreichische Landesregierung, 2004, *Raumeinheit Attersee- Mondsee Becken,* http://www1.land-oberoesterreich.gv.at/natur/nala/data/pdfs/Attersee-Mondsee-Becken.pdf, 87 pages. [accessed 26.01.2008].

Schroers J.-O., 2006, *Landnutzungsmodellierung mit ProLand. Datengrundlage und Aufbau der Datenbank,* http://interm.gtk.gau.hu/gg/2004/ggaug/vg.ppt#29 [accessed 03.11.2008].

Silber R., Wyrtzens H. K., 2006, *Modelling the probability of land abandonment at parcel level.* In: Darnhofer I., Schmid E., Palkovics M., Varga G., 2006, *Agriculture in Central Europe - Potentials and Risks,* Dokumentation der 15.ÖGA-Jahrestagung in Keszthely, Hungary, 29.- 30. September 2005, Facultas, Vienna. 55 – 63.

Varian H.R., 1992, *Microeconomic Analysis*, New York.

Von Thünen J.H., 1826, *Der isolierte Staat*.

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Rural tourism: an opportunity for the development of rural areas in Poland?

Abstract: *Rural tourism – and particularly agrotourism, which has a high share in rural tourist offers – is an intensely discussed and politically supported issue in Poland. This paper critically examines the role of tourism in the development of rural areas. A literature review reveals seven success factors, whose existence or development is the precondition to develop rural tourism effectively in a region: 1) natural and cultural resources, 2) tourist and general infrastructure and services, 3) professional marketing, 4) cooperation, participation and efficient organisation, 5) human resources, 6) financial resources and technical assistance, 7) conditions of demand. The analysis of these success factors in rural regions of Poland using secondary data and literature shows both opportunities and barriers to a rural tourism development. Major opportunities are the existing natural resources in many areas and the good general outlook for the Polish tourism. In contrast, the deficiency of the tourist and general infrastructure in many rural areas, the weak marketing, the negative international image of Poland, the insufficient coordination and cooperation in tourism, the shortage of skilled labour and entrepreneurial skills, and the poor financial resources of public authorities and private enterprises hamper the development of rural tourism in Poland. Two cases studies carried out in the summer of 2005 – in the rural communes Bałtów in Southeast Poland and Dębrzno in Northwest Poland – emphasize the significance of people's own initiative and partnerships in developing tourism and overcoming bottlenecks. Finally, even though rural tourism is not a panacea for the structural problems of rural areas in Poland, it could be developed in far more areas in different dimensions and forms depending on the resources provided that the regions succeed in addressing the barriers.*

Keywords: *rural tourism, rural development, Poland, LEADER, local partnerships*

Introduction

For a long time, in most rural areas of the world agriculture was the key sector of economy and employment. However, since mid 20th century, the number of employed persons in agriculture was reduced drastically and is still falling in Western Europe; in Central and Eastern Europe this process was more slowly and in most countries agricultural employment slumped with the beginning of transition in the early 1990s. The creation of non-farm employment is therefore generally recognized to be essential to promote sustainable rural communities and to prevent poverty, out-migration and excessive aging of the rural population. This holds particularly for Central and Eastern Europe, where the diversification of rural areas is generally lower than in Western Europe, since industry and services have been hardly decentralised to rural communities in socialist times. Additionally, many rural commuters have lost their income through the closing of industrial enterprises in urban centres during transition. At the same time, the diversification of rural areas is hindered by lacking agglomeration advantages, particularly in peripheral regions. One potential new income source, often cited as an opportunity for rural areas, is rural tourism. Since the beginning of transition, nearly all Central and Eastern Europe countries have pinned their hopes for the development of rural areas on tourism. This paper will critically examine the role tourism can play in the development of rural areas in Poland. Starting with the clarification of definitions, the current significance and structure of rural tourism and agrotourism in Europe and Poland will be outlined. Then the paper will derive seven success factors of the effective development of tourism in a region from literature and analyse them with respect of rural tourism in Poland. This analysis will be supplemented by two Polish case studies carried out in the summer of 2005. The paper concludes with an assessment of the barriers and chances of tourism development in rural regions of Poland.

Definition of rural tourism and agrotourism

The concept of rural tourism has no commonly used definition. It can vary from "all tourist activities in rural areas" to specialised offers in rural areas as "holidays on a farm". Some definitions point out the rural character of rural tourism, i.e. contact to nature, experience of heritage and participation in rural traditions – offered by small, local enterprises (see e.g. Lane 1994, WTO 2004). Lane (1994) argues that defining rural tourism is difficult since rural areas themselves are difficult to define and undergo a complex process of change, since urban forms of tourism – as theme parks or holiday villages – are also located in rural areas and since rural tourism is a complex multi-faceted activity. This article uses a functional, rather wide definition without referring to rural culture, which is hard to delimit: Rural tourism comprises all tourist activities in rural areas including all forms of tourism and accommodation categories (hotels, guesthouses, private rooms, campgrounds, farms) with the exception of tourism in major towns, resorts, spas and secondary residences. Tourist stays on agricultural holdings are referred to as agrotourism and are a segment of rural tourism.

Rural tourism in Europe

The development of tourism in rural areas started in Europe in the 18th and 19th century particularly at the seaside and in high mountains, i.e. in areas with a unique selling proposition. These areas became soon specialised tourist destinations (Steinecke 2006) and are nowadays not numbered among rural tourism. Tourism is still largely concentrated into these specialist beach, lake and mountain resort areas, and into major cultural centres (Lane 1994). The "rest" of the countryside became attractive for tourists in the course of industrialisation and urbanisation (Steinecke 2006) and the broader development of environmental politics and protection since the late 1970s. In the second half of the 20th century many rural areas in Europe received political aid to develop tourism as an alternative to the shrinking agricultural sector. Recently, also at the EU level rural tourism is again supported as effective catalyst for rural development (Sharpley and Vass 2006) to facilitate the diversification of rural economy and to create income and new jobs. However, job, income and multiplier effects of tourism are difficult to assess. Some studies about rural tourism observe only minor success in job creation. In addition, the share of seasonal and low-paid work in tourism is generally high (Ribeiro and Marques 2002, Steinecke 2006). Agrotourism prevents the farm family to migrate away – by using idle labour of the farm household – rather than creating new jobs for non-family labour (e.g. Hjalager 1996). The income generated by rural tourism is in small enterprises mostly only a supplement to the household income (Hjalager 1996, Oppermann 1996, Sharpley and Vass 2006). Further benefits of rural tourism can encompass improving quality of life through upgraded infrastructure, revaluing rural traditions, raising public awareness of environmental and heritage concerns and becoming acquainted with new people and "urban" ideas (Oppermann 1996, Steinecke 2006, WTO 2004). However, there can also be negative impacts as landscape damages or social tensions, particularly with regional large-scale tourism (Steinecke 2006).

Dimensions and growth of rural tourism are hard to quantify, since a clear definition and statistics are lacking (Lane 1994). Agrotourism is easier to distinguish and received great attention from academics and agriculture ministries. Its role is therefore frequently overestimated (Lane 1994, Oppermann 1996). Agrotourism is mostly not included in official statistics, since it is accounted for in the majority of cases among private accommodation. However, it is recorded in the EU Farm Structure Survey (FSS), whose numbers for 2005 are cited below. Farm holidays have a high significance and long tradition in many parts of German-speaking countries. In Austria for example, 8% of all agricultural holdings offer farm holidays (FSS) providing the seventh part of all tourist beds (Embacher 2003). In Germany, 4% of all agricultural holdings have tourist activities (FSS), which are developed mainly in the Western part and present only a small segment in the total tourism of Germany (Steinecke 2006). In Great Britain and France, the development of agrotourism started later, but has undergone a significant growth in the last 20 years (Long and Lane 2000, Sharpley and Vass 2006). In Great Britain, 11% of all agricultural

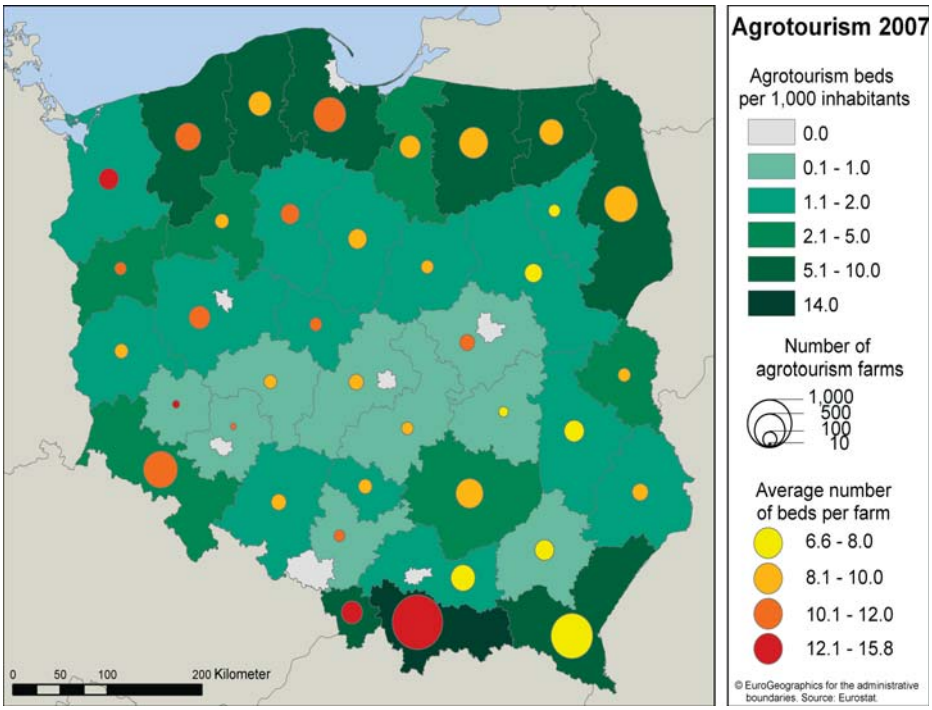
holdings offer farm holidays, in France these are 3% (FSS). In Southern Europe, agrotourism is still in its infancy with shares below 0.5%. Only Italy reaches a share of 0.7% of agrotourism farms in all agricultural holdings (FSS). In Central and Eastern Europe, agrotourism has not been noteworthy until 1990, when it started to develop in many countries. However, the shares of agrotourism in all farms are still below 1%. For example, in Slovenia, whose tradition in agrotourism goes back to the 19th century, 0.8% of all farms are engaged in tourism (FSS), which accounted in 2002 for 0.4% of all arrivals and overnight stays in Slovenia and had the lowest occupancy rates (Bojnec 2004). In Poland, 0.4% of all agricultural holdings offer tourism as other gainful activity (FSS).

Rural tourism in Poland

In Poland, rural tourism existed already in the 19th century, but its development was not significant until 1990. In the 1990s, the initial tourism development in rural areas was often manifested in small-scale agrotourism enterprises as a result of off-farm diversification aimed at getting additional income and to use new opportunities (Hegarty and Przezborska 2005). In 2007, agrotourism accounted approximately for 10% of all tourist beds in Poland.[4] Figures of the agricultural advisory centres[5] state an increase of agrotourism enterprises from 590 in 1990, and 4,800 in 1997 to 8,244 in 2004 (Ministry of Agriculture and Rural Development 2005). Together with other private accommodation in rural areas the Ministry of Agriculture and Rural Development estimated the total number of rural tourism enterprises in 2002 as 13,154 units with 137,164 beds and 960,132 guests, equivalent to 6.7% of total national overnight stays (Hegarty and Przezborska 2005). In 2007, there existed 8,790 agrotourism enterprises according to a survey of the Institute of Tourism (2007). They are more evenly distributed as hotels, but still concentrated on the traditional tourist destinations in the Carpathian and Sudeten Mountains, at the Baltic Sea and in the Lakelands of Northern Poland (s. Map 1). The dynamic growth of agrotourism slowed down in recent years (Ministry of Agriculture and Rural Development 2005) and possibilities for further quantitative growth seem to be limited. The main focus is now on raising the standard and specialisation, which is for example in comparison with Ireland rather low (Kozak 2006, Hegarty and Przezborska 2005, Sikorska-Wolak 2006). However, there exists a legal barrier, since all new activities have to be limited to the previous premises to have a continuing tax relief (Kozak 2006).

4 Figures for agrotourism and private rooms based on Institute of Tourism 2007. Figures for collective tourist accommodation establishments based on Central Statistical Office Poland.

5 There exist no exact, consistent data for agrotourism enterprises, which are mostly private accommodation. Agrotourism enterprises with not more than five rooms to accommodate guests are exempted from tax and not obliged to register. And only a small fraction of agrotourism enterprises is organised in the Polish Federation of Country Tourism „Hospitable Farms".



Map 1. Distribution of agrotourism farms and beds in Poland 2007
Source: Author's calculation based on Institut of Tourism 2007 (agrotourism) and CSO (inhabitants)

Since 1990, agrotourism has been paid heightened political attention. It has been regarded as an opportunity for creating new non-agricultural business and jobs in rural areas and has been supported with tax relief (Kozak 2006). Different consulting projects with experts from EU countries (e.g. TOURIN I and II 1992-97) conducted analyses and pilot schemes and identified rural tourism and agrotourism as an important economic factor and as one out of five potential future unique Polish tourism products. Agricultural advisory centres were set up, which supported farmers in starting and marketing of tourist offers through training and consulting. In 1996, the Polish Federation of Country Tourism „Hospitable Farms" (Polskia Federacja Turystyki Wiejskiej „Gospodarstwa Gościnne") was founded, which encompasses today 40 local and regional associations. In the following years, rural tourism received a high significance in official documents (Augustyn 1998), however, not necessarily resulting in real support and developments. Measures as credit grants, the EU pre-accession-aid SAPARD and the SOP "Restructuring and Modernisation of the Food Sector and Rural Development" should support agrotourism farms (Ministry of Agriculture and Rural Development 2005); however, they have been used only by a minority of enterprises (Firlej and Niedziółka 2007).

So far no evaluation of the development of agrotourism has been done. Even a rough assessment is hindered by the fact, that there are no exact, comprehensive data about the structure, income, jobs, qualifications and guests of agrotourism farms (Kozak 2006). The achievable income is already limited by the size of enterprises – on average 10 beds per farm – and a price level below that of other collective accommodation (Bott-Alama 2004). A survey in Wielkopolskie revealed that the share of tourism in total household income is 10% or less in one half of agrotourism farms. Only 17% of farms referred to tourism as main income source (Przezbórska 2003), in contrast to Ireland, where this were 39%. A stronger focus on tourism could support the specialisation and market orientation of enterprises and foster cooperation, but is rejected by the majority of Polish agrotourism farms (Hegarty and Przezbórska 2005). In spite of small revenues agrotourism seems to be profitable for many suppliers. In Masuria, more than 90% of the interviewed enterprises characterised agrotourism as profitable, in Western Pomerania 43% (Bott-Alama 2004). New jobs for non-family labour have been normally not created by agrotourism (Golemsbki and Majewski 2003). However, given the high hidden unemployment in Poland the improved utilisation of household labour is also an important contribution. The share of rural households, which benefit directly from agrotourism, is with less than 1% rather small, but can be significantly higher in certain areas (e.g. in the Carpathians). Furthermore, agrotourism has effects for the communes as a whole, such as the improvement of aesthetics, use of existing housing resources, additional income for all inhabitants and the communal budget, reduction of unemployment, encouragement to acquire new skills and knowledge, personality development through contact with tourists, and increased care for the heritage (Bott-Alama 2004). Bott-Alama (2004, p.109) underlines that "the most important benefit of rural tourism development is stimulating entrepreneurship, the lack of which is regarded as the most important barrier to rural areas development in Poland."

Determinants for a successful tourism development

To be able to assess the potential of rural tourism in Poland it is important to examine the relevant determinants of tourism development. A comprehensive literature review (see e.g. Fuchs 2007, Gannon 1994, Haart and Steinecke 1995, Long and Lane 2000, Long and Nuckolls 1994, Porter 1994, Raich 2006, Steinecke 2006, Wilson et al. 2001) revealed seven success factors of the effective development of tourism in a region: six supply factors on the one hand and the conditions of demand on the other hand (Figure 1).

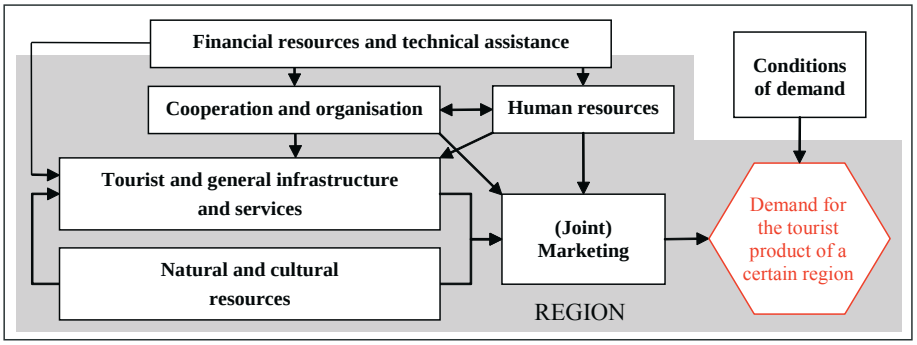


Figure 1. Determinants for a successful tourism development in a region
Source: Author's own work

The natural and cultural resources include the attractiveness of villages and landscapes, the distance to urban markets, climate, cultural heritage, and traditions of a region, and they are the most important precondition for the suitability of a region as tourist destination. Additionally, adequate tourist and general infrastructure and services are necessary, which comprise accommodation, restaurants, and recreational facilities (including indoor offers), transport connections, hospitality, and atmosphere of the holiday area. In order that a region gains a positive image as a holiday area and tourists accept the offer, a professional marketing is necessary. It should be done jointly within one region, since small rural providers often lack the resources and skills, and tourists ask not for individual offers but for the whole tourist product of a destination, whose borders mostly do not fit in administrative boundaries. This fact together with the fragmented structure of rural suppliers and the interconnections of tourism with other economic sectors point out the crucial role of cooperation, participation and efficient organisation as success strategy in tourism. Individual actors or communes do not have sufficient resources to become firmly established in tourist markets. Strategic-conceptual tasks as networking offers can only be done together, while other tasks as marketing are much more efficient when organised in a cooperative way. The willingness to cooperate and to take entrepreneurial risks, people's own initiative, knowledge resources, and the number and qualification of labour form together the human resources of a region and are another decisive factor of tourism development. Finally, the development of tourism requires sufficient financial resources – equity capital, credits, and capital of public authorities. Since these are often insufficient in rural areas, exogenous investment aids and consulting are the last relevant supply factor. On the other side, the conditions of demand – its structure, dimension and growth paths – are one of the most important determinants of the competitive advantage of tourism destinations. In times of globalised tourism markets it is extremely important for success to adjust supply according to demand and to identify trends and target groups. It has to be carefully weighted up for each region under which conditions, in which dimension and in which form tourism can be developed. The precondition for a successful development of rural tourism is the existence or the possibility to develop the above seven success factors. They will be analysed in the following for rural tourism in Poland.

The **natural and cultural resources** in Poland are characterised by varied landscapes, large areas with low population density and many cultural sites and are therefore in principle suitable for rural tourism. However, the season is mainly focused on summer, which features rather unfavourable, unsettled weather. The traditional tourist destinations with high scenic attractiveness are the Baltic Sea coast, the lake lands in Northern Poland, the highlands of Central Poland, and the Sudeten and Carpathian Mountains. A problem of many other rural areas in Poland is the lacking unique selling proposition of the landscape. However, Haart and Steinecke (1995) assume that this shortage can be compensated by a combination of supply segments to a unique complete package. In fact, the objective measure of scenic attractiveness for a whole country is connected with many methodological problems, although very often tried in Poland. Therefore, an individual analysis of scenic and cultural attractiveness and the accessibility for urban markets is proposed for each region interested in tourism. Particular potential certainly have those areas, which offer already tourism due to their attractiveness, and the wider surrounding area of big cities with forests and lakes for short breaks (Bański 2003). However, also in other areas there can be "hidden" attractions revealable by analysis.

The deficient **tourist and general infrastructure** are one of the major barriers to rural tourism in Poland – similar to other Central and Eastern European countries (Jordan 2006, Paesler 2007). Road network, technical infrastructure, accommodation, catering and leisure facilities suffer from decades of neglect and despite recent improvements still need considerable investments (Golembski and Majewski 2003, Wyrzykowski 2000). Hotels in Poland are concentrated in big cities and some attractive destinations and have a high share of beds with low standard (Kozak 2006, Paesler 2007). Low standard and specialisation is also often characteristic of newly set-up agrotourism farms. A noticeable upgrade of tourist infrastructure at the international level is laborious, time-consuming and costly, and thus according to Jordan (2006), only possible gradually in certain suitable places as Masuria. In less attractive regions this can work only in combination with a general economic development (Bański 2003). In addition to investments in physical infrastructure, the evolution of a new service and business culture is important in all formerly socialist countries. Many enterprises in tourism pursue mainly short-term financial goals and pay too little attention to service quality, customer satisfaction and loyalty (Augustyn and Thomas 2007).

The **marketing** of rural tourist offers, the awareness of its significance and the perception of market segmentation show obvious shortcomings in Poland (e.g. Golembski and Majewski 2003, Wyrzykowski 2000). The rapid development of agrotourism occurred mainly in a product-oriented way expecting the demand would arise automatically (Hegarty and Przezborska 2005). Thus, the future strengthening of marketing and market research is crucial for the success of rural tourism. To attract also foreign tourists the sustainable change

of the negative image of "Eastern Europe" – including Poland – is decisive. Central and Eastern Europe is still reputed to be criminal, uncertain, poor, badly equipped, monotonous, and cheap (e.g. Bodmer et al. 2003, Wyrzykowski 2000). This is fostered by the insufficient knowledge of potential tourists about the Central and Eastern European countries, so that the bad image is working even after several improvements. Poland has to work against this negative mental map of tourists with a comprehensive marketing at the national and regional levels, with statistics about the real situation e.g. concerning safety, or travel reports about „insider tips" in daily and weekly press (Bodmer et al. 2003).

The development of rural tourism in Poland suffers from fragmented responsibilities and from insufficient coordination and **cooperation** between farmers, tourism enterprises, local and regional authorities (e.g. Augustyn and Thomas 2007, Golembski and Majewski 2003). Experiences in applying participatory procedures are limited, the willingness to cooperate and the consciousness of long-term strategies and aspects of sustainability are rather low (Augustyn and Thomas 2007, Gramzow 2006a and 2006b, Roberts and Simpson 1999). Tourism is first the responsibility of local self-government (Majewska 2008), what entails the danger of narrow, „parochial thinking". Only 8% of all agrotourism farms and only a part of all local and regional organisations are estimated to be a member in the Polish Federation of Country Tourism, which is important for marketing, training, and support in the application for EU funds. Many agrotourism farms cooperate informally, e.g. through sending of tourists, exchange of experiences and joint marketing (Firlej and Niedziółka 2007). Important stimulating effects had the EU initiative LEADER+, which was introduced in Poland as pilot scheme in 2004. It received great interest, so that between 2004 and 2006 in the first round 174 and in the second round 150 local action groups could be financed (FDPA 2008).

The **human resources** in many rural areas of Poland are in a rather unfavourable condition due to an overaged population, out-migration, social frustration through high unemployment and low education levels. For that reason, Bański (2003) makes a sceptical assessment of the chances for a rural tourism development. Education, labour market and partly the migration balance in rural areas have recently improved (FDPA 2008). However, people's own initiative, entrepreneurial spirit and hospitality are still not very pronounced, and many rural tourism enterprises lack important entrepreneurial and tourism skills (Augustyn 1998, Kozak 2006). Thus, Golembski and Majewski (2003) refer to this situation as „civilisation barrier" to agrotourism in Poland. City dwellers, who have moved to rural areas, play an important role as proactive pioneers (Golembski and Majewski 2003, Kozak 2006). A major part of agrotourism providers seems to have at least a secondary education, foreign language competence and rather young manager, and half of them have attended advanced training courses (e.g. Firlej and Niedziółka 2007, Grykien 1999, Hegarty and Przezborska 2005).

In Poland, poor **financial resources** of public authorities and private enterprises are a serious problem for the development of rural tourism (e.g. Augustyn 1998, Wyrzykowski 2000) so that external funding is considered as indispensable (Golembski and Majewski 2003). Small agricultural holdings interested in starting tourism often have no financial means. In spite of state programmes, the access to credits is restricted for small enterprises so that not many agrotourism enterprises have made use of loans so far (Firlej and Niedziółka 2007, Golembski and Majewski 2003). Hopes are connected with EU funds (Golembski and Majewski 2003). However, until now, their allocation was heavily dependent on local possibilities of co-financing (Bański 2003) and so they have been used only by few agrotourism farms (Firlej and Niedziółka 2007). As specified in the Polish Rural Development Programme for 2007-2013, rural tourism can potentially use 14% of all EU rural development funds in Poland. These are the measures "Rural renewal and development" (589.6 Mio. Euro) and "Establishment and development of micro-enterprises" (1.023.6 Mio. Euro) of axis 3, and the LEADER axis 4 (787.5 Mio. Euro). In addition, **technical assistance** in the form of external consulting is recommended given the present structure of rural human resources.

Conditions of demand in Poland

In the 1990s, the development of agrotourism was very product-oriented and fast-paced so that the demand could not keep up with the supply (Hegarty and Przezborska 2005). In future, rural tourism offers have to be based upon the preferences of tourists. However, there is little known about the structure or trends of demand for rural tourism in Poland, since there are no comprehensive studies and data. The share of rural and particularly agrotourism in total Polish tourism seems to be limited up to now. According to figures of the Institute of Tourism (2006), the share of agrotourism accommodation in all domestic long trips above 5 days was in 2006 only 4%. The spatial distribution of tourism demand is strongly concentrated on traditional destinations. Examining the overnight stays in collective accommodation establishments in 2006 in the 45 NUTS-3 regions (CSO) shows that nearly three quarters of all stays are in the main cities (23%), the Baltic coast (26%), and the Sudeten and Carpathian Mountains (together 22%). The guests of agrotourism farms in Poland are mainly city families with rather high qualification, which repeatedly spend their holiday on farms chosen after word-of-mouth recommendation (Kozak 2006, Przezbórska 2005, Zarêbski 2006). While Przezbórska (2005) could not observe foreign guests of agrotourism farms in Wielkopolskie, some studies in the Carpathians (Firlej and Niedziółka 2007) and Sudeten Mountains (e.g. Grykien 1999) mention shares of foreign guests, however, without quantifying them. The Ministry of Agriculture and Rural Development (2005) describes a particular interest of foreign guests in the 214 ecotourism farms. The motives for farm holidays are mainly rest and recreation, low prices, contact with nature, country life, healthy food, and picturesque landscape (e.g. Sikorska 2007, Zarêbski 2006).

The demand for agrotourism features an increasing tendency over the past years according to the Ministry of Agriculture and Rural Development (2005). Some factors could positively work on the demand for rural tourism in future. First, demand for rural tourism can not be examined uncoupled from the general trend in Polish tourism. Through the recently decreasing unemployment rate and growing incomes, the rising educational level, and the increasing car ownership (CSO) more Poles than before are interested and have the possibility to participate in holidays. After several drops the domestic demand is increasing since 2004 (Eurostat), and the Institute of Tourism (2008) forecasts an increase of trips of Poles from 45.8 million in 2006 to 56.6 million in 2013. These trends can have positive impacts also on rural tourism. The EU accession and the expansion of air connections raised the demand for holidays in Poland from EU15 countries, which accounted for three quarters of all nights spent by non-residents in 2007 (Eurostat). The total inbound tourism is steadily increasing since 1999 (Eurostat), and the Institute of Tourism (2008) forecasts an increase of arrivals of foreign guests in collective accommodation establishments from 4.3 million in 2006 to 6 million in 2013. However, domestic demand will stay in the near future most important for Polish destinations. The share of non-residential overnight stays was in 2006 only 21% (EU27 42%, Eurostat) and strongly concentrated on the main cities as Warsaw or Krakow (CSO).

Second, rural tourism in Poland can benefit from rising environmental consciousness. While in Western Europe the high and rising ecological awareness results in increasing demand for ecotourism and rural tourism (e.g. ETC 2006, Pils 2006, WTO 2004), the demand for these segments among Polish tourists is still rather low (Nowaczek and Fennell 2002, Przezbórska 2003). However, the environmental awareness in Poland is gradually rising particularly among the young, and Przezbórska (2003) assumes that the Poles soon will follow Western tourism trends. In addition, Somorowska (2003) states activity tourism as new trend in Poland. Paesler (1999) sees a potential of nature-oriented tourism in Poland e.g. for German tourists, which have a high participation in tourist trips, a high share of trips abroad, and a high environmental sensibility, and which are the most important foreign source market for Poland with a share of 39% of all nights spent by non-residents in Poland in 2007 (Eurostat).

Third, the general trend to several shorter trips instead of one long trip yearly (ETC 2006, Pils 2006, Steinecke 2006) can favour rural tourism, which is for many people not attractive enough as main holiday but as secondary or short trip. Somorowska (2003) states an increasing trend of weekend trips in Poland, whereas the Institute of Tourism (2008) predicts only a slight rise of short trips and a stronger increase of long trips. Fourth, the general trend of tourism demand to be more flexible, segmented and individualised (ETC 2006, Kozak 2006, Pils 2006, Steinecke 2006) can foster niche markets and thus also rural tourism. However, rural tourism itself needs to develop not standard but individual offers for certain target groups. Some farms could also try to follow the recent trend of wellness and health offers, which also will be

stimulated by the aging population in Europe (ETC 2006, Pils 2006). Finally, the domestic demand potential for rural tourism in Poland is so far restricted by the high share of population still living in rural areas and the pronounced family ties of city dwellers to the countryside. However, this could change in future (Kozak 2006). All in all, information and data about segmentation, preferences and trends of Polish tourism fall far short, and there is an urgent need for market research to be successful in rural tourism.

Local initiatives for the development of rural tourism in Poland: two case studies

In the following, two examples of local initiatives in rural communes aimed at developing tourism are described. Each case study is based on 35 guideline interviews conducted in the summer of 2005 with local government officials, members of local development associations, local entrepreneurs, farmers (including agrotourism farms) and other rural inhabitants. The first case study refers to the Bałtów commune, located in Southeastern Poland (district Ostrowiecki, voivodship Swietokrzyskie). The second case study is in the Dębrzno commune, which belongs to the district Człuchowski (voivodship Pomorskie) in the Northwest.[6]

Bałtów in Southeast Poland

The rural commune Bałtów has about 4,000 inhabitants and a population density of 39 inhabitants / km2. Its local economy is strongly related to agriculture, which is characterized by very small farms with an average size of 5.3 ha in 2004 (CSO). The poor equipment of farms, the fragmented land structure and the lacking structural change in agriculture are serious problems of the region. The closure of a steel company in the next bigger city Ostrowiec in the early 1990s led to a high open and hidden unemployment and social frustration. The official unemployment rate of the Ostrowiecki district was 29% in 2004 (CSO). Until 2002, the local government showed no interest in local economic development and hampered local initiatives. The preconditions for a tourist development were mixed. The commune Bałtów has no tourist background at all. The tourism intensity in the Ostrowiecki district is very low reaching only 0.3 overnight stays per inhabitant in 2006 (Poland 1.3, EU27 4.7, CSO and Eurostat). Bałtów is located in a valley within a hilly, woody surrounding, which can be quite attractive for tourists and is suitable for hiking. The tourist accommodations are low-standard and based on agrotourism farms. There are no tourist and entrepreneurial skills since most people in Bałtów worked previously either in agriculture or in the steel company. A factor, that particularly hampered a tourist development in the early 1990s, was the lack of cooperation between inhabitants due to a lack of trust. Overcoming this lack was one of the most important prerequisites for the successful development in Bałtów.

6 More detailed descriptions of the case studies can be found in Gramzow (2006a, 2006b).

In 2001, the local association Bałt was founded by few local people. Bałt was aimed at reducing unemployment, conservation and clean up of natural resources, and the development of tourism. The first tourist facilities provided were canoeing treks on the local river. The Environmental Partnership foundation from Krakow supported Bałt with initial funding and advice. In 2003, scientists found dinosaurs‘ footprints on a rock close to Bałtów so that the idea of a dinosaur‘ park arose. Together with another local NGO – the association Delta of Ostrowiec – the dinosaurs‘ park was set up and opened its doors in 2004. It contained natural monuments and about 30 dinosaurs‘ models on three hectares. The costs of constructing the park were mostly covered from EU funds and bank credits, whereas a local entrepreneur acted as guarantor. In June 2003, the associations Bałt and Delta, local NGOs of other communes, representatives from the regional and local governments, and local businesses founded the rural partnership Flintstone circle (Krzemienny Krąg) in order to coordinate the tourism development activities in the region and to encourage regional entrepreneurship. The new rural partnership comprised 49 partners from nine communes belonging to nine districts and two voivodships (Świętokrzyskie and Mazowieckie). The name of the partnership referred to Stone Age settlements and a subterranean flint stone quarry discovered in the region and constituting now famous tourism attractions. The Flintstone circle received funding by the LEADER+ pilot scheme I and II (2004-2006). Its activities range from the organisation of different cultural events in the region and the opening of a museum about the writer Witold Gombrowicz, who grew up in a village close to Ostrowiec, to the elaboration of a regional tourism strategy. This strategy also envisages creating different natural hiking and bike tracks, which connect tourist attractions with each other.

The activities of the associations and partnerships resulted in the increasing number of tourists in the region. Bałtów is located 160 km south of Warsaw and attracts in particular young families from the capital for weekend or short trips. The number of overnight stays in the Ostrowiecki district grew from 21,043 in 2003 to 45,516 in 2007 (CSO). The dinosaurs‘ park alone attracted 156,000 tourists in 2004 and 2005 and created 60 new jobs. The unemployment rate in the Ostrowiecki district dropped from 29% in 2004 to 19% in 2007 (CSO). New non-agricultural jobs were created and different small shops and tourist accommodations emerged. Furthermore, the local partnerships increased the frequency of interaction among inhabitants, thus leading among others to an improvement of local trust. Inhabitants became more open minded and started to identify themselves with their region. The elaboration of a local development strategy enabled local businesses and inhabitants, who planned to start a business, to bring in their ideas and to coordinate their investments. Workshops and seminars organised by the local partnership helped local agrotourism farms and shop owners to adjust their offers and encouraged other villagers to take part in the tourist development. All in all, the local associations managed to use the existing natural and cultural resources quite successful by creative ideas, local leadership and cooperation, a coordinated expansion of tourist infrastructure and unique offers, open meetings and semi-

nars to increase acceptance and human capital, and the acquisition of credits and EU funding. However, getting capital from EU or national funds remains problemtic, in addition to the still insufficient human capital due to the lacking tourism tradition.

Dębrzno in Northwest Poland

The rural commune Dębrzno has 9,300 inhabitants, of which 57% lives in the small town Dębrzno. The population density is 42 inhabitants / km² (CSO). In the rural area surrounding the town, agriculture plays an important role. In contrast to Bałtów, farms in Dębrzno emerged generally from former state-owned farms and are both larger (average 16.5 ha in 2004) and better-equipped. The restructuring of the state-owned farms in the early 1990s led to the dismissal of many agricultural workers and thus to a high unemployment reaching 34% in 2004 in the Człuchowski district (CSO). Most unemployed people lack professional and entrepreneurial skills, are long-term unemployed, often of older age and relatively passive. Seminars and workshops organized by the regional labour agencies mostly did not match the local needs since many unemployed people are not able to effect a drastic change in their profession due to their age. Furthermore, no employment opportunities were available in the region regardless whether people attended advanced vocational trainings or not. The town Dębrzno was a famous tourism destination before the Second World War. It was endowed with cultural facilities and high-standard accommodations, all of which suffered during socialism – in particular after the construction of a military base in the 1970s – and are currently not in a good condition. The recent tourism development in Dębrzno mainly focuses on the natural resources of the countryside. There are a lot of lakes and forests within low-populated rural areas which can be attractive for nature-oriented vacations. The rural tourist accommodations are based on agro-tourism farms. The regional human resources as well as the lack of trust and cooperation were rather unfavourable for a tourism development.

In 2000, the Partnership of the Northern Necklace (Naszyjnik Północy) was founded by local government officials, NGOs and businesses of 32 communes belonging to 12 different districts and four voivodships. The Partnership was coordinated by the Association for the development of the city and the commune of Dębrzno and its aim was mainly to foster a sustainable development of the region and to create (nature-oriented) tourist facilities. The first steps of the partnership were funded by the Environmental Partnership Foundation from Krakow and the Batory Foundation from Warsaw. The main project was the 870 km long bike trail „Green way of the Northern Necklace“, that goes through different national and landscape parks. The partnership established also a local brand called “Northern Necklace”, which can be given to local (handicraft) products, services, commune initiatives, and agro-tourism farms, if they follow certain defined standards. A logo and a catalogue for local handicraft products were elaborated as well, and the partnership promoted the brand on regional, national and international fairs. The certified products are sold in

different shops along the bike trail. In addition, given the problematic state of human capital in Dębrzno the partnership organized different workshops and seminars. In trainings especially for low-skilled and long-term unemployed people attendants were taught among other things how to produce handicraft products such as bouquets of flowers, herbs, ceramic products and glass paintings, which were later sold by means of the local brand. They also received basic marketing and entrepreneurial skills and were encouraged to open small shops or to provide tourist accommodations. Thus, the partnership could also reach low-skilled inhabitants to benefit from the tourist development. Financial sources to fund these initiatives were basically the EU pre-accession aid PHARE, the LEADER+ pilot scheme I and II, and national funds.

As a result of these activities already 35,000 tourists used the bike trail in its first year (2005) and more than 70 small shops, enterprises and accommodations emerged close to it. The green way attracts people from the whole country as well as from neighbouring countries. Bike and natural-oriented tourism is in particular favoured by Western European visitors, who already constitute an important share of the tourists travelling along the trail. The promotional activities increased the popularity of Dębrzno. The attitudes of local people changed. They became more active and open, could improve their skills and learned how to manage projects. Cooperation and trust in the region could be enhanced. The unemployment rate in the Człuchowski district decreased from 34% in 2004 to 21% in 2007. So, the partnership is another successful example of how the existing natural resources can be used for tourism and the bottlenecks of lacking tourist infrastructure and human resources can be overcome by manifold cooperative initiatives funded by EU and national funds.

Synthesis

Both regions described in the case studies had quite attractive even though not unique, natural resources, which were hardly used by tourists in the past. The basic factor for the successful development of tourism in Bałtów and Dębrzno was cooperation in local partnerships. They worked due to an advantageous organisational structure, a strong local leader, a good collaboration with local governments, and the participation of locals. In both regions, the partnerships had creative ideas to develop, coordinate and market new attractive tourist offers, and they improved the human capital through advanced training and workshops. Another important success factor was external funding and advice. In this respect, the Environmental Partnership Foundation from Krakow and the EU programme LEADER+ played an important role. Also in future, local action groups of the LEADER approach can have a stimulating impact for Poland's rural areas and encourage rural inhabitants to make use of their regional tourist potential, since LEADER fosters people's own initiative and makes it possible to finance large projects, which could not be done by single local associations or communes.

Conclusions

Rural tourism – and particularly agrotourism, which has a high share in the tourist offers of rural areas in Poland – is an intensely discussed and politically supported issue in Poland. Due to the upsurge in the 1990s the absolute number of agrotourism farms is high in comparison to many other European countries, even if they have only a low share in the large number of all (often small) agricultural holdings. So far, tourism has had higher economic significance mainly in traditional tourist destinations. However, due to the more equal distribution of agrotourism farms rural tourism created in many areas of Poland incentives for entrepreneurship, people's own initiative, and human development. For a small part of rural households agrotourism provides in addition a direct contribution to income, reduction of hidden unemployment and development of human capital.

Positive factors for the future potential of rural tourism in Poland are the existing natural resources, which are, however, not necessarily present everywhere and have to be analysed realistically for each region. Furthermore, the good general outlook for the Polish tourism and the rise in environmental consciousness and urbanisation in Poland can have positive impacts on tourism in rural areas. The political support is an advantage, too. The major barrier for a comprehensive tourism development is the deficiency of the tourist and general infrastructure in many rural areas. To attain here an adequate level sufficient capital is necessary, but frequently not available as a result of poor financial resources of the public authorities and private enterprises as well as credit rationing. EU funding can partly compensate this; however, co-financing is always necessary. In addition, the weak marketing, the negative international image of Poland, the insufficient cooperation in tourism, and the shortage of skilled labour and entrepreneurial skills hamper the development of tourism. Strategies for rural tourism should be aware of these bottlenecks and address them in an appropriate way.

The potential of the existing agrotourism farms should be utilised better by improving and specialising the offer. Legal barriers have to be reduced. On the national level, sound market research and work on the international image of Poland are essential. Too little is known about the dimensions, segmentation, and growth opportunities of demand for rural tourism from home and abroad. This information is crucial to direct the offers to tourist trends and customer preferences and to make them successful. The formation of new enterprises should not be any longer product-oriented. A minimum quality level could be achieved by a duty to register and to attend an adequate training course. However, it is questionable, if this could become accepted in Poland. Moreover, functioning organisations and cooperation – particularly on the regional level (between voivodship and communes) – are important for the effective development and marketing of rural tourism. However, to establish such organisations is difficult due to the missing tradition of regional policy and the resistance of population to regional planning in Poland. The EU initiative LEA-

DER+ (now axis 4 of EU rural development policy) seems to be a promising approach to foster cooperation, trust, people's own initiative and institution building as demonstrated by the case studies.

Rural tourism is not a panacea for the structural problems of rural areas. The difficulties to establish new tourist destinations in the globalised tourism markets should not be underestimated. This should be emphasized more than before in the Polish debate. Nevertheless, provided that local people are interested and active and that there are natural and/or cultural attractions, far more areas could develop tourism to a significant economic factor, if they succeed in overcoming the bottlenecks. In regions without a unique selling proposition tourism can be developed jointly with other activities on a small scale and in niche markets. Particular chances have the wider surrounding of large cities for short trips and leisure. A realistic analysis of the depicted seven success factors should be always the starting point; and the tourism strategy should be embedded in an overall concept for the rural area. The majority of regions will have to base their diversification on more pillars than tourism.

References

Augustyn M., 1998, *National strategies for rural tourism development and sustainability: the Polish experience,* Journal of Sustainable Tourism 6, 3, 191-209.

Augustyn M., Thomas R., 2007, *Small Firms in the New Europe: Key Issues, Conclusions and Recommendations,* In: Thomas R., Augustyn, M. (eds.), *Tourism in the new Europe: perspectives on SME policies and practices*, Amsterdam, 227-236.

Bański J., 2003, *Transforming the functional structure of Poland´s rural areas,* In: Bański J., Owsiński J. (eds.), *Alternatives for European Rural Areas. Warschau*, 19-37.

Bodmer U., Haugg A., Sladek C., 2003, *Hemmnisse und Entwicklungsmöglichkeiten für ländlichen Tourismus in Bulgarien, Rumänien und Tschechien aus Nachfragersicht*, Tourismus Journal 7, 1, 87-106.

Bojnec S., 2004, *Farm tourism: Myth or reality?* In: Petrick M., Weingarten P. (eds.), *The Role of Agriculture in Central and Eastern European Rural Development,* Halle, 286-304.

Bott-Alama A., 2004, *The Economic and Social Benefits of Rural Tourism Development in Poland*, In: WTO (ed.), *Rural Tourism in Europe*, 101-109.

CSO Central Statistical Office of Poland: www.stat.gov.pl/english/

Embacher H., 2003, S*trategy formulation in rural tourism: An integrated approach*, In: Hall D., Roberts L., Mitchell M. (eds.), *New directions in rural tourism. Aldershot,* 137-151.

Eurostat data: epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,45323734&_dad=portal& _schema=PORTAL&screen =welcomeref&open=/&product=EU_MAIN_TREE&depth=1

ETC European Travel Commission, 2006, *Tourism Trends for Europe*. London.

FDPA Foundation for the Development of Polish Agriculture, 2008. *Rural Poland.* Warsaw.

Firlej K., Niedziółka A., 2007, *Agritourism as a factor of local development in the Malopolska region,*. In: Roczniki Naukowe, 9, 2, 92-96.

Fuchs O., 2007, *Kooperation als strategisches Element regionaler Tourismusentwicklung,* Raumforschung und Raumordnung 65, 6, 502-513.

Gannon A. 1994, *Rural tourism as a factor in rural community economic develop.ment for economies in transition*, Journal of Sustainable Tourism 2, 1-2, 51-60.

Golembski G., Majewski J., 2003, *Rural Tourism: Can it reach critical mass and create jobs and income sufficient to compensate for the demise of agriculture? The case of Poland*, Presentation, 5th Tourism Summits, Chamonix Mont-Blanc, 3-5.12.2003. www.ae.poznan.pl/turystyka/tresc_nauka/zalaczniki/chamonix.htm (06/08).

Gramzow A., 2006a, *Local partnership as an incubator for rural development: the case of Dębrzno, North-western Poland,* IAMO Discussion paper 90, Halle.

Gramzow A., 2006b, *Endogenous Initiatives as a Chance to Improve Rural Livelihood: Results of a Case Study in Bałtów,* South-eastern Poland, IAMO Discussion paper 95, Halle.

Grykien S., 1999, *Tourist farms in lower Silesia, Poland*, Geojournal 46, 3, 279-281.

Haart N., Steinecke A., 1995, *Umweltschonender Tourismus – eine Entwicklungsalternative für den ländlichen Raum in Europa,* In: Moll, P. (ed.), *Umweltschonender Tourismus,* Bonn, 17-32.

Hegarty C., Przezbórska, L., 2005, *Rural and Agri-Tourism as a Tool for Reorganising Rural Areas in Old and New Member States – Comparison Study of Ireland and Poland,* International journal of tourism research 7, 2, 63-77.

Hjalager A.-M,. 1996, *Agricultural Diversification into Tourism: Evidence of a European Community Development Program,* Tourism Management 17, 2, 103-111.

Institute of Tourism, 2006, *Podróż Polaków w 2006 roku*, Podstawowe wyniki badań, www.intur.com.pl/inne/polacy2006.pdf (8/08).

Institute of Tourism, 2007, *Kwatery agroturystyczne i pokoje gościnne 2007 – ewidencja według gmin,* www.msport.gov.pl/download/Turystyka/Statystyka/Kwatery_agroturystyczne _i_pokoje_goscinne_w_gminach_2007.xls (08/08).

Institute of Tourism, 2008, *Trends and forecasts* www.intur.com.pl/itenglish/forecasts.htm (06/08)

Jordan P., 2006, *Tourism and EU Enlargement: a Central European Perspective,* In: Hall D., Smith M., Marciszweska B. (eds.), *Tourism in the New Europe,* Wallingford, 65-80.

Kozak M.W., 2006, *Rola agroturystyki w rozwoju obszarów wiejskich,* bip.minrol.gov.pl/FileRepozytory/FileRepozytoryShowImage.aspx?item_id=27327 (07/08).

Lane B., 1994, *What is rural tourism,* Journal of Sustainable Tourism 2, 1-2, 7-21.

Long P., Lane, B., 2000, *Rural Tourism Development*, In: Gartner W.C., Lime D.W. (eds.), *Trends in Outdoor Recreation,* Leisure and Tourism, Wallingford, 299-308.

Long P.T.,; Nuckolls J.S, 1994, *Organising resources for rural tourism development: the importance of leadership, planning and technical assistance.* Tourism Recreation Research 19, 2, 19-34.

Majewska J., 2008, *Local Government's Involvement in the Development of Entrepreneurship in emerging Tourism Destinations,* In: Gołembski G. (ed.), *Entrepreneurship and quality in tourism in light of Polish and international research,* Poznań, 127-145.

Ministry of Agriculture and Rural Development 2005, *Rozwój agroturystyki na obszarach wiejskich,* Warsaw, Biuletyn informacyjny 7-8/2005, 11-18.

Nowaczek A.M.K., Fennell D.A., 2002, *Ecotourism in post-communist Poland,* Tourism Geographies 4, 4, 372-395.

Oppermann M., 1996, *Rural tourism in southern Germany,* Annals of Tourism Research 23, 1, 86-102.

Paesler R., 1999, *Alternative Tourism in Germany – A Chance for the Incoming Tourism in East Central and Eastern Europe?* In: Wyrzykowski J. (ed.), *Alternative tourism as an important factor of incoming tourism development in Central and Eastern Europe,* Wroclaw.

Paesler R., 2007, *Der Wandel des Tourismus in den Transformationsländern Ostmittel- und Osteuropas durch die politische Wende,* In: Becker C., Hopfinger H., Steinecke A. (eds.), *Geographie der Freizeit und des Tourismus - Bilanz und Ausblick*, München, 555-567.

Pils M., 2006, *New Trends, New Markets,* Workshop 3 Fact Sheet, 5th European Tourism Forum, 16.-17.11.2006, Cyprus. www.etfcyprus2006.com.cy/ presentation/workshop3/ factsheet.htm (08/08).

Porter M.E., 1994, *The competitive advantage of nations,* Hampshire.

Przezbórska L., 2003, *Relationships between rural tourism and agrarian restructuring in a transitional economy – The case of Poland,* In: Hall D., Roberts L., Mitchell M. (eds.), *New directions in rural tourism*, Aldershot, 205-222.

Przezbórska L., 2005, *Przemiany gospodarstw agroturystycznych Wielkopolski w latach 1990-2003*, Roczniki Naukowe, 7, 1, 197-203.

Raich F., 2006, *Governance räumlicher Wettbewerbseinheiten: ein Ansatz für die Tourismus-Destination,* Wiesbaden.

Ribeiro M., Marques C., 2002, *Rural Tourism and the Development of Less Favoured Areas*, International journal of tourism research 4, 3, 211-220.

Roberts L., Simpson F. 1999, *Developing Partnership Approaches to Tourism in Central and Eastern Europe,* Journal of Sustainable Tourism 7, 3, 314-330.

Sharpley R., Vass A., 2006, *Tourism, farming and diversification: An attitudinal study,* Tourism Management 27, 5, 1040-1052.

Sikorska D., 2007, *Agroturystyka i turystyka wiejska jako istotne elementy pozarolniczej działalności na obszarach wiejskich*, Roczniki Naukowe, Stowarzyszenie ekonomistów rolnistwa i agrobiznesu 9, 3, 181-183.

Sikorska-Wolak I., 2006, *Tourism as a chance for rural development*, Electronic Journal of Polish Agricultural Universities 9, 4. www.ejpau.media.pl/volume9/issue4/art-02.html (08/08).

Somorowska A., 2003, *Why it is worth investing in Polish tourism?* Presentation, 6. CEI Summit Economic Forum 19.-21.11.2003, www.ceinet.org/download/sef_2003/s5_ Somorowska.ppt (08/08).

Steinecke A., 2006, *Tourismus: eine geographische Einführung*, Braunschweig.

Wilson S., Fesenmaier D.R., Fesenmaier J., Es J.C. van, 2001, *Factors for Success in Rural Tourism Development,*. Journal of Travel Research 40, 2, 132-139.

WTO World Tourism Organization 2004, *Rural Tourism in Europe: Experiences, Development and Perspectives,* No location given.

Wyrzykowski J., 2000, *Conditions of Foreign Tourism Development in Central and Eastern Europe,* In: Wyrzykowski J. (ed.), *Changes in model of tourism in the last decade,* Wroclaw, 93-112.

Zarêbski M., 2006, *Motywy wyboru usług agroturystycznych*, Roczniki Naukowe, Stowarzyszenie ekonomistów rolnistwa i agrobiznesu 8, 4, 390-394.

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Economic quantification of the services provided by the Rural Tourism Associations: the Catalonian case

Abstract: *Rural tourism has become a significant economic activity in Spain, contributing also to the social revitalisation of rural areas. However, rural tourism destinations face particular challenges with respect to commercialisation and promotion. Because rural tourism industry remains highly fragmented, comprising a large number of relatively small and generally family-run businesses, the participation of tourism intermediaries in the marketing process is limited. To ensure that rural tourism businesses are properly marketed numerous organisations, based on joint local initiatives, have arisen. Such cooperative groups are labelled as Rural Tourism Associations.*

The purpose of this paper is to present the main characteristics of Rural Tourism Association's movement in Spain, making to do it a census of these organisations. Secondly, we estimate the contribution of Rural Tourism Associations to the income of rural tourism business owners. The sample, made of Catalan rural tourism promoters, shows the relevant role that rural tourism organisations play on the viability of rural tourism business.

Keywords: *rural tourism, potentialities and weakness' of rural tourism, rural tourism commercialization strategies, rural tourism associations.*

Rural tourism in Spain: some trends

The Nineties have seen the blossoming of rural tourism development in Spain. Since then, rural tourism has been increasingly recognised as another important activity for the Spanish tourism industry.

According to the Spanish Statistical Office, in 2007, the number of Rural Tourism Accommodations in Spain added up to 11,559, while the number of seats added to 103,455 (EOATR 2007). These figures represent an increase of

110.3% and 141% in relation to 2001, respectively. In a minor measure, recreational activities have also experienced a significant growth. For example, nowadays, in the Catalan Pyrenees, there are more than a million providers of services related to adventure sports. These generate approximately 1,500 direct jobs and 90 millions of euros per year, representing 11% of the tourism activity in that area (Francès 2007b).

The growth of rural tourism is being largely attributed on the demand side to changing consumer trends and behaviours, higher levels of disposable income, improved lifestyles, increased environmental awareness and second holiday/weekend markets (Cals, Capella and Vaquer 1995; Cànoves, Villarino, Priestley and Blanco 2004). Also, rural tourism has been seen by policymakers as an important complement and counterbalance to the coastal mass tourism while the restructuring of the EU agricultural support system in some schemes has created a "push effect" on the development of rural tourism businesses (Sharpley 2004).

New ways of commercialization in rural tourism

One of the characteristics of rural tourism management, in comparison to the mass coastal tourism in Spain, is the low participation of tourism intermediaries (travel agencies and tour operators) in the promotion and commercialisation processes (Embacher 1994, García, Francès 2007a, Mediano, 2004).

Rural tourism businesses, as other accommodation ventures, require a high amount of capital, expertise and marketing skills to communicate their offer and attract clientele. Tourism intermediaries allow that various tourism service's suppliers reduce their promotion expenditures without entirely compromising their representation and visibility in the tourism generating markets. This is a major opportunity to tourism enterprises, especially those small and medium sized. However, in the case of rural tourism, the relation between rural tourism operators and tourism intermediaries has been traditionally characterised by conflict and confronted positions.

For travel organisations the only feasible way to earn profits in tourism is to standardise their ''packages'' and follow a ''high volume-low cost-low profit margin'' strategy in their product offering (Bastakis et al. 2004). In that sense, for the intermediaries, the main obstacles of marketing rural tourism are the heterogeneity, the lack of labelling (such as stars) and the dispersion of location among business. To be a profitable business, tourism intermediaries stipulate the need to charge a fee of between 15% and 20% on each booking and also to reach a fix percentage of rooms per year[7]. So, from the intermediaries' perspective, rural tourism businesses follow what Fleischer and Felsenstein (2000) defined as the "wrong size (too small) and the wrong location (too remote)" to operate. But not only intermediaries are rejecting to enter

7 These data come from the interviews done to intermediaries in the annual fair of rural tourism in Catalonia (Agrotur) among 2006-2007.

in this market, rural tourism owners are reluctant to their intervention. Two main reasons are behind this negative position: 1) fee charges seem extremely expensive, and 2) intermediaries do not solve the low occupancy rates during the low seasons.

The problems and conflicts that arise between these two actors explain the low percentage of rural tourism accommodations bookings generated by tourism intermediaries, ranged from 3% to 15% of total bookings in Spain (Editur 2001, García 2003).

To overcome the lack of resources and marketing skills provided by tourism intermediaries, rural tourism owners have tended to establish rural tourism management networks. These networks are mainly orchestrated through associative models that can be semi-public - partnerships, etc. - or private – non profit organisations, cooperatives or entrepreneurial associations- (Evans and Ilbery 1992, Hummelbrunner and Miglbauer 1994, Francès 2007a).

Rural Tourism Associations in Spain

The rural tourism associative movement in Spain began in the mid-eighties, with the setting up of two associations located in the Pyrenees [8]. Since then, the rural tourism associative movement has been characterized for its abundance, size and services provided.

Due to the absence of any official data, a research was done in order to estimate the number of Rural Tourism Associations (RTA). The research was based on questionnaires mailed to the Spanish Federation of Rural Tourism – ASETUR- and the regional tourism boards of the Autonomous Communities (NUTS I in the EU terminology). Also, it was done through the main internet finders (Google and Yahoo). In 2007, the number of rural tourism associations was estimated around 128, which integrated approximately 6,500 lodgings, representing around 56% of the total offer in Spain (EOTR 2007). RTA are integrated in Rural Tourism Federations (RFT) that in all cases but one (Catalonia) operate at the Autonomous Community level (table 1).

Almost 75% of the RTA are small or very small sized entities, with less than 50 lodgings (table 2) and located in small rural municipalities. On the other hand, 6.3% integrate more than 100 lodgings. These associations work at regional level, such as the case of the Andalucian Rural Tourism Association (RAAR) with approximately 450 members, the Basc Country Agritourism Association with about 300 lodgings associated, Pyrenees association in Huesca with 250 lodgings associated or the Balearic agritourism association with about 120 lodgings. These associations count, also, with wage-earning personnel.

8 Associació de Residència Casa de Pagès de l'Alta Ribagorça in 1985 and the Asociación Pirenaica para el Desarrollo del Turismo Rural - TURAL- in 1989.

Table 1. Nº of Rural Tourism Associations and accommodations associated (2007) and nº of lodgings registered in the EOATR from INE (2007).

Autonomous Community	Name of RTF	Number of RTA	Number of lodgings. assoiated
A.C of Andalucía	No	5	575
A.C of Aragón	FARATUR	10	586
Asturias (Principado de)	FASTUR	11	252
A.C of Balearic Islands	No	3	128
A.C of Canary Islands	ACANTUR	7	342
A.C of Cantabria	No	3	263
A.C of Castilla y León	ACALTUR	13	279
A.C of Castilla - La Mancha	FECAMTUR	6	148
A.C of Catalonia	CONCATUR FACI Fed. RCPs Lleida TuralCat	25	710
A.C. of Valencia	FEVALTUR	4	113
A.C of Extremadura	FEXTUR	9	221
A.C of Galicia	Fed. Gallega de RTA	11	292
A.C. of Madrid	No	2	44
A.C. of Murcia (Región de)	No	4	157
Navarra (C. Foral de)	Fed. Asoc. y Org. Turísticas	13	526
A.C. of Basc Country	No	1	300
A.C. of Rioja	No	1	55
Total	13	128	4,991

Source: Own elaboration based on INE, ASETUR, information provided by the different tourism promotion services of each Autonomous Community and from Internet seekers (google, yahoo)

Table 2. Size of Rural Tourism Associations in Spain (2007)

	Size	
Nº of lodgings integrated	Nº of RTA	%
More than 100	8	6.3
50 and < 100	18	14
20 and < 50	51	39.8
Less than 20	43	33.6
N/A	8	6.3
Total	128	100

Source: Own elaboration, based on ASETUR, information provided by the different services of tourist promotion of the different Autonomous Communities and from Internet seekers (google, yahoo)

In 1995 the Spanish Rural Tourism Association (ASETUR) was created with the objective of integrating the rural tourism associate movement for strengthening their negotiating power with other public and private stakeholders and also their competitiveness in the tourism market. In 2007, ASETUR totalled 110 RTA and 8 RFT of all Spain. Between 2000 and 2007, the number of lodgings offered has grown from 2,500 to 4,300, approximately.

RTA and RTF (defined from now as RTA) are nourished mainly by the quotas paid by their associates, which in some cases are fixed quotas and in others vary according to the sale's percentages or the seat's numbers. Total associate contributions are very heterogeneous among the RTA, oscillating between € 60 and € 600 per year.

The main functions that RTA assumes are technical advice, training and promotion. The smallest RTA tend to limit their actions to non periodic brochures and to inform, generally through the figure of the president, about training and courses held by the local public agencies or legal aspects. However, the bigger-sized and professionalized the RTA structure, the greater range of promotion and marketing services it provides. Also, RTA facilitates operations with banks and suppliers of inputs. Rural Tourism Federations mainly assume the role of lobbying with public administration and private actors and assist with the proper marketing of tourism products at a broader level through the participation in national and international fairs, internet pages and central reservation systems. For example, Ibiza RTA in Balearic Island with only three lodgings associated is promoted solely through ASETUR. ASETUR web page is one of the most important promotion channels for rural tourism in Spain (www.ecoturismorural.com). According to a survey of RAAR, between March and May 2006, 50% of the 38,000 visits to their webpage came through the link established with the ASETUR web, whereas solely 1% did directly through their own web page. However, on-line commercialisation is still very low developed. There are 48 RTA that have a central booking office but all of them work through telephone calls.

The benefits of being a member of the rural tourism associative movement (RTA and RTF) can be defined as club goods (Capello 1996) and they can be summarised as follows:

- Facilitate the transfer of information (e.g. on market needs and possibilities, potential investors, financing).
- Give advice and support for businesses, projects and development programmes.
- Coordinate individual marketing and training efforts.
- Develop and market the tourism products of a given area.
- Purchase more cost-effective inputs or financing products.
- Representing properly and articulating local interest in tourism development.
- Facilitate the control and uniformity of prices and services offered.

In the next section our objective is to analyse the impact of these benefits or clubs goods on the rural tourism owner turnover.

Economic valuation of the Rural Tourism Associations in Catalonia

The method

To quantify the incidence of Rural Tourism Associations (RTA and RFT) in the rural tourism business, we have compared the net income of rural tourism activity in two different scenarios:

The first one, defined as non networked situation, consists in the calculation of the net income that a rural tourism business generates when the owner is not a member of a RTA. In this situation, all the production factors used by the owner (labour, inputs material, promotion, commercialisation, etc.) are obtained through the market. This market benefit (D) shows the yield of the rural tourism businesses when the promoter does not use the services provided by the RTA and does not benefit of what has been defined as club goods (table 3).

The second scenario, defined as networked situation, is based on the calculation of the net income that a rural tourism business generates thanks to belonging to a RTA. This networked benefit (H) shows the yield of the rural tourism business when the promoter uses the services provided by RTA, which have been defined as club goods.

The most important aspect of the comparison between the two scenarios is the study of the transference of economic benefits that the membership produces on the business net income. In case of this being positive, there is a profit transfer from the RTA towards rural tourism business. In case of it being negative, it would mean that participating in these associative networks is costlier than acting individually. The relations are showed in table 3.

Table 3. Benefits in the situation of network and in the situation of non network

	Incomes	Production Costs	Benefits
Non networked situation	A	B	D
Networked situation	E	F	H
Transfers	I	J	L

Where:
- Market benefit: D = A - B
- Networked benefits: H = E - F
- Income transfer: I = A – E
- Networked rent transfer originated from benefiting of club goods: J = B – F
- Net benefit: L = D - H or L = I - J

A positive networked rent transfer (J > 0) means that for rural tourism owners the cost of producing individually is higher than in the case of being a member of a RTA. When the networked rent transfer is negative (J < 0), the opposite situation occurs.

The net transfer (L) is the difference between the market benefit situation and the one of being member of the associative network. If the net transfer is positive (L > 0), it means the additional net income of belonging to RTA whereas a negative net transfer means that the costs of being part of RTA are higher than the income that this organisation provides.

From the previous information, it is estimated the comparative advantage that the RTA provides to rural tourism owners networked situation in relation to the non networked scenario. The comparative advantage (CA), estimated as the value that interviewed rural tourism owners give to the advantages of being member of RTA, is defined as:

$$CA = \frac{H}{D} - 1$$

CA > 0 indicates that the costs of the services provided by the RTA are lower than the net income that these entities provide to the business. When CA< 0, it indicates the contrary situation. If CA takes null value (CA = 0), it indicates that the networked benefits have a neutral effect on the generation of net income, so neither positive advantages nor diseconomies of association exist.

The sample

The sample used to valuate the economic impact of RTA in rural tourism business comes from the Spanish data base of the European project "Innovation, Diversification and European Agricultural Situation" (FAIR6-CT98-4228). The objective of the project was to analyse the factors that determine the success of different diversification farm strategies. The survey was made to 125 farms in Catalonia, 36 of which develop rural tourism activities, 25 combine different innovative agrarian activities, 24 diversify into food processing and direct selling and the rest were specialised farms. The criterion of the sample configuration was based on the European Commission agreements. For the selection of agrarian farms, a laborious search work of diversified examples was made in different Catalan rural contexts. The survey contained 72 questions on farm and farmer characteristics, the types of diversification undertaken, the reasons for diversifying and the advantages and resistances to the uptake of diversified business (Viladomiu et al. 2002).

In the analysis of the 36 rural tourism businesses, it was observed a high level of memberships in Rural Tourism Associations as well as the positive valuation that they make to the services provided by these entities. This data led us to elaborate further on this aspect and to undertake a second round of personal interviews with rural tourism owners. In the second interview a more in-depth analysis was made on the role that RTA have had in the beginning and development process of the rural tourism business. In that sense, the owner was asked to estimate which proportion of the total rural tourism net income came from the services provided by the RTA.

The comparison of the net income generated in each scenario (networked situation against non networked situation) was analysed in two different phases of the business cycle: a) the start up of the business (interpreted as the first two years of operation) and; b) the development phase of the business (after two years of operation).

Findings

The sample of the rural tourism businesses is formed in 72.2% of the cases by married couples and extensive families (more than four family members), 19.4% are unmarried entrepreneurs living with their parents, 5.6% are married couples without children and the rest are people living alone. Rural tourism owners tend to be younger (57.8% below 45 years of age compared to 9.4% above 55 years of age). In that sense, 76.9% of them are younger than 16 years. As in other case studies (Getz and Carlsen 2000), it is confirmed that rural tourism businesses are mainly run by women: in 60% of the cases a woman was the operator, in 33.3% the management was shared by the couple and only in 6.7% business was only operated by men. Regarding to agritourism farm characteristics, it is worth to highlight that most of them are, at the Spanish level, medium-sized farms (55.8% above 20 hectares) and specialised in low intensive labour agrarian production (such as cattle breeding, 55.6%, or permanent crops, 30.6%).

The net income related to tourism activities by farm reach an average of € 7,053 in the start up phase, whereas in the development phase increase to € 7,645. By income cohorts, in the start up phase, 47.2% of interviewed farmers declare to have a net tourism income lower than € 3,005, whereas 22.2% declare to perceive more than € 9,015. This distribution is maintained in the development phase: 45.7% perceive less than € 3,005 whereas 22.9% declare to surpass € 9,015 of net income.

Concerning to the impact of RTA services in the income of the business (Table 5), at the start up phase, 80% of the rural tourism owners consider that the services provided by these entities have a positive effect in the increase of tourism income, 17.1% consider this effect null, whereas the rest did not answer. The contribution of RTA during the development phase is also important: 96.4% of the owners pointed out the RTA's positive contribution in terms of the net income generation, although as it is showed in Table 4, the incidence in the income is lower than the one generated at the start up phase.

Table 4. % of contribution of the RTA services in the income of rural tourism business

Phases	Start up phase		Development phase	
	Nº of farms	In %	Nº of farms	In %
From 50% and more	11	31.4	4	11.8
From 25% to less than 50%	10	28.6	11	32.4
From 10% to less than 25%	7	20.0	12	35.3
No contribution	6	17.1	6	17.6
N/A	1	2.8	1	2.9
Total	35	100	34	100.0

Analysing the comparative advantages related to the networked situation and the non networked situation at the start up and development phases of the tourism activity, the results are as follows:

$$CA_{beginning} = \frac{H}{D} - 1 = 0,61$$

$$CA_{development} = \frac{H}{D} - 1 = 0,37$$

According to these results, for rural tourism owners, at the start up phase, the tourism net income generated in the networked scenario is 61% higher that in the case of non networked situation (or non membership of a RTA). As it was pointed out in the in-depth interviews (Frances 2007a), this big difference can be attributed to the benefits that provide the services offered by the RTA movement, especially those related to internet promotion and advice. Meanwhile, in the development phase, the tourism net income generated in the networked scenario is 37% higher than in the case of non networked situation. Although it is a high proportion, the lower impact of RTA membership in the development phase impact is mainly due to the positive "word of mouth" effect and repeated clientele that is generated by satisfied customers.

In any case, the fact that a significant difference exists between the situation defined as non networked and the networked situation reveals the importance role that RTA has in the generation of net income for rural tourism businesses.

Conclusion

This article has focused on explaining the situation of the rural tourism association movement in Spain and the role that these associations play in the development of rural tourism. Due to the high membership level of rural tourism owners in RTA, the second part of this paper has estimated the impact of these entities in the rural tourism businesses income.

Rural tourism associations are highly developed in Spain. RTA are a prominent way for rural tourism business to obtain networking opportunities or club goods (Capello 1996) such as access to information, training and financial support and cheaper and more varied promotion services which could be produced in volume. As it has been seen previously, this is more important at the start up of the business when informal promotion channels (the "word of mouth" effect and costumer's loyalty) are not still very well developed. Marketing through these networks requires less extensive knowledge of market conditions for promoters. In fact, as it has been pointed out by other authors (Bastakis et al. 2004, Evans and Parravicini 2005), in our case, the internet is one of the most effective promotion tools for rural tourism associations because, through them, rural tourism business can communicate directly and in the cheapest manner with consumers and distributors. However, hitherto there is a very small percentage of rural tourism associations that have taken advantage of the internet for on-line booking. Since suppliers are generally not on-line and they are generally reluctant to central bookings through internet systems, actual bookings rely on telephone and traditional payment methods.

The rural tourism association movement is characterized by its high fragmentation, local character and non wage page personnel. Small rural tourism associations have contributed to strengthen community ties and to transfer information between rural tourism entrepreneurs, especially in the most remote rural areas, through organising training and exchanges of experiences among owners. On the contrary, they weakly manage and market, since they lack the resources to employ specialised personnel and promote themselves adequately. In fact, many associations and rural tourism owners are aware of the need of participating in bigger rural tourism organisations or in federations, such as the ASETUR, that can undertake the responsibility to promote rural tourism products more efficiently as well as represent an important collective voice in discussions with public administration or other tourism stakeholders.

In that sense, we consider especially important to strengthen the regional and national structures in Spain. Due to the fact that rural tourism in Spain displays considerably diversity (types of lodgings, locations and natural resources endowments) and, especially, that tourism regulations are defined at regional level (Autonomous Community level), regional structures would allow: a) to optimise marketing synergies within the region to improve its product's exposure to the market place; b) to provide a local focus on rural tourism needs and operations through the maintenance of close contact with their local communities; c) to build an effective booking system according to each regional regulation while maintaining the proper size to be trustful for rural tourism owners' perceptions. Whereas national rural tourism organisations, such as ASETUR, would be the optimum level to become the main marketing platform of the Spanish rural tourism. As important as being the node of the regional rural tourism strategies, it is necessary to foster the role of ASETUR as a mechanism to coordinate the creation and implementation

of a uniform system of quality standards in rural tourism business (similar to the system of stars used in hotels) in order to clarify the Spanish rural tourism supply and to have a more competitive position in the marketplace.

Strengthening networks is not an easy task (Jenkins 2000). It implies to mobilize a great number of actors with different goals and to generate the confidence among them in that the joint result will be greater than the result of individualized actions. These actions require a significant effort in terms of time, which are difficult to overcome solely through private initiative, especially if we consider the lack of financial resources and the volunteering nature of most RTA representatives. To overcome these problems, it is necessary that the public administrations plays an active role as facilitators of the integration process while RTA has to become bigger in size and reach more professionalized structures.

This paper suggests the efficacy of RTA for rural tourism business. Future empirical research is needed for a better understanding of the role of RTA in the development of rural tourism and to examine the cost-effectiveness of the RTA services in relation to the rural tourism turnover.

References

Bastakis C.; Buhalis D., Butler, R., 2004, *The perception of small and medium sized tourism accommodation providers on the impacts of the tour operators' power in Eastern Mediterranean,* Tourism Management, 25(2), 151–170.

Cals J., Capellà J., Vaquer E., 1995, *El turismo en el desarrollo rural de España,* Ministerio de Agricultura, Pesca y Alimentación (MAPA), Madrid.

Cànoves G., Villarino M., Priestley G., Blanco A., 2004, *Rural tourism in Spain: an analysis of recent evolution,* Geoforum, 35, 755-769.

Capello R., 1996, *Industrial Enterprises and Economic Space: the Network Paradigm,* European Planning Studies, vol. 4(4), 485-497.

Editur, 2001, *El turismo rural busca vías de comercialización,* Editur, 2171, Octubre, 22-27.

Embacher H., 1994, *Marketing for agri-tourism in Austria: strategy and realisation in a highly develop tourist destination,* Journal of Sustainable Tourism, vol. 2(½), 61-76.

Encuesta de Ocupación en Alojamientos de Turismo Rural (EOATR), Instituto Nacional de Estadística, http://www.ine.es/inebase.

Evans N., Ilbery B., 1992, *Advertising and farm-based accommodation: a British case study,* Tourism Management, December, 415-422.

Evans G., Parravicin, P., 2005, Explotaition of ICT for rural tourism enterprises: the case of Aragon, Spain (chapter, 6), In: Hall D., Kirkpatrick I., Mitchell M. (eds.), *Rural Aspects of Tourism. Tourism and Sustainable Business, Channel View Publications.*

Fleischer A., Felsenstein D., 2000, *Support for rural tourism. Does it make a difference?* Annals of Tourism Research, vol. 27(4), 1007-1024.

Francès G., 2007a, *La incidencia de las redes sociales en el desarrollo del agroturismo, Revista de Estudios Agro-sociales,* vol. 213, 103-128.

Francès G., 2007b, *Le tourisme rural, une forme de développement durable dans Les Pyrénées Catalanes* (Chapitre 2), In: Clarimont S. Vlès V. (eds.), *Tourisme durable en montagne entre discours et pratiques,* AFNOR, Paris.

García B., 2003, *Marketing del turismo rural,* Madrid, Pirámide.

Getz D., Carlsen J., 2000, *Characteristics and goals of family and owner-operated businesses in the rural tourism and hospitality sectors,* Tourism Management, 21(6), 547-560.

Hummelbrunner R., Miglbauer E., 1994, T*ourism promotion and potential in Peripheral areas: the Austrian case,* Journal of Sustainable Tourism, vol. 2, 41-50.

Jenkins J., 2000, *The dynamics of Regional Tourism Organisations in New South Wales, Australia: History,* Structures and Operations, Current Issues in Tourism, vol. 3(3), 175-203.

Mediano L., 2004, *Gestión de marketing en el turismo rural,* Madrid, Pearson Educación, S.A.

Sharpley R., 2004, *Rural Tourism and Sustainability* (chapter 3), In: Hall D., Roberts L., Mitchell M. (eds.), *New Directions in Rural Tourism: local impacts, global trends,* Ashgate Publishing, Ltd.

Viladomiu L., Rosell J., Francès G., 2002, *La diversificación de las explotaciones agrarias catalanas: hechos y realidades,* Revista de Estudios Agrosociales y Pesqueros, 195, 9-35.

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Bioenergy entrepreneurship as a tool for rural development in Northern Finland

Abstract: *This paper aims at analyzing business services in bioenergy investments and innovations on farms in the Northern Ostrobothnia region in Finland. Finance into research of bioenergy has strongly increased during the last years both in Finland and Europe. Primary focus of this research has been so far on the technical and economic problems, like production, processing and combustion techniques of biofuels and environmental effects of bioenergy production. Energy resources of farms and their possibilities to act as bioenergy entrepreneurs has been paid attention to only lately. Research focusing on the background factors, support services and regional conditions effecting farm level bioenergy entrepreneurship has been minor in Finland.*

The number of Finnish farm enterprises is assumed to decrease from 70,000 to about 50,000 by the year 2013 and the decline is especially drastic in marginal rural areas like Northern Finland. This trend fosters the depopulation of rural areas and weakens the well-being there. New business opportunities are important in keeping up agricultural enterprises in business. High hopes have been put on the production and use of domestic bioenergy as one of the farm businesses, which is at the same time seen as one of the solutions for reacting to the demands of climate change. In here, governmental and other business services have an important role, but the Finnish business services are scattered in numerous organizations.

The research emphasis is put on local/regional actors, who make final energy decisions. Empirically this paper is based on questioning (150 farmers) and structural interviews (39 farmers) for farms directed to bioenergy production in the province of Northern Ostrobothnia, Finland. The data was collected in 2006

and 2007. Three groups of farmers were categorized according to their attitudes to bioenergy production on their farms: investors, entrepreneurs and hobbyist. The results will help to develop future business services, increase bioenergy use, and bring in information about the factors and causalities behind bioenergy decisions.

Keywords: *northern finland, bioenergy entrepreneurship, business services, rural development*

Introduction

Climate change mitigation, high prices of fossil fuels, and energy security risks have raised energy among the major concerns for decision makers and the general public globally. Alongside with these global energy and environmental trends, the EU is struggling with regression of union‘s rural areas, which is further linked with the on-going structural adjustment of agriculture, food security concerns, and overall welfare of rural populations. Bioenergy is seen as an important remedy for all of these problems.

Bioenergy research is rapidly growing in the EU and Finland, and resources have been allocated to technical and economic issues of bioenergy. These include research on biofuel procurement, combustion technologies, and economical and environmental dimensions of bioenergy. Yet bioenergy production and use at farm level has attracted much less research interest until quite recently. Drivers behind farm level bioenergy decisions and bioenergy entrepreneurship in general are poorly known in Finland. The same applies to the roles of business services and regional factors in energy decision making.

This study analyses background factors of bioenergy entrepreneurship and related business services. A farm-level case study was made in the province of Northern Ostrobothnia, located
in Northern Finland. Three major research questions are:

1) What are the drivers behind bioenergy decisions in farms? We attempt to identify these factors from farm characteristics and from regional settings. We analyze also the role of normative control affecting decisions and the role of bioenergy business services.
2) How do business services affect the diffusion of bioenergy innovations? In here we study the demand of business services and the type of bioenergy information that is needed by farmers. The present structure and functioning of business services and their role in developing the sector as a whole is analyzed.
3) How do regional factors affect bioenergy businesses and their development? We aim at revealing regional characteristics, which lie behind the operational environment of farms and business service organizations.

Factors affecting to decision-making of bioenergy production in farms

Prevailing social structure of the Finnish energy-economy setting has so far rejected agricultural farms as relevant energy actors. This opinion has been argued by e.g. the following viewpoints (see e.g. Ruostetsaari 1989; Salo 2006):

1) Energy is seen merely as a technological and economic issue with less priority to the environmental aspects of energy.
2) Finland has promoted large scale energy production instead of small scale and distributed technologies, which are seen as an expensive way of producing energy.
3) Wood is the primary source of bioenergy in Finland. It is used in large industrial settings of energy and forest industries and it dominates in national renewable energy policy planning.
4) Finland has the tradition of striving for energy policy consensus between major players in the field, such as energy companies, key ministries, and forest/metal industries. Most of the decision makers know each other well and they often have e.g. the same educational background from the few universities in Finland.

Bioenergy decision making process in farms is linked with several factors. Energy business potential lies on farm infrastructure and regional factors. National policies steer decision making on farms in general but farmers themselves make the final energy decisions, being possibly guided by business services, which have the major role in promoting and disseminating bioenergy innovations. Figure 1 illustrates farmers' decision making process and its components.

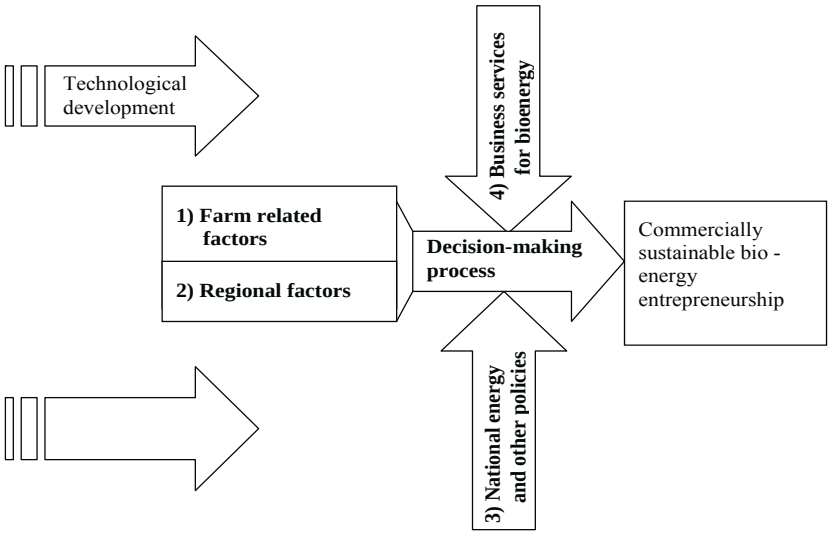

Figure 1. Factors affecting to decision-making of bioenergy production in farms

1) **Farm related factors** describing bioenergy business potential include available primary energy resources, location of the farm, financial resources and agricultural production repertoire, labor force, and personal capacities. Primary energy potential of a farm consists mainly of forests, agricultural fields, number of cattle and the pattern of treating the manure. Bioenergy investments require available funds and appropriate technologies, which already may be available if basic machinery used for agro-production can be utilized for energy businesses. Large scale energy production though usually requires specific machinery for achieving sufficient production output (see Morriss et al. 2006).
   The average size of Finnish farms grows by time making the labor force a scarce resource. This may hinder new investments to bioenergy, which, on the other hand, can also guarantee the survival of the farm. New businesses require also learning new things. Right attitude and willingness for learning are needed when starting new businesses. Finally, the motive of the entrepreneur to start a new business is crucial. Risks and uncertainties of traditional agriculture may affect motivation, as the age of farmers and future perspectives of the farms do (Storhammar and Virkkala 2003; Vihinen and Vesala 2007).

2) **Regional factors** include forces found outside the farm and which affect energy entrepreneurship. Region is defined as the area in which the farm is connected to other actors regarding its bioenergy businesses. Regional factors can either support or restrict new businesses. Factors include e.g. the following: available energy and labor resources, general natural conditions, infrastructure, and energy markets.
   Usually, farms have more or less limited bioenergy resources of their own. If bioenergy businesses expand, they often require extended procurement of primary energy sources from the region. Selling heat and/or heating fuels to e.g. municipal heat station require large quantities of raw material. Biogas production, on the other hand, may need raw materials not found from the farm such as certain biowastes, which bring in extra money for the entrepreneur as gate fees. Availability of specialized labor force may become a restrictive factor for business expansion.
   Regional road infrastructure may affect raw material procurement and machinery transportation. Access to business information, governmental services, banking facilities as well as customer relations management requires access to Internet. Network capacity in remote areas may restrict Internet use for business purposes.
   Bioenergy entrepreneurs often operate in a close proximity of the farm. Distances to energy customers affect business potentials for small scale producers. Technological choices made by municipal energy producers determine what kind of biofuels can be used. Local power providers (electricity distribution companies) decide whether locally produced power can be fed into the grid. Biogas vehicle fleet in the region dictates the biogas potential for the transport sector. Municipal authorities and other large actors and customers such as companies are important when developing bioenergy as a local business.

3) **National energy and other policies** create frameworks for bioenergy businesses and innovations of farms. Government support to starting with bioenergy entrepreneurship is considered very important (Salo 2006). In the EU, each member state is responsible for its energy policy. However, the EU‘s internal co-operation and energy-related objectives have both increased in recent years. In the European Forum for Renewable Energy Sources (Eufores) there are introduced many examples on the EU renewables legislation (The European Forum for Renewable Energy Sources 2008). In 2001, for example, EU accepted an important directive on the promotion of electricity produced from renewable energy sources (RES-E) in the internal electricity market (Official Journal… 2008; EU Energy Cooperation 2008). Yet an overall picture of the governmental and the EU level influence for bioenergy business is difficult to make.
The EU affects member states‘ energy, agricultural and regional development policies, which further have more or less direct impacts on farm level decisions. Union‘s rural and agricultural policies aim at e.g. diversifying rural economies, improving access to services in rural areas, and improve rural areas‘ general attractivity for living and entrepreneurship. In Finland the national Rural Policy Programme reconciles different rural policy issues, i.e. regional impacts of the actions of different sectoral policies and means to alleviate the negative impacts and reinforce the positive consequences. The proposals of the programme consolidate the rural policy system. The programme is revised about every four years, and it contains a strong strategic perspective combined with concrete proposals for development measures (Rural Policy Committee 2004). OECD has given quite a positive feedback from Finnish rural policy in it’s evaluation (OECD 2008).
Finland has 19 regional councils, which lead the regional planning processes in the country. In the province of Northern Ostrobothnia exists a regional energy strategy with goals for bioenergy till the year 2015. Key actions in the strategy include development of energy businesses (Hyvinvointia energiasta… 2007).

4) **Business services for bioenergy** consists of the public service system and private expertise services such as consultants, accounting firms, banking sector, and various development projects. Also unofficial contacts may play a role in here; dealers, neighbors, or media influence more or less decision making process. For decision making farmers need information on markets, availability of raw materials and technologies, prices, financing markets, and so on.
Business service actors in Finland function according to their organizational origin, which is sector based. Farmers can not get all relevant bioenergy information and support from one place or office only but they have to visit all of them. Business service providers do not cooperate or plan their work together. As a result, farmers can not optimize their bioenergy production potential. The business service sector can give information on one energy source or one end product only.

Bioenergy business potential for farms

Finnish agriculture is diversified, and in 2005 35 % of farmers had additional lines of business in addition to traditional agricultural production. Contracting with machinery is the most common activity with 41 % of all extra activities. Out of a total number of about 70,000 farms in Finland (in 2005), 820 farms produced bioenergy, and this number is growing all the time (Niemi and Ahlstedt 2008).

Entrepreneurship is seen as an important part of rural development and in developing societies at large. According to Muilu and Tertsunen (2007), bioenergy and entrepreneurship belong to the top research agenda items of rural development and research in Northern Finland and in the province of Northern Ostrobothnia in particular, which is also characterized by its remarkable natural resources (see also Muilu 2004). Physical resources of farms and income from agriculture may also work as guarantee for loan required by new business (Torkko 2004, p. 84). This is why in the province of Northern Ostrobothnia rural economies are mostly based on local and regional natural resources.

Rural bioenergy resources are plentiful in Finland. Firewood and other energy wood are commonly used for heating purposes in farms (Solmio 2004; Renewable Sources…2008). Farmers own 1/5 of all forests in the country, whereas private ownership of forests in total accounts for about 2/3 (from land area) and 4/5 (annual timber harvest) in Finland (Statistical Yearbook… 2007). According to a survey by Lampinen and Jokinen (2006), the ecological bioenergy potential in farms is huge: 15 % of electricity and 57% of transport fuels could be produced using farm energy resources. The ecological potential refers to comparisons of present growing situation and future options, in which both local growing effects and global effects caused by substitution of fossil energy are taken into account.

Farms can sell energy wood alongside with commercial harvesting and silvicultural operations. Heating entrepreneurship with municipal customers is becoming more and more common in rural areas and villages. When such businesses numbered about 300 in 2005, the amount is projected to grow up to 1,000 by 2010 (Alanen and Solmio 2006, p. 2).

Finland‘s agricultural land totals about 2.2 million hectares (Niemi and Ahlstedt 2008) and 0.5 million hectares could be utilized for energy cropping without endangering food and fodder crop supply (Peltoviljelyn… 2005, p. 39). Energy crops like reed canary grass and turnip rape will become an important source of energy. Also biogas production can become more common due to an increased number of cattle per farm making such investment more feasible, although estimates on the level of growth potential are varying (Salo 2006, p. 3). It is estimated, for example, that one hectare could produce enough biogas for the annual consumption of two cars (Lehtomäki and Rintala 2006, p. 33).

Business services for farms

There are many business service organizations and actors in Finland at national, regional and local levels. Business services are understood in this context as an umbrella term for all services that are offered for those who plan or who have just started their new entrepreneurship. These include public and private organizations, banking and financing sector, and insurance companies (Suomalaisten… 2005, p. 10-12).

There are more than 20 public business service operators in Finland making the governmental business assistance system rather large and complex. The number of service offices is almost 1,200. Public operators concentrate to assist new business ventures, which are mainly micro enterprises with less than 10 employees or with a maximum annual turnover of 2 million euro. What is important in here is that the quality and quantity of offered services vary from region to region (Suomalaisten… 2005, p. 8, 12-13) and that the services focusing on farm-related enterprises are different from those of other rural micro enterprises (Torkko 2006, p. 58).

Farmers are used to get services from the Finnish agricultural service system and forestry extension organizations and also from those organizations making agricultural aid decisions. However, these organizations are not satisfactorily covering bioenergy issues. Yet some new bioenergy related services are being developed under different line ministries (Liikenteen… 2006, p. 94-97). The Finnish energy investment support system is designed for large scale projects with no special funding apparatus to small-scale energy producers at farm level.

New bioenergy business climate requires also some capacity development both at customer and service provider sides. How to raise capacities and how to produce services in a large area to many different farm types with a holistic farm management viewpoint will be a challenge for all parties involved.

Factors behind bioenergy entrepreneurship in the province of Northern Ostrobothnia

Empirical data of this study are the interviews of farmers that started with bioenergy business in the province of Northern Ostrobothnia (sometimes called also Oulu Region by the capital of the province). The province is located in Northern Finland and is characterized by sparse population and long distances (Figure 2).

Interviewing makes it possible to obtain in-depth information on farmers‘ experiences, feelings and opinions when they were making their business decisions. Interviews could also reveal some unexpected results or points of view (Kitchin and Tate 2000, p 213). The idea of choosing the interviewees was to cover a wide range of bioenergy businesses such as energy raw material production (wood, energy crops). Also those with serious ideas of putting up

a biogas plant were identified and interviewed. Postal survey yielded to 150 farms out of which 39 were interviewed during 2006-2007.

Farm characteristics (see Figure 1) explained in many cases the main impetus for starting with bioenergy. Some firewood producers simply found out that their raw material reserves (e.g. after thinning of forests yielding to non-commercial small size timber) made it possible to start with this business. This starting mode is more of taking the available opportunity rather than pursuing more target oriented decision making process. In one case the close proximity of a school resulted to heating business.

Firewood production was the most common mode of bioenergy line of business in this study. Their customers were found from detached houses in urban centres and from secondary homes in countryside. Low pulp wood price offered by forest companies in some cases yielded to firewood production resulting to bigger profits per cubic meter of round wood. Prerequisite for this business was the availability of labor force especially during winter, when farmers have usually more time outside their farming activities.

Some farmers chipped their non-commercial wood and managed to sell it to energy companies. In two cases bioenergy business started after clearing forest land for agriculture, which yielded to a large amount of small wood suitable for energy.

Usually firewood producers get their raw material from their own forests, often in the starting phase of the business. However, when business was expanding farmers were forced to buy extra raw material from outside.

Giving up animal husbandry was the reason for some farmers to start with energy business. Some farmers got extra working time after adjustment of farming, which then triggered e.g. chopped firewood production. Some fodder producers changed to energy crops due to customer loss. One farmer started growing energy crops because it was seen as a suitable line of agriculture together with farm tourism business, which they had started earlier.

Professional capacity development has often been a supportive element for those who started with bioenergy businesses. Experience on e.g. logging operations or HVAC (heating, ventilating and air conditioning) working make it easier later to start with energy wood and heating businesses.

Big dairy farmers were interested in investing to biogas production. An issue of energy self sufficiency was raised in interviews. Farmers were willing to consider heat, electricity and fuel production from biogas. Rising energy prices and odor problems with untreated slurry were seen as important reasons to consider this energy option. Yet many farmers were uncertain about how to manage large investments and pioneering work needed for biogas production in Finland. Joint biogas plants were also considered as viable solutions for farms.

Generally farmers considered bioenergy businesses something that will surely boom in future agriculture. Yet some differences were identified on how farms actually see the business development possibilities. Farms can be divided into three groups based on their investment willingness and business development views for bioenergy. The first group is **"investors"** which consists of farmers with a strong motivation on investments but with only modest profit expectations in the starting years. They could start with energy business based on general interest they had in the field. These farms have successful traditional farming which supports new ideas for bioenergy. The second group is **"entrepreneurs"** who do not have any other remarkable business activities in their farms and the third group is **"hobbyists".**

In the province of Northern Ostrobothnia growing firewood production was the most common line of bioenergy business. Firewood production chains were also under development. Market saturation, overinvestments and related negative wood fuel price development were seen as threats for this line of business. Yet the generally rising energy prices were seen also as a positive driving force for future fuel wood businesses. Some farmers considered market expansion as one solution to successful energy business, and some even considered exporting firewood to Norway. Exporting requires some form of networking of firewood producers simply in order to gain enough large quantities for long distance sales (e.g. Murdoch 2000).

Fuel wood market differentiation was clear between urban centres and rural areas. Customers from rural areas were unwilling to pay such high prices of firewood, which are common in urban energy markets. There seems to be a slow change from self-sufficiency to market-based firewood procurement practices also in rural areas. Firewood sales in Finland are subject to value added taxation, and those selling firewood without tax were seen problematic for the development of energy business (see e.g. Järvinen et al. 2006).

For biogas investments the crucial role of governmental subsidies was emphasized. Investments were halted because there is still no clear support message from the government for such investments. Without a sufficient level of subsidy, no investments to biogas plants will happen.

Agricultural aid and agro-product prices were assumed to decrease in future. Bioenergy businesses were seen as a remedy providing new income earnings for farms. Biogas transport fuel production was commonly mentioned by farmers because the Finnish government quite recently had removed extra taxation on biogas as transport fuel. Energy projects were in most cases the major source of information for farmers about biogas fuel production.

In general, prevailing business service system was inadequate to promote bioenergy investments. Traditional agriculture and forestry service organizations were yet considered as somewhat efficient service providers, providing relevant services to farmers. Various bioenergy projects and programmes were

effectively influencing bioenergy investments on farms. A few times wood energy projects resulted in real investments on heating business.

Based on interviews, to get information on financial aid was seen as the first priority for farmers. This also includes the information on EU‘s agriculture aid for energy crops. Aid info was mainly obtained from municipal agriculture officials, from provincial Employment and Economic Development Centres, and from the banking sector. The same applied to provincial forestry authorities.

Personal contacts were important when getting bioenergy information. Municipal agriculture official was often such an information source for farmers. Important contacts were also established with private forest owner’s association personnel.

Concluding remarks

Bioenergy production is commonly seen as a future means of livelihood in the farms of Northern Finland. Its’ rapid increase is connected both to large scale global phenomena, like climate change, and national and regional concerns on rural development. These trends have led to several policies and measures in different fields of public administration. Rural areas are in the focus of bioenergy production in Finland, since most of the bioenergy resources are located in those areas. The farmers interviewed for this study can be categorized to three groups according to their attitudes to the development of bioenergy entrepreneurship on their farms.

The first group could be called as “investors”. They regard the resources directed to bioenergy production as investments for the future. They do not have any great expectations on profits in the near future but in the long run they think that their investment is interest-bearing. The members of this group have some other main source of livelihood, like well-established dairy farms, and they also have enough own capital for investments. Many of the innovative forerunners of development of bioenergy technology belong to this group and they act often as role models in their peer groups.

The second group contains “entrepreneurs” who do not have any other remarkable business activities in their farms. They expect to have immediate profits from their bioenergy investments and are willing to take financial risks for reaching this goal. Contractors are one example of this group and they are also often forerunners, at least in the early stage.

The third group consists of “hobbyists”. They are cautious and small-scale bioenergy producers who are not willing to take big risks in their investments. A typical hobbyist is an ageing farmer who makes a contract with a larger energy company for growing reed canary grass on the farm. Another example could be a farmer producing small amounts of firewood from own forests to local markets.

Interviews illuminated also how bioenergy entrepreneurs experience the occasion of consultation service and which matters they do appreciate in those occasions. Decision-making for starting bioenergy production on farm could be promoted by recognizing three stages in the process: waking up the interest, giving good and innovative examples and producing adaptive, farm-level planning information on bioenergy production.

The case-study area of this study, Northern Ostrobothnia is internally multiform including very different rural areas. Distances are a challenge to services and connections and also climate and growing conditions differ remarkably between the sub-regions. Especially the northernmost rural parts of the province close to Russian border are in a challenging situation when the business services are concerned, but on the other hand also those regions have a lot of local potential for new bioenergy production.

Acknowledgements

The authors wish to thank the Academy of Finland which has financed this study (project 123455).

References

Alanen V.-M., Solmio, H., 2006, *Lämpöyrittäjätoiminta vuonna 2005 (Heat entrepreneurship in Finland in 2005),* Työtehoseuran metsätiedote 10/2006 (704).

EU Energy Cooperation, 2008, Ministry of Employment and the Economy, http://www.tem.fi/?l=en&s=1553 (as in 17th February, 2009).

The European Forum for Renewable Energy Sources (Eufores) 2008, http://www.eufores.org/index.php?id=30 (as in 17th February, 2009).

Hyvinvointia energiasta, Pohjois-Pohjanmaan energiastrategia 2015 (Welfare from energy, the Energy Strategy of the province of Northern Ostrobothnia 2015), 2007, Pohjois-Pohjanmaan liiton julkaisu A 45, http://www.pohjois-pohjanmaa.fi/file.php?1134 (as in 17th February, 2009).

Järvinen E., Latvala T., Rämö A., 2006, *Maa- ja metsätalousyrittäjien mahdollisuudet ja halukkuus bioenergian tuotantoon Suomessa (Possibilities and willingness of farmers for bioenergy production in Finland),* PTT-katsaus 2/2006, 22-28.

Kitchin R., Tate N., 2000, *Conducting research in human geography,* Pearson Education Limited, Harlow, England.

Lampinen A., Jokinen E., 2006, *Suomen maatilojen energiantuotantopotentiaalit: ekologinen perspektiivi (Energy production potentials of Finnish farms: ecological perspective),* Jyväskylän yliopiston bio- ja ympäristötieteiden laitoksen tiedonantoja 84.

Lehtomäki A., Rintala J., 2006, *Biokaasun mahdollisuudet ja tuotannon potentiaali Suomen maataloudessa (Possibilities of biogas and production potential in Finnish agriculture)*, PTT-katsaus 2/2006, 29-35.

Liikenteen biopolttoaineiden tuotannon ja käytön edistäminen Suomessa (Promotion of production and use of biofuels in transport in Finland), 2006, Kauppa- ja teollisuusministeriö, työryhmän mietintö, KTM julkaisuja 11/2006.

Morriss S., Massey C., Flett R., Alpass F., Sligo F., 2006, *Mediating technological learning in agricultural innovation systems,* Agricultural Systems 89, 26-46.

Muilu T., 2004, *Pohjoisen maaseutututkimuksen näköaloja (Prospects of northern rural research)*, Maaseudun uusi aika 2004, 2, 58-62.

Muilu T., Tertsunen H., 2007, *Maaseutututkimuksen pohjoinen ulottuvuus – tarpeita, toiveita ja painoaloja (Northern dimension of rural research – needs, expectations and focus areas)*, Maaseudun uusi aika 2007, 1, 38-51.

Murdoch J., 2000, *Networks – a new paradigm of rural development?* Journal of Rural Studies 16, 407-419.

Niemi J., Ahlstedt J. (eds.) 2008, *Finnish Agriculture and Rural Industries 2008,* MTT Economic Research, Publications No 108a.

OECD, 2008, *OECD Rural Policy Reviews: Finland.*

Official Journal of the European Communities 27.10.2001, directive 2001/77/EC (RES-E), http://eur-lex.europa.eu/pri/en/oj/dat/2001/l_283/l_28320011027en00330040.pdf (as in 17th February, 2009).

Peltoviljelyn tulevaisuuden linjaukset Suomessa (Future definitions of policy for field cultivation in Finland), 2005, Maa- ja metsätalousministeriö, Työryhmämuistio 2005, 15, Helsinki.

Renewable Sources of Energy and Energy-Efficiency, 2008, Ministry of Employment and the Economy, http://www.tem.fi/?l=en&s=2481 (as in 17th February, 2009).

Ruostetsaari, I., 1989, *Energiapolitiikan määräytyminen (summary: Determination of energy policy)*, Acta Universitas Tamperensis ser A vol 278, University of Tampere, Finland.

Rural Policy Committee, 2004, *Viable Countryside – Our Joint Responsibility,* Rural Policy Programme 2005-2008, English summary, Rural Policy Committee publication 2004, 13.

Salo M., 2006, *Ilmasto muuttuu – energiakentän rakenne ei. Tutkimus maatilojen energiaresurssien käyttöönoton ja maatilamittakaavaisen energiantuotannon rakenteellisista esteistä (Changing climate – changeless energy sweep. Study on structural obstacles of implementation and production of farm level energy resources),* Jyväskylän yliopiston sosiologian julkaisuja 71, https://jyx.jyu.fi/dspace/bitstream/handle/123456789/11599/URN_NBN_fi_jyu-2005483.pdf?sequence=1 (as in 17th February, 2009).

Solmio H., 2002, *Hakelämmityksen nykytila maatiloilla (Present situation of woodchips heating on farms), Työtehoseuran metsätiedote 2002, 9.*

Statistical Yearbook of Forestry, 2007, Finnish Forest Research Institute (Metla), http://www.metla.fi/julkaisut/metsatilastollinenvsk/index-en.htm (as in 17th February, 2009).

Storhammar E., Virkkala S., 2003, *Maaseutuyritysten innovaatioprosessit (Innovation processes of rural enterprices),* Jyväskylän yliopisto, Taloustieteiden tiedekunta, Tutkimuskeskus, Julkaisu 153.

Suomalaisten yrityspalvelujen kehityspolku maailman kärkijoukkoon (Developmental path of Finnish business services to the leading edge of the world), 2005, Suomalaiset yrityspalvelut –työryhmän loppuraportti 31.5.2005, Kauppa- ja teollisuusministeriön julkaisu 2005, 19, http://hosted.kuntaliitto.fi/WorkSpaces/testi/Docs/3108/SYP-raportti310505.pdf (as in 17th February, 2009).

Torkko M., 2004, *Maatilakytkentäiset yritykset: ominaisuudet ja suhde tuki- ja neuvontapalveluihin (Diversified farms: characteristics and relations to support and advice services),* unpublished licentiate thesis, University of Oulu.

Torkko M., 2006, *Maatilakytkentäisten yritysten toimintamalleja: laadullinen tutkimus resursseista, kehittymisestä ja ohjaustarpeesta (Abstract: Additional business lines in farms: a qualitative research on resources, development and advice needs),* Acta Universitas Ouluensis C 239, Oulun University Press, http://herkules.oulu.fi/isbn9514280628/isbn9514280628.pdf (as in 17th February, 2009).

Vihinen H., Vesala K., 2007, *Maatilayritysten monialaistuminen maaseudun elinkeinopolitiikassa ja sen rakentuminen kuntatason kehittämiskohteena (Abstract: Onfarm business diversification in rural industrial policy and how it is constructed at the municipality level as an object of development),* MTT Taloustutkimus, Maa- ja elintarviketalous 114, http://www.mtt.fi/met/pdf/met114.pdf (as in 17th February, 2009).

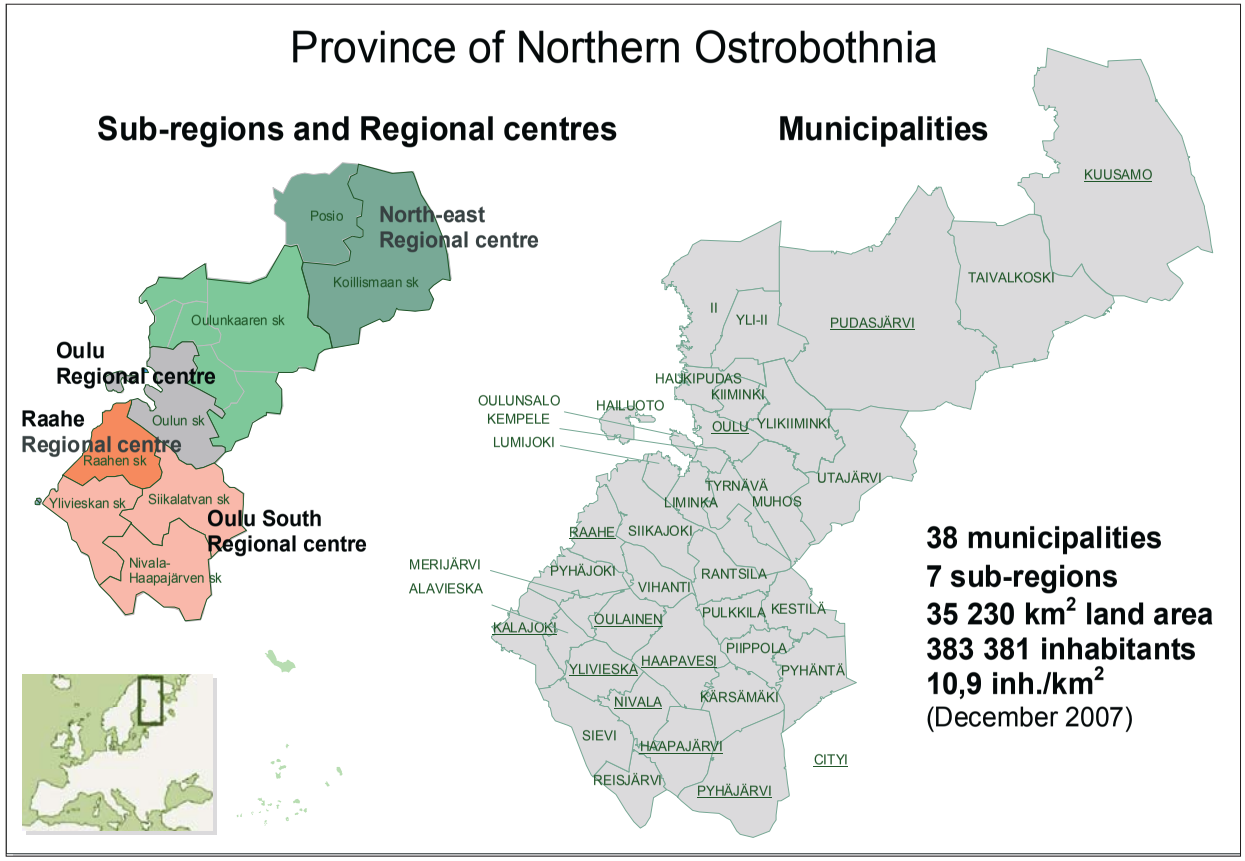

Figure 2. Location of the study area (Council of Oulu Region 2007)

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Theoretical conception of the qualitative analysis about care farming in Austria and the Netherlands

Abstract: *The aim of this paper is to describe the conception of the research especially the theoretical conception. Furthermore, the research focus will be exemplified through the description of first empirical results. Care farming can be named innovation because taking on social duties is "relatively" new for farmers. Before industrialisation people with special needs were often integrated at farms. At the present time care farming starts to become important again as a part of multifunctional agriculture. Care farming offers rehabilitation, therapy, care or pedagogic for people with special needs by working in an agricultural surrounding. The target group can be manifold; it ranges from children to elderly, from long-term unemployed to mentally or physically disabled people. This article focuses on current social developments, especially in rural regions. Through the comparison between Austria and the Netherlands it will be possible to gain a new insight into the development of innovative practices because both countries are in different development stages regarding this innovation. There will be a special focus on the process of innovation and on influencing social networks. Social networks mean relations between actors. Furthermore, the existence of relations allow the exchange of information or the transaction of practical, emotional or financial support which could influence the development of the innovation. Based on the idea that social networks highly influence the process of innovation, I will focus on these by using qualitative network analysis. The research focus is quite complex because micro and macro perspective will be combined by using the theory of structuration by Giddens. The micro level will be investigated empirically by focusing on single care farming projects while the macro perspective will be taken into account by applying a comparative approach and by interviewing care-farming experts. Combined with literature review this will help to understand why the surroundings for the development of innovative practice are diverse in different countries and how they influence the behaviour of care farmers.*
To sum up, the main focus of this paper is on the description of the care farming sector in Austria and the Netherlands and on the explanation of the research focus in this project. Furthermore, there will be an illustration of the theoretical

framework which will be used in this research, how different theories are connected and why the theoretical focus will be helpful to understand the development of innovative practice.

Keywords: *care farming, social innovation, social networks*

Introduction

Agricultural society has to cope with big challenges because of technical progress and the increasing competition through globalisation of markets as well as the restructured agricultural policy (cf. Wiesinger 2005). Organisational and contentual restructuration of agriculture is a result of decreasing financial support for agriculture in Europe from national governments and the European Union. A lot of current scientific work shows the increasing importance of multifunctional agriculture (cf. Knickel and Renting 2000; Randall 2002; cf. Van Huylenbroeck and Durand 2003). Multifunctional agriculture can be seen as an answer to the above-mentioned changes of farming society. In this conceptual paper I will focus on care farming which is a part of multifunctional agriculture. Care farming means that care, rehabilitation or integration of socially disadvantaged or people with special needs is provided in an agricultural surrounding. The target group is physically and/or mentally disabled, long-term-unemployed, immigrants, former drug addicts, former delinquents, adolescents with difficulties to integrate in social life, elderly and children (cf. Hassink 2007, 88).

This special offer from agriculture meets the current need for calm places, which are distinguished by a close touch with nature and simplicity. Furthermore, through the individualization in our globalizing world, choices and pressure to perform are increasing. The Western world has to cope with a lot of new diseases, for instance the burn-out-syndrome. The rehabilitation of people with burn-out-syndrome often demands a decrease of the speed of life; rehabilitation can be supported by going back to nature. Additionally, we are facing a superannuation of the population and a migration of young people from the countryside. This leads to new problems, for instance a need of places to care for the elderly, the loss of working places because shops, post offices, pubs and taverns in the countryside are closed. Moreover, the maintenance of landscape is not guaranteed because of a decreasing agricultural society. Care farming seems to be the right answer to contemporary problems in society, because it offers a revitalization of agriculture and the rural region as well new forms of reintegration for people with special needs. But it is necessary to scrutinize this topic critically, too. It has to be proved that clients are adequately provided for and that farmers profit economically and also emotionally and/or socially. Agriculture can offer society a special surrounding and new forms to relax, to live or to rehabilitate. The connection of agricultural duties and social duties could increase the social status of farmers and positively influence farmer's identification with their profession. Moreover, it could increase the number of

people interested in working at a farm. However, the short description of current developments shows the importance of supporting innovative forces to make sure that society will be able to overcome these new challenges. Among other projects, care farming can be an auspicious practice to answer to outcomes of social change.

Development and Definition of Care Farming

The SoFar research group has been trying to investigate strengths and weaknesses as well as possibilities to develop institutional surroundings for supporting care farming (cf. SoFar-research-group 2007). Through Cost Action, researchers from Europe try to exchange their knowledge about care farming and to coordinate new research projects in this field. Initial results from the "Report Farming for Health" and the exposé of the Cost Action show that France (>1200) and the Netherlands (>700) are the leading countries in care farming in Europe (cf. Hassink 2007, 47). Slovenia and Ireland are the taillights and Austria seems to be around average with about 250 Care Farming projects (cf. SoFar-research-group 2007, 46 et seq.). An expert (Wiesinger 2008) argues that the data is still nothing more than estimation for some countries. The situation is unclear in most of the countries as projects are not numbered or centrally registered.

A comparison of European countries and the United States of America shows that the term "Farming for Health" is understood diversely. Hassink and van Dijk categorize projects as "Green Care Farms" that "represent a working environment where a diversity of target groups is performing meaningful activities". Green Care projects mainly exist in the Netherlands, Norway, Italy, Belgium, Slovenia and Switzerland. A second category is „Horticultural therapy, therapeutic horticulture, healing gardens and healing landscapes". „Plants, horticulture, gardens and landscapes are used in therapy or in a recreative setting in order to improve well-being or to reach predefined goals". Horticultural therapy is predominantly practised in Great Britain and Sweden. In Finland the third category "Animal – assisted therapy, education and activities" is common practice. "Animals are used in therapy or in a recreational or educational setting in order to improve well-being or to reach pre-defined goals". American projects are positioned between horticultural and animal assisted therapy while Germany and Austria practices care farming projects from all categories (cf. Hassink and van Dijk 2006, 347 et seq.).

Differences in Care Farming between Austria and the Netherlands and Research Questions

Organisations involved in care farming

The development of care farming has been governmentally supported in the Netherlands since the 1990ies. Different ministries are working together to

professionalize and to support the development of care farming. Due to this political support the innovative cooperation between the social/care and the agricultural sector increased (cf. Roest and Hassink 2007). According to Ellings and Hassink around 80% of care farmers in the Netherlands are members of the „Association of Green Care Farmers". This club was established in 1999 to support and to represent interests of this special group of farmers. Furthermore, the Netherlands has many local green care groups that offer a strong support for farmers in some regions. The total number of members of these local groups is unknown but the groups are aimed at supporting the exchange of knowledge, making sure care farmers get a fair income and ensuring the quality of projects. The „National Support Centre" is a non-profit organisation financially supported by the Ministry for Agriculture, the Ministry for Social Affairs and the Ministry for Health. The organisations' aim is to facilitate people from the social and agricultural sector as well as supply clients with information about supply and demand in care farming. Omslag is an organization responsible for education in the care farming field and for organizing conferences as well as stimulating public debates about care farming (cf. Elings and Hassink 2006, 170 et seqq.).

In Austria there are only a few existing organisations which support social farming. The College for Agriculture- and Environmental Pedagogic offers training in garden therapy and is cooperating with a geriatric hospital to do garden therapy in practice. Furthermore, there has been a club for garden therapy for around three years. The Austrian Council for Agricultural Engineering and Rural Development (Österreichisches Kuratorium für Landtechnik und Landentwicklung) offers a course in animal assisted therapy and pedagogic. They have also been doing research in health effects of care farming and developed guidelines for animal assisted therapy. Besides, they accompanied the course "elderly care at the farm". The club "Animal as Therapy" (TAT) also offers education in animal assisted therapy. The Federal Institute for Less Favoured and Mountain Areas (Bundesanstalt für Bergbauernfragen) has been doing research in care farming. Altogether, there are only a few experts, research projects and practical projects related to care farming existent in Austria. Moreover, there are only a few institutions that support the professionalization of care farming. We do not have a Green Care Association or local clubs that represent the interest of care farmers. The terms "Care Farming" or "Green Care" are still widely unknown in Austrian society; neither care farmers themselves nor potential clients understand care farming as a profession.

The structural organisation of care farming

In the Netherlands care farms can be a part of a health or social institute or a part of an activity or day centre. Furthermore, green care farms can get an accreditation through which they reach the status of a health centre. They are either in an official cooperation with a health or social centres or work independently. Independent care farms and their clients have direct contact and are privately financed in the Netherlands (cf. Elings and Hassink 2006, 173).

They often started at different points in time and do have different aims and programmes (cf. Elings, Hassink and Ketelaars 2003). Some regions support quality rather than quantity by offering education in care farming. Financial support is decreasing and there is a trend to liberalization. Some forms of support will be stopped in the near future, for instance the National Support Centre will be closed (cf. Elings and Hassink 2006, 173).

Wiesinger (2006) classifies the Austrian care farming sector into subareas: 1) Traditional house care at farms (about 100). In this case clients are mainly close or distant relatives. 2) Sheltered workstations at farms (about 10). The government subsidizes these jobs if clients get officially reported as employees. 3) Farming training centres (about 10) are aimed at reintegrating clients in the second or third labour market. 4) There are places for care and extra occupational therapy. The target group for the fourth category are people who are not able to integrate in sheltered workstations. Conventional care and therapy places are financed through health insurances while sheltered workstations are financed by the federal government (cf. Wiesinger, Neuhauser and Putz 2006, 234 et seqq.). The development of care farming in Austria is still in a pioneer phase. Care farming projects are poorly connected and insufficiently supported as the following statement of an Austrian care farmer shows.

> Interviewer: 'Did you have people to consult in difficult or uncertain situations?'
> Care Farmer: '(shaking head), no.'
> Interviewer: 'And are there people who ask to consult you because of your long experience in the business?'
> Care Farmer: 'Neither, there is no one in the region who practises care farming.' Austrian Care Farmer (2008, September). Personal Interview.

Summarized, neither Austria nor the Netherlands has a department that is responsible for care farming only. It will be a challenge to clear up the juridical organisation but also the political responsibility in care farming. The sector has been increasing in the Netherlands since government started to support care farming while in Austria the sector seems to be in a pioneer stage.

Research Question and Research Objective

Care farming is one form of innovation in the agricultural sector that seems to be more structured and developed in the Netherlands than in Austria. This leads to the assumption that a network focus could be very interesting to understand the development of innovative practices. Furthermore, a comparative research between those diverse countries could shed new light on this research field. I developed the following research questions having the latest state of the art in mind.

The main research question is: "How do social networks influence the innovation process by the case of care farming?"

The assumption is that the change of traditional duties within the farming sector is connected to the influence of farmer's social networks; or rather their social networks influence the process of innovation causally. Furthermore, it is a premise of this work that new practices demand an infrastructure; they need to be cognitively, emotionally and technically embedded. It is of much interest what kind of resources are provided by social networks. Resources can be factual, financial, emotional or cognitive efforts for instance.

The underlying thesis of this research is:

> Social networks are important to better understand and explain innovative practises.

Which social networks do influence the innovation process?

> What kind of functions and efforts do they contribute to the innovation process?

In qualitative research, action is understood as meaningfully structured. The goal is to understand action in its context of meaning. This would be impossible by applying the structural perspective only. The qualitative network approach will be used to understand the innovation process, the meaning behind it and to comprehend the involved actors. The network approach and theory of social capital will help to zero in on the function of networks. In the following sections important terms for this research, for instance "social innovation" or "social network", will be explained. Furthermore, the theoretical approach which will be used to investigate the topic care farming will be explained.

Care Farming – A Social Innovation

As a premise, care farming is understood as social innovation in this research. Innovation can be novelty as well as novation. Innovation is always connected to the old but includes new aspects as a basic prerequisite (cf. Bechmann and Grunwald 1998). Innovation is a social process because there are decision processes and action processes (cf. Blättel-Mink 2006, 30). Social innovation means a subjective or relative novelty. This includes new practices which spread and stabilize for a longer time and which influence social development (cf. Gillwald 2000, 10). The main focus does not lie on technical innovation but on changing social action (cf. Gillwald 2000, 41). A technical innovation is termed as innovation after its market entrance while social innovation is termed thus after its diffusion. Furthermore, technical innovation is positively honoured by society and easily implementable because politically and economically strong groups develop it. In fact, quite the reverse is true for social innovation. It is seldom socially positively accepted and difficult to implement because economically and politically weak groups try to develop it to advance their own situation (cf. Gillwald 2000, 37).

Care farming is only relatively new because it already existed before industrialisation. In the 15th century European agricultural care stations existed. People with psychological diseases where employed, for instance, at a farm in the hospital Sargossa/ Spain (cf. Foucault 1969, 344). Intellectually disabled were employed in the farming sector over centuries. In the time of industrialization, requirements on society changed drastically. Agriculture became more technical and intense. Maids and menials where not needed at farms anymore and the migration into cities increased. Subsequently, healthy and ill people were separated in society because institutions for (mentally) ill people developed (cf. Wiesinger 1991a). In the meantime, the intensive agriculture is not recognized positively by society anymore (cf. Commisie Wijffels, 2001 in Elings and Hassink 2006, 164). Agriculture struggles with its decreasing image and with a loss of people willing to work at farms. Farmers try to increase their income but also try to find something to identify with. Beside a variety of new duties in agriculture, the therapeutic function of farms is rediscovered (cf. Wiesinger 1991b, 34). A diffusion of this innovation has already started in the Netherlands, but not in Austria.

It is significant for contemporary Western society that it values innovation as positive. Consequently we are in danger of ignoring the fact that technical or social innovation can have unintended side effects (cf. Groys 1997, 18). In this work the term "innovation" is used neutrally. It is important to note that care farming cannot be the ideal solution for social problems, especially rural problems. We have to take into account that farmers are probably more psychologically and at the beginning also financially burdened by doing care farming. Furthermore, it is of much importance to make sure that clients get the most ideal support. For that reason this research will focus on the definition of success of a care farming project from different perspectives.

1.) Firstly, experts from the care farming sector were interviewed to find criteria that affect the success of a care farming project. Four criteria were extracted from those interviews: The objective categories of "economy", "therapy" and "social recognition" and the subjective category of "personal aims". Briefly explained, the category of "economy" focuses on economical benefits for farmers by doing care farming, while the category of "therapy" focuses on health effects or positive influences of therapy or care on clients achieved by visiting the care farm. The category about "social recognition" focuses on the importance of reactions by the social surrounding. The question is how and if family, friends, neighbours, colleagues and agricultural associations do honour care farmers' innovative practice. Finally, the category "personal aims" focuses on farmer's personal goals that are related to the decision of practicing care farming on his/hers own farm. The following quote exemplifies a personal aim of a farmer: 'Our aim is to earn the same amount of money by doing social farming as my wife has earned by doing farm-external work'. Austrian Care Farmer (2008, March). Personal Interview.

2.) In further interviews with a.) care farming experts the categories of economy, therapy and social recognition will be investigated. The results will be an objective definition of the success of a care farming project. Subsequently, in interviews with b.) care farmers those objective categories and the subjective category of personal aims will be investigated.

The definition of success will be investigated by a qualitative methodological approach. This means that the result of this investigation will be a definition in words or stories. It will be a question of interpretation when comparing different care farming projects by focusing on the influence of networks and on the criteria of success. However, it will be possible to discuss more or less successful projects and to find out structures and efforts of social networks related to the success of the project.

Theoretical Framework of this Research

Benefit of Using the Theory of Structuration

The research field is considered from the following perspectives: The theory of structuration by Giddens (1988a) will be used as a background theory. By using this theoretical approach the action-oriented and the structure-oriented perspective will be taken into account. It is aimed to explain social reproduction and social change closer to reality. This metaparadigmatic perspective connects the objective and subjective perspective or, in other words, functionalism and interpretativism (cf. Gioia and Pitre 1990). By using Giddens' theory it will be possible to focus on social change and the development of social innovation in a broader view, and not to reduce it to personal motives or characteristics of innovators on the one side or on the influence of structure on the other. This research is not aimed at using the theory of structuration empirically but as a background theory to emphasize the importance of the duality of structure to investigate innovative practise.

The central idea of the theory of structuration is that of the duality of structure. Structure enables and constrains action. Furthermore, structure is a product of social action (cf. Miebach 2006, 376). Giddens emphasizes the importance of focusing on the interdependency of individual action and structure. He adopts this idea from Berger and Luckmann (1980) who only mentioned the idea of the duality of structure. Different to these theorists, Giddens put this idea in the centre of his theory. Structures are aspects of social practice and consist of rules and resources which reproduce the social system and social action. Giddens differentiates between normative rules and constitutive rules. Normative or social rules have the function to regulate; social action is sanctioned by these rules. Social rules are, for instance, traffic regulations or the instructions for Muslim culture to not eat pork. Constitutive rules are cultural rules which are concerned with a constitution of meaning (cf. Giddens 1988b, 70). Cultural rules focus on public discourses and how this practice is embedded in society. Public awareness and the legitimization of the practice are important.

How does the public interpret the innovative practice of care farming? Are such social therapeutic practices recognized and legitimated by society? Is it understood as a playground for some fantasts or is it important for society and an accepted duty for farmers? The assumption is that there are differences between the awareness and the legitimization of the innovative practice of care farming in the societies of Austria and the Netherlands.

The second part of structure is authoritative and allocative resources. Authoritative resources coordinate human action; for instance the political system. As described above, Austria and the Netherlands are completely different states regarding to political arrangements to regulate care farming. Those political arrangements influence the behaviour of actors because different options are generated through it. Allocative resources, like the economic system of a society, controls parts of the material world. To start a care farm the availability of financial resources is a precondition because many investments in education or in redevelopments at the farm are necessary. The "obligation of rules" and the "availability of resources" are socially ascertained (cf. Miebach 2006, 377). Following examples exemplify the importance of allocative resources by implementing an innovative practice:

> '…we have invested incredibly much in the redevelopment of the farm. Three years ago it was improvised compared to today. The premises were not optimal but today …we have a disability-friendly toilet, we have a training room where clients can be on rainy days and which is heatable during the wintertime…and we have been rebuilding the stable again…actually it grows'. Austrian Care Farmer (2008, March). Personal Interview.
>
> '…because such a module [education in animal assisted therapy] costs something and that's a lot…but if you do the whole course you will be financially supported [by the government]. They take over about 80% of the costs and that's great…'. Austrian Care Farmer (2008, March). Personal Interview.

The above explained theory is used as a background theory to mark the importance of being aware of the duality of structure. Beside that it will be necessary to explain the process of innovation theoretically, too.

Concepts of the Process of Innovation

Innovation can be understood as an individual (Rogers 1983; Schumpeter 1928) or a collective (van de Ven 1999) effort. Mc Grath`s (1985) idea is a combination of the above mentioned perspectives. He emphasizes the importance of the forces of an individual innovator but supports the idea that an innovation is a collective effort. In earlier assumptions, innovation was seen as a linear process, but in later research it was proved as a non-linear course which can be recursive and disrupted (cf. Braun-Thürmann 2005, 30). Rogers, as a delegate of linear innovation models, takes on an actor perspective and focuses on individual abi-

lities of innovators. Only when he tries to explain the diffusion of innovation he adopts a network perspective. There are four phases ideal typically in a linear model: 1.) the discovery-, 2.) the invention-, 3.) the development- and the 4.) distribution-phase. The chronological course and the premise of "distinct phases" is strongly criticized in non-linear models (cf. Braun-Thürmann 2005, 37). Van de Ven, being a delegate of the non-linear model, emphasizes the unpredictability of the development of an innovation. This is caused by the complex interplay of actors involved (vgl. Braun-Thürmann 2005, 58). Contrary to Schumpeter and Rogers, he focuses on social relations (cf. Braun-Thürmann 2005, 59). Following his theory, it will be possible to focus on the collective effort and on a circular course of the innovation process.

> 'We were lucky because we went to the centre for disabled people in our district and told the director our idea about animal assisted therapy with farming animals. The director was interested and wanted to see our project and he visited us to see how we worked. Subsequently, his centre has been cooperating with us…'. Austrian Care Farmer (2008, March). Personal Interview.

> 'We were lucky because we live near Vienna. The experts from the animal assisted therapy course were able to visit us very often because we have been living near the city. Furthermore, it was possible to not only teach us through the theoretical course but also practically on our own farm'. Austrian Care Farmer (2008, March). Personal Interview.

The examples above illustrate the importance of other actors by developing an innovative practice. Van de Ven describes three periods of the process of innovation. Relevant preconditions develop for a long time before an innovation is developed intentionally. Neither a single moment nor a single actor achieves the development of an innovation. This gestation process, which can last many years, disembogues in the "initiation"(van de Ven 1999, 25) of the innovation. "Shocks"(van de Ven 1999, 28) are important to activate the development of an innovation, even though there is no single reason for it. Individuals interpret shock differently, but the awareness of the need or the opportunity of the development of an innovation and the dissatisfaction with present circumstances are often the initiators of innovative behaviour. These shocks can happen within an organisation or external of it.

> 'There was the first BSE case in Austria in the 'Waldviertel' and the price for meat decreased. As we had to sell our bulls we didn't get a lot of money…there was no financial benefit at all. We were really angry and stopped working with animals on our farm. At that time we became arable farmers. After a while we started to miss something and got an identity crisis…subsequently, I read an article about education in animal assisted therapy and it interested me…I called them and said I want to attend the course'. Austrian Care Farmer (2008, March). Personal Interview.

The "initiation period" starts from the gestation process and ends at the time at which actors start to plan the budget and further steps for the development of the innovation. At the stage of planning further steps, the transition to the "developmental period" is marked. The initiating idea starts to unfold in many new ideas "like a firework" (van de Ven 1999, 34). Many different ways are tested, setbacks happen and unexpected problems appear. A lot of new relationships are made and it is a highly instable period for all members involved.

> Interviewer: 'Did you have setbacks while you were implementing Care Farming?'
> Care Farmer: 'Yes currently I am in such a phase. I should get more income…I have already been working on the development of this practice for ten years and it should get started now…'. Austrian Care Farmer (2008, September). Personal Interview.

In the case of an "implementation period" (van de Ven 1999, 53) new and old practices are connected. After this connection the innovation process is finished. In the case of a "termination period" (van de Ven 1999, 53) it is not possible to link new and old practices and the innovation will be stopped. Access to resources and institutional rules affect the development of an innovation. The following case description exemplifies a successful implementation of the innovative practice.

Case description:

> The family has a large conventional farm (around 140 ha) close to Vienna which is the capital city of Austria. The farmer's wife worked farm extern. When the prices for their products started to decrease, the family started to get an identity crisis as farmers. The family was looking for income alternatives and for something to identify with. The goal for the farming family was to find a specialization to get enough income and to be able to identify with their profession. They wanted to earn the same amount of money by doing social farming as the farmer's wife earned by doing farm external work. Presently, the farmer and his wife identify highly as social farmers and they have enough clients to get the wished income. The farmer's wife doesn't work farm extern anymore and is mostly responsible for their new social duties. Both of them think that they improved their life quality because of a higher identification with the job and because of working together at the farm. Austrian Care Farm, March 2008, Personal Interview.

The periods from the initiation to the implementation of an innovation are illustrated by the above mentioned examples. By using van de Ven`s theory it will be possible to investigate the stages of an innovation empirically. Furthermore, the theory will be applied in a way in which it will be possible to stay open for potential existing differences between the theory and reality.
To sum up, non-linear models are more close to reality than linear models. Accordingly social innovation can be investigated best by using the earlier-mentioned theoretical approach. Furthermore, an innovation process ends

when innovation is institutionalized or routinized (cf. Rogers 2003, 175). The different innovation periods by Van de Ven are useful to investigate care farming projects empirically because it allows focusing on networks influencing the process. Network theoretical approaches are often used to investigate innovation processes but the qualitative network analysis is a new approach which has been used infrequently.

Contribution to the Understanding of Innovative Practice by Using Network Theory and the Concept of Social Capital

In the time of individualization and multi-optionality traditional structures and norms have been disappearing (cf. Giddens 1991). This means that new networks will play an enabling role if innovative practice develops in some parts of the agricultural field. Care farmers will reach information, mutual recognition and emotional support through networks. In this research it is assumed that there is an increase of the importance of social networks. The implementation of an innovative practice demands reorganisation of resources in societies as well as on a legal basis. Social networks have a constituent function which leads to the assumption that network theoretical approaches could help to understand and to investigate innovative practises in the agricultural sector.

A special characteristic of the sociological network concept is that it enables researchers to focus on social processes from the perspective of the interplay of action and structure (cf. Weyer 2000, 13). Furthermore, it allows taking into account the contextuality of human behaviour. In quantitative network analysis not the actors themselves, but the relations of actors are the centre of investigation (cf. Wellman 1988). The qualitative network analysis is aimed at focusing on the structure and on the meaning behind the action. In this research the qualitative ego-centred network approach will be applied. This means focusing on care farmers' social networks and comparing the characteristic of a network with the development of the innovative practice.

A network is formally a "specific amount of relations between actors" (cf. Mitchell 1969, 2) or a well-defined set of edges. Knots are actors within a network and edges are their relations to each other. The same actors can build different networks because networks are relational (cf. Jansen 2006, 58); the same people can build a network of friendship and a network of work. The relation between and the position of actors within a network specify the characteristic of the network's structure.

The characteristic of the structure of a network can be investigated by using the theory of the "strength of weak ties" by Granovetter (1973). He emphasises the importance of weak networks to reach new information. Strong and weak ties fulfil different tasks regarding the development of innovation. Strong ties facilitate solidarity and trust and are the base for social influence, but can also result in social closure. For an individual it is only possible to realize a few strong ties because they bound temporal and emotional resources. A network

with strong ties can only miss modernization because of non-existing weak ties that transfer the information about a change of norms in society. Weak ties are less redundant and can reach actors over larger distances. Weakly connected actors get more diverse and new information that enables innovative practices. Results from inter-organisational research display quite the contrary: Close collaboration allows actors to concentrate on their competences and to develop and implement innovation (cf. Elzen, Enserink and Smit 1996; Kowol 1998; Rammert 1997; Rammert and Bechmann 1997). These results are apparently contradictory, but when organisations work together and interact, they enable the flow of new information (cf. Weyer 2000, 22). It is of interest, which strong and weak ties of farmers contribute to the development of care farming. The idea of strong and weak ties is adopted from the concept of social capital.

Social Capital is another theoretical concept to explain and to investigate the characteristic of social networks. This concept was used and interpreted heterogeneously by different theorists (Bourdieu 1983; Coleman 1988; Putnam 1995). In the following paragraphs I want to explain the advantage by using this theoretical approach to investigate innovative practices: Jansen summarizes that social capital demonstrates the "relation between structure and action of individuals". It determines possibilities of action and cannot easily be passed on to others. Furthermore, it is possible to exchange social capital for other forms of capital, for instance economical capital. It can always be influenced by others and is mainly unconsciously produced. It can be analysed on a collective or individual level (cf. Jansen 2000, 37). The most important theorists of social capital (Pierre Bourdieu, James Coleman und Robert Putnam) focus on this theory in diverse ways:

From Bourdieu's point of view capital is "social energy" through which options of action are enabled (cf. Bourdieu 1999, 194). "Social capital" means social relations through whom it is possible to exchange help, advice and information, for instance. Moreover, it defines the membership of a person to a group. All kinds of relations are ensured only if people constantly work on them ("Beziehungsarbeit") (cf. Fuchs-Heinritz and König 2005, 162 et seqq.). In Bourdieu`s view social reproduction can be explained through social capital. The higher the capital of an individual, the higher the chance to improve their own position in society (Bourdieu 1983; Bourdieu 1998). Coleman on the other hand views social capital as functional and that it develops only through embedding of social actors in a social network. Human and social capital complement each other (Coleman 1987). Social capital "is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors - whether persons or corporate actors - within the structure" (Coleman 1988, 98). Resources are produced by connecting social actors. Furthermore, these resources influence social action. Resources can be channels of information, of norms and of mutual engagement and trust (cf. Coleman 1988, 102). Close to Granovetter`s idea of the strength of

weak ties, Putnam emphasizes the importance of the connection of a society. Collective problems are solved more easily when a society is well connected (cf. Putnam 1994, 167) because "cooperation" and "coordination" of a society increases with its connectivity" (cf. Putnam 1995, 69). Putnam focuses on traditional networks; he neither focuses on social innovation as a result of networking nor on the relevance of novel networks for the development of innovative practice.

To sum up, Bourdieu defines social capital as a medium to reproduce class distinctions, while Coleman understands social capital in a functional way. Putnam emphasizes the importance of networking because it produces social capital and this again increases the effectiveness of a society. The outcome of social capital as concluded by Jansen: „group solidarity", „trust", „information", „structural autonomy" and "social influence". The outcome of strong ties is group solidarity and trust. Both refer to the collective effort of social capital. Weak ties have the advantage of transferring new information which enables the development of innovation. If an actor is highly informed his/her position in a network will increase. The higher the centrality of an actor the higher his/her social influence. Furthermore, the collective identity increases with the degree of connection (cf. Jansen 2000, 37f).

In this research it is of much importance to find out which effort is produced and function is taken over by social networks regarding the development of an innovative practice. Therefore it is helpful to use some ideas of the different concepts of social capital and of Granovetter`s conception of strong and weak ties. A special focus will be on communication which includes information networks and norms. The transfer of norms is related to the theory of structuration because they are part of social rules. The transfer of information is connected to the theory by Granovetter. Furthermore, there will be a focus on transactions, for instance emotional, practical or financial support, to develop the innovative practice. Therefore, it will be useful to focus on parts of the three different concepts of social capital. By applying Coleman's concept, the focus will lie on the function of the network while using Putnam's concept will help to investigate the importance of connectivity altogether. Bourdieu`s concept is less helpful because there will not be an application of a positional network analysis. But the idea of social reproduction might help to understand why some farmers struggle in implementing the innovative practice and others do not.

Summary of the Research Focus and of the Interlink of the Theoretical Framework

First of all, this research is based on two levels. There will be a focus on the micro and macro level regarding to the development of innovative practice by the case of care farming. To conduct this research the theory of structuration is used as a background theory. It will help to connect the macro and micro level because its central idea is the duality of structure.

The theory of structuration will be narrowed down thematically by focusing on the aspect of social innovation using the theory of the innovation process by Van de Ven(1999). This "innovation journey"(van de Ven 1999) will be used as a heuristic frame to analyze the innovation process empirically on a micro level. It is of interest, which cycles of innovation exist and which role social networks play. Furthermore, the relevance of networks will be investigated using the theory of social capital and the network. In all periods of an innovation process social networks are of much importance because innovation is a network effort (cf. van de Ven 1999, 13). In addition to that, the innovation process will be described in detail ("dichte Beschreibung") (Geertz 2002). Moreover, the background theory will be narrowed down methodologically through the qualitative network approach. Farmers will be interviewed using the ego-centred network approach.

The macro level will be investigated by a comparative research approach. Using Gidden`s idea, the conditions of cultural rules, authoritative and allocative resources seem to be quite different different in Austria and the Netherlands. This leads to the assumption that a comparison of these two countries could shed new light on the topic. At the back of an administration culture there is always the relation between individual and social responsibility of a society. It will be important to point out the differences between the social policy and the administration culture of both countries to explain the obvious difference between the institutionalization of care farming in these two countries. This will be possible through literature review and expert interviews.

Finally there will be a discussion of results of the empirical micro investigation and the macro analysis that will be mainly conducted by doing literature review. Both results in mind, the development of innovative practice will be interpreted. New insights and results are expected because of the broad theoretical approach and the use of an innovative methodological approach.

References

Bechmann Gotthard and Armin Grunwald, 1998, *Was ist das Neue am Neuen, oder: wie innovativ ist Innovation?* TA-Datenbank-Nachrichten, 7, 1, 4-11.

Berger Peter and Thomas Luckmann, 1980, *Die gesellschaftliche Konstruktion der Wirklichkeit. Eine Theorie der Wissenssoziologie,* Frankfurt am Main, Fischer.

Blättel-Mink Birgit, 2006, *Kompendium der Innovationsforschung,* Wiesbaden, VS Verlag für Sozialwissenschaften.

Bourdieu Pierre, 1983, *Ökonomisches Kapital, kulturelles Kapital, soziales Kapital. In: Soziale Ungleichheiten,* Göttingen, Schwartz & Co.

Bourdieu Pierre, 1998, *Homo academicus,* Frankfurt am Main, Suhrkamp.

Bourdieu Pierre, 1999, *Die feinen Unterschiede.* Kritik der gesellschaftlichen Urteilskraft. Frankfurt am Main, Suhrkamp.

Braun-Thürmann Holger, 2005, *Innovation.,* Bielefeld, trinscript.

Coleman James S., 1987, *Norms as Social Capital.* In: Glos et al. (eds.), *Foundations of Social Capital,* Cheltenham, Elgar.

Coleman James S., 1988, *Social Capital in the Creation of Human Capital,* American Journal of Sociology, 94, 95-120.

Elings Marjolein, Hassink Jan, 2006, *Farming for Health in the Netherlands, In: Farming for Health. Green-Care Farming Across Europe and the United States of America,* Dordrecht, Springer.

Elings Marjolein, Hassink Jan, Ketelaars D., 2003, *landbouw en zorg in de provincie: inventarisatie van provinciaal beleid landbouw en zorg,* Plant Research International, Wageningen. Rapport, Plant Research International 63.

Elzen Boelie, Enserink Bert, Smit Wim A., 1996, *Socio-Technical Networks: How a Technology Studies Approach May Help to Solve Problems Related to Technical Change,* Social Studies of Science 26, 95-141.

Foucault Michel, 1969, *Wahnsinn und Gesellschaft. Eine Geschichte des Wahnsinns im Zeitalter der Vernunft,* Frankfurt/Main, Suhrkamp.

Fuchs-Heinritz Werner, König Alexandra, 2005, *Pierre Bourdieu. Eine Einführung,* Konstanz, UVK Verlagsgesellschaft mbH.

Geertz Clifford, 2002, *Dichte Beschreibung. Beiträge zum Verstehen kultureller Systeme,* Frankfurt am Main, Suhrkamp.

Giddens Anthony, 1988a, *Die Konstitution der Gesellschaft. Grundzüge einer Theorie der Strukturierung,* Frankfurt, New York, Campus Verlag.

Giddens Anthony, 1988b, *Die Konstitution der Gesellschaft. Grundzüge einer Theorie der Strukturierung,* Frankfurt/Main, New York, Campus Verlag.

Giddens Anthony, 1991, *Modernity and Self-identity: Self and Society in the Late Modern Age,* Cambridge Stanford University Press.

Gillwald Katrin, 2000, *Konzepte sozialer Innovation.* Berlin, Wissenschaftszentrum Berlin für Sozialforschung.

Gioia Dennis A., Pitre Evelyn, 1990, *Multiparadigm Perspectives on Theory Building,* Academy of Management Review, 15, 4, 584-602.

Granovetter Mark S., 1973, *The Strength of Weak Ties,* The American Journal of Sociology, vol. 78, 6.

Groys Boris, 1997, *Technik im Archiv. Die dämonische Logik technischer Innovation.* In: *Jahrbuch Technik und Gesellschaft. Innovation: Prozesse, Produkte, Politik,* Frankfurt/Main, New York.

Hassink Jan, 2007, *Social Farming around Europe Basic characteristics and key questions.* In: *SoFar project. Report of the 1st Meeting of the European Platform on Social/Care Farming, Brüssel.*

Hassink Jan, van Dijk Majken, 2006, *Farming for Health: Green-care Farming Across Europe and the United States of America,* Dordrecht, Springer.

Jansen Dorothea, 2000, *Netzwerke und soziales Kapital. Methoden zur Analyse struktureller Einbettung.* In: *Soziale Netzwerke. Konzepte und Methoden der sozialwissenschaftlichen Netzwerkforschung,* München, Wien, Oldenbourg.

Jansen Dorothea, 2006, *Einführung in die Netzwerkanalyse. Grundlagen, Methoden, Forschungsbeispiele,* Wiesbaden, VS Verlag für Sozialwissenschaften/GWV Fachverlage GmbH.

Knickel Karlheinz, Renting Henk, 2000, *Methodological and Conceptual Issues in the Study of Multifunctionality and Rural Development,* Sociologia Ruralis, 40.

Kowol Uli, 1998, *Innovationsnetzwerke, Technikentwicklung zwischen Nutzungsvisionen und Verwendungspraxis,* Wiesbaden, Deutscher Universitäts-Verlag GmbH.

McGrath Joseph E., 1985, *Groups and the Innovation Process,* In: Merritt Richard L., Merritt Anna J., *Innovation in the Public Sector,* Beverly Hills, Sage.

Miebach Bernhard, 2006, *Soziologische Handlungstheorie. Eine Einführung,* Wiesbaden, VS Verlag für Sozialwissenschaften.

Mitchell James Clyde, 1969, *The Concept and Use of Social Networks,* In: *Social Networks in Urban Situations,* Manchester.

Putnam Robert D., 1994, *Making Democracy Work: Civic Traditions in Modern Italy,* New Jersey, Princeton University Press.

Putnam Robert D., 1995, Bowling alone. *America`s Declining Social Capital,* Journal of Democracy, 6, 65-78.

Rammert Werner, 1997, *Innovation im Netz. Neue Zeiten für technische Innovationen: heterogen verteilt und interaktiv vernetzt,* Soziale Welt, 49, 397-416.

Rammert Werner, Bechmann Gotthard (eds.), 1997, *Technik und Gesellschaft. Innovation - Prozesse, Produkte, Politik,* Frankfurt/Main, Campus.

Randall Alan, 2002, *Valuing the outputs of multifunctional agriculture,* European Review of Agriculture Economics, 29, 289-307.

Roest Aïde, Jan Hassink, 2007, *Social Farming in the Netherlands. State of the Art for "So Far" project. Country/regional overviews and cases,* Brüssel.

Rogers Everett M., 1983, *Diffusion of innovations,* New York, Free Press, London, Collier Macmillan.

Rogers Everett M., 2003, *Diffusion of innovations,* New York: Free Press.

Schumpeter Josef A., 1928, *Der Unternehmer,* In: *Handwörterbuch der Staatswissenschaften, 8.*

SoFar-research-group, 2007, *SoFar project. Report of the 1st Meeting of the European Platform on Social/Care Farming,* Brüssel.

van de Ven Andrew H., 1999, *The innovation journey,* New York et. al, Oxford Univ. Press.

Van Huylenbroeck Guido, Durand Guy, 2003, *Multifunctional Agriculture: A New Paradigm for European Agriculture and Rural Development. Perspectives on rural policy and planning,* Aldershot, Ashgate.

Wellman Barry, 1988, *Structural analysis. From method and metetaphor to theory and substance.* In: *Social structures,* Cambridge, Mass, Cambridge UP.

Weyer Johannes, 2000, *Zum Stand der Netzwerkforschung in den Sozialwissenschaften. In: Soziale Netzwerke. Konzepte und Methoden der sozialwissenschaftlichen Netzwerkforschung,* München, Wien, Oldenbourg.

Wiesinger Georg, 1991a, *Behinderte in der Landwirtschaft. Zwischen Resignation und Behauptung,* Wien, Bundesanstalt für Bergbauernfragen.

Wiesinger Georg, 1991b, *Irrsinn und Landleben. Modelle einer Behindertenintegration in der Landwirtschaft,* Wien, Bundesanstalt für Bergbauernfragen.

Wiesinger Georg, 2005, *Landwirtschaft zwischen Tradition und Moderne - Über den Struktur und Wertewandel in der bäuerlichen Lebenswelt,* Jahrbuch der Österreichischen Gesellschaft für Agrarökonomie, 10, 165-180.

Wiesinger Georg, Neuhauser Fritz, Putz Maria, 2006, *Farming for Health in Austria,* In: *Farming for Health,* Dortrecht, Springer.

Personal Interview

Wiesinger G., 2008, Personal Expert Interview, Federal Institute for Less Favoured and Mountainous Areas, Austria.

Acknowledgement:

This paper was prepared in the framework of the Doctoral School Sustainable Development (DOKNE) at BOKU University of Natural Resources and Applied Life Sciences, Vienna, Austria, funded by the Austrian Sustainability Research Program provision of the Federal Ministry of Science and Research as well as by the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) and the states Lower Austria, Styria, and Vienna. I would like to thank my supervisors Prof. Dr. Michael Pregernig, Prof. Dr. Bernhard Freyer, Prof. Dr. Ika Darnhofer and Prof. Dr. Karl Werner Brand for their support. Furthermore, this comparative research will be possible because of a research cooperation between DOKNE and Plant Research International Wageningen, Netherlands.

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New challenges for Romanian agriculture – Organic farming

Abstract: *The paper presents the evolution of the organic farming in Romania, the general background, the legislation bearing on it, the institutions created to coordinate this activity, the rules that should be observed for a product to be labelled as organic, opportunities for Romanian farmers, the new challenges in the filed, tendencies and traditions. All these are analyzed in close relation with the evolution in the world and indicate the place of Romania in this competition.*

Keywords: *organic farming, transition, Romania*

Introduction

Products that to be seem designed on the computer, largesized, with perfect shapes, charming colours, as if coming from an unreal world; big, goodlooking fruits, all having the same size; vegetables, full of colour and appetizing, with the same picture aspect, as if cut from a magazine. This is the common image of the agrifood products in the supermarket, which are being sold today in the world. But beyond these exterior aspects, pleasant to the eye, there is something else, which is disappearing, that some of us have completely forgotten. It is the essence, the contents, the texture, it is that "something" enchanting not only the eye but also the other senses. This is the taste. Are the products of today still tasty? Are the products of today still healthy? Most knowledgeable consumers' opinion is that most often these vegetables or fruits have almost nothing in common with their natural taste. As regards the quality, it is hard for consumers to give an answer and they need the help of specialists.

In view of the fact that this subject is relevant and important for all European countries we decided to elaborate this study. It uses statistical data provided by the National Institute of Statistics of Romania, the Ministry of Agriculture and various publications in this field.

Concept

Organic farming ("ecological", or "biological" agriculture) is a modern practice to grow crops, or to raise and fatten animals and to produce foodstuffs, which is fundamentally different from conventional farming. The role of this agriculture system is to produce a much cleaner food, more appropriate to the human body metabolism, but in full correlation with the preservation and development of the environment in respect to nature and its laws. The process and procedures for obtaining organic products are regulated by strict production rules and principles, which start with the quality that land must have and end up with the effective final food product.

Organic farming does not use synthetic fertilizers and pesticides, growth stimulants and regulators, hormones, antibiotics or intensive animal raising systems. The Genetically Modified Organisms (GMOs) and their products are forbidden in the organic farming legislation.

The organic farming system is based upon the respect of certain strict production rules and principles in conformity with the EU legislation and the national legislation into effect on the enforcement of EU legislation. The European Union laid a special focus upon obtaining vegetal or livestock products based upon organic farming procedures; it provides incentives for those willing to practice organic farming. Coming back to old procedures is not at all simple, as the rules are very strict, so that the final product should be completely natural and ecological.

International market

Organic farming is practised in approximately 100 countries of the world and the area under organic management is continually growing. Also for some countries, where no statistical material was available, it may be assumed that organic agriculture methods are practised.

The land areas under organic farming in the world totalled 24 m ha in the year 2004, the largest areas being found in Australia (10.0 m ha), Argentina (2.9 m ha) and Italy (1.1 m ha), according to a SOEL study (February 2004). The world's largest certified organic property (994,000 ha) is located in Australia (FAO 2002). In percentage, the situation is the following: Australia/Oceania 42%, South America 24.2%, and Europe 23%. Table 1 presents the land area utilized under the organic farming system in the world, according to the SOEL study in 2004.

In Australia/Oceania more than 10 m ha and 2,000 farms are under organic management – comprising the largest area in the world. Most of them are dedicated to extensive beef enterprises. The region's growth in organic trade is heavily influenced by the increasing demand for organic food and fibre products in Europe, Asia (especially Japan) and Northern America.

In many Latin American countries the area of organic land is now more than 100,000 ha, and – starting from a low level – growth rates are extraordinary. The total organically managed area is more than 5.8 m ha. The number of organic farms is almost 150,000.

In North America almost 1.5 m ha are managed organically, representing approximately a 0.3 percent share of the total agricultural area. Currently the number of farms is about 10,500. There are signs that with the U.S. national organic standards, which were fully implemented at the end of 2002, progress has been made for the organic sector and for consumers.

The total organic area in Asia is now about 880,000 ha, corresponding to 0.07 percent of the agricultural area. The number of organic farms is more than 61,000. Interest in organic agriculture continues to grow even though unevenly throughout the region. There is a wide spectrum of sector development stages, from early pioneer status to highly developed markets (Japan).

Table 1: Land Area Under Organic Management (SOEL-Survey, February 2004)

	Organic Hectares		Organic Hectares		Organic Hectares
Australia	10,000,000	Indonesia	40,000	Thailand	3,993
Argentina	2,960,000	Romania	40,000	Azerbaijan	2,540
Italy	1,168,212	India	37,050	Senegal	2,500
USA	950,000	Kazakhstan	36,882	Pakistan	2,009
Brazil	841,769	Colombia	33,000	Luxembourg	2,004
Uruguay	760,000	Norway	32,546	Philippines	2,000
UK	724,523	Estonia	30,552	Belize	1,810
Germany	696,978	Ireland	29,850	Honduras	1,769
Spain	665,055	Greece	28,944	Jamaica	1,332
France	509,000	Belgium	20.241	Bosnia Herzegovina	1,113
Canada	478,700	Zambia	20,000	Liechtenstein	984
Bolivia	364,100	Ghana	19,460	Rep. of Korea	902
China	301,295	Tunisia	18,255	Bulgaria	500
Austria	297,000	Egypt	17,000	Kenya	494
Chile	285,268	Latvia	16,934	Malawi	325
Ukraine	239,542	Sri Lanka	15,215	Lebanon	250
Czech Rep.	235,136	Yugoslavia	15,200	Suriname	250
Mexico	215,843	Slovenia	15,000	Fiji	200
Sweden	187,000	Dominican Rep.	14,963	Benin	197
Denmark	178,360	Guatemala	14,746	Mauritius	175
Bangladesh	177,700	Costa Rica	13,967	Cyprus	166
Finland	156,692	Morocco	12,500	Laos	150
Peru	130,246	Nicaragua	10,750	Madagascar	130
Uganda	122,000	Cuba	10,445	Croatia	120
Switzerland	107,000	Lithuania	8,780	Guyana	109
Hungary	103,672	Cameroon	7,000	Syria	74
Paraguay	91,414	Vietnam	6,475	Nepal	45
Portugal	85,912	Iceland	6,000	Zimbabwe	40
Ecuador	60,000	Russia	5,276	**SUM**	**24,070,010**
Turkey	57,001	Panama	5,111		
Tanzania	55,867	Japan	5,083		
Polen	53,515	Israel	5,030		
Slovakia	49,999	El Salvador	4,900		
New Zealand	46,000	Papua New Guinea	4,265		
South Africa	45,000				
Netherlands	42,610				

Source: Willer and Yussefi 2004

In the European Union (EU), including Romania and Bulgaria, the EFTA countries (Iceland, Liechtenstein, Norway and Switzerland), Turkey, BosniaHerzegovina, Croatia and Serbia, Montenegro and Macedonia, there are almost 6 mil ha under organic farming, accounting for 2% of total agricultural land. In the year 2005, in the 25 EU Member States, an increase of over 2% of the areas under organic farming was noticed, compared to 2004. In the same period, the number of organic operators increased by over 6%. More than 170,000 farms are run organically (2004). The main driving factor for the development is a growing market as well as policy support for organic farming. As regards the areas under organic farming in total agricultural land, the situation in Europe is the following: Liechtenstein with 26.40%, Austria with 11.60%, Switzerland with 10.00% and Italy with 8.00% are on top. Areas under 1% are cultivated in Greece, Latvia, Ireland, Poland or Yugoslavia. Table 2 indicates the hierarchy of the countries in the world according to the share under the organic farming system in total agricultural land area.

In Romania, the area under the organic farming system also increased. Its share in total EU organic area is still low. But, in recent years, the areas under organic farming increased by over 8 times, from 17,438 ha in 2000, to over 143,000 ha in 2006. An increase of the area under organic farming was also estimated, up to 1.7% of the country's agricultural area for 2007 (about 250,000 ha).

Table 2: Land Area Under Organic Management in Percent of Total Agricultural Area (SOEL-Survey, February 2004)

	% of Agricultural Area		% of Agricultural Area		% of Agricultural Area
Liechtenstein	26.40	Latvia	0.81	Morocco	0.14
Austria	11.60	Ecuador	0.74	Turkey	0.14
Switzerland	10.00	Ireland	0.70	Tanzania	0.14
Italy	8.00	Iceland	0.70	Zypern	0.12
Finland	7.00	Sri Lanka	0.65	Senegal	0.10
Denmark	6.65	Ukraine	0.58	Japan	0.10
Sweden	6.09	Peru	0.42	Cameroon	0.09
Czech Rep.	5.09	Papua New Guinea	0.41	Indonesia	0.09
UK	4.22	Dominican Rep.	0.40	Vietnam	0.08
Germany	4.10	Paraguay	0.38	Pakistan	0.08
Uruguay	4.00	Tunisia	0.36	Lebanon	0.07
Norway	3.13	Poland	0.36	Honduras	0.06
Costa Rica	3.11	New Zealand	0.33	Zambia	0.06
Estonia	3.00	Guatemala	0.33	China	0.06
Spain	2.28	El Salvador	0.31	Rep. of Korea	0.05
Portugal	2.20	Yugoslavia	0.30	South Africa	0.05
Slovakia	2.20	Suriname	0.28	Fiji	0.04
Australia	2.20	Romania	0.27	India	0.03
Netherlands	2.19	Jamaica	0.26	Thailand	0.02
Luxembourg	2.00	Lithuania	0.25	Philippines	0.02
Slovenia	1.91	Panama	0.24	Laos	0.01
France	1.70	Brazil	0.24	Malawi	0.01
Hungary	1.70	Colombia	0.24	Guyana	0.006
Argentina	1.70	USA	0.23	Croatia	0.004
Chile	1.50	Mexico	0.20	Benin	0.003
Belgium	1.45	Azerbaijan	0.20	Russia	0.003
Uganda	1.39	Egypt	0.19	Kenya	0.002
Belize	1.30	Ghana	0.16	Bulgarien	0.001
Canada	1.30	Cuba	0.16	Nepal	0.001
Bolivia	1.04	Mauritius	0.15	Syria	0.001
Israel	0.90	Nicaragua	0.14		
Greece	0.86				

Source: Willer and Yussefi 2004

Specialized studies reveal that organic farming is under development not only in Australia, South America and Europe, but also in Africa, especially in the south of the continent (South-Africa). An important factor driving the development of organic farming in Africa is the demand for organic products in developed countries. In Africa with few exceptions (e.g. Egypt and South Africa) certified organic production is mostly geared to products destined for export beyond Africa's shores. The statistics indicate that with few exceptions certified organic farming is relatively under developed, even in comparison with other lowincome continents. More than 320,000 ha and 71,000 farms are now managed organically, representing about 0.04 percent of the agricultural land.

Table 3 presents the hierarchy of the number of organic farms registered by local authorities by countries.

Table 3: Organic Farms Worldwide (SOEL-Survey, February 2004)

	Organic Farms		Organic Farms		Organic Farms
Mexico	53,577	Paraguay	2,827	Azerbaijan	285
Italy	49,489	Ecuador	2,500	South Africa	250
Indonesia	45,000	Norwegen	2,303	Bangladesh	100
Uganda	33,900	Polen	1,977	Bosnia Herzegovina	92
Tanzania	26,986	Argentina	1,779	Slowakei	84
Peru	23,057	Niederlande	1,560	Zambia	72
Brazil	19,003	Australia	1,380	Ukraine	69
Austria	18,576	Rep. of Korea	1,237	Bulgaria	50
Turkey	18,385	Romania	1,200	Luxembourg	48
Spain	17,751	Thailand	1,154	Cyprus	45
Germany	15,628	Slovenia	1,150	Liechtenstein	41
Dominican Rep.	12,000	Hungary	1,116	Ethiopia	35
France	11,177	Portugal	1,059	Guyana	28
USA	6,949	Vietnam	1,022	Nepal	26
Bolivia	6,500	El Salvador	1,000	Iceland	20
Switzerland	6,466	Ireland	923	Croatia	18
Greece	6,047	New Zealand	800	Lebanon	17
Cuba	5,222	Belgium	700	Malawi	13
India	5,147	Czech Rep.	654	Jamaica	12
Finland	5,071	Estonia	583	Zimbabwe	10
Mozambique	5,000	Morocco	555	Fiji	10
Colombia	4,500	Philippines	500	Mauritius	3
UK	4,057	Uruguay	500	Kazakhstan	1
Costa Rica	3,987	Egypt	460	Syria	1
Denmark	3,714	Israel	420	**SUM**	**462,475**
Sweden	3,530	Tunisia	409		
Canada	3,510	Pakistan	405		
Sri Lanka	3,301	Lithuania	393		
Senegal	3,000	Benin	359		
Honduras	3,000	Latvia	350		
China	2,910	Madagascar	300		
Guatemala	2,830	Chile	300		

Source: Willer and Yussefi, 2004

On the basis of the presented estimates, world sales from 23 European countries, the USA, Canada, Japan and Oceania totalled about 23-25 bn $ in 2003 and 29-31 bn $ in 2005. The growth rate is estimated to increase in the next decade, with the growing awareness of the organic farming concept among the traditional producers; consumers' awareness of the importance of healthy food is also growing.

Although production of organic crops is increasing across the globe and sales are concentrated in the industrialized parts of the world (North America and Western Europe comprise the bulk of global revenues).

Consumer demand is confined to the industrialized world largely because of the price premium of organic products. Many developing countries have a large share of their population below the poverty line, and this makes it difficult for an organic products market to develop.

On analyzing consumer behaviour towards organic products in international countries, a picture of a global organic consumer is emerging. A typical consumer of organic products has the following attributes:
- Location – lives in urban areas, usually in a big city;
- Buyer Behaviour – discerning towards food and drink purchases, considering factors like quality, provenance and production methods;
- Demographics – typically well-educated and belongs to middle-high social classes;
- Purchasing Power – lives in a medium to high-income household with relatively high purchasing power.

The industrialized nations have a sizeable and welleducated middleclass, and this is the reason why most organic food and drink sales are concentrated in these countries. As more countries develop economically and as their populations become increasingly educated and more affluent, demand for organic products is rising. This causes sales of organic products to become less concentrated in the world. Rapid economic growth in countries like China, Brazil, and South Africa is causing the upper social classes to expand, and this is creating a market for organic food and drink.

In other regions, there is an increase in organic farmland because farmers are attracted to the benefits of exporting organic products. Although most production in Asian and African countries will be for export markets, this development is also creating regional in which organic farmers market their organic crops to consumers in their region.

Sales of organic food and drink are slowing in certain countries, especially in Western Europe; however, the market is becoming increasingly global. Consumer demand for organic products is expanding worldwide and as this continues, it will capture even larger international attention. Valued at USD 23 bn in 2002 and healthy growth continuing, the global organic market can be considered anything but a niche.

Organic farming in Romania

Legal and institutional framework

As organic farming contributes to sustainable development, through an increase of biodiversity, soil fertility and environmental protection, the organic farmers are supported through the agroenvironmental programs of the European Commission (EC). Thus, starting with 2007, organic farmers benefit from a compensatory premium per hectare (and by crops), in order to make up for the income losses incurred during the conversion period and for the certified production, through the National Rural Development National Plan (PNDR) – Axis 2 – the agroenvironmental submeasure, from the European Agricultural Fund for Rural Development (EAFRD), nonrefundable support in conformity with the Commission Regulation (EC) no. 1698/2005.

At the same time, EU provides support for the promotion of organic products, through cofinancing programs, with a 50% funding from the EC, 20% from professional organization, and 30% from the state budget, in conformity with the procedure of the Commission Regulation (EC) no. 1071/2005.

The legal basis of the organic farming system was established in the 1990s by the Commission Regulation (EC) no. 2092/1991 regarding organic farm production and the indications for their presentation as agricultural and agrifood products.

At the national level, together with the signing up of the Association Agreement and the initiation of the EU accession negotiations – Romania's legislation had to get in line with the EU legislation. Following this process, at present, Romania's legislation complies with EU requirements and orientations.

The main normative acts, produced in recent years, are: Government's Emergency Ordinance (OUG) no. 34/2000 on the organic agrifood products, approved by Law no. 38/2000; Government's Decision no. 917/2001, for the approval of the Methodological Norms for the application of provisions from OUG no. 34/2000 regarding the organic agrifood products; The Joint Order no. 417/2002 and no. 110/2002 of the Minister or Agriculture and of the President of the National Authority for Consumers' Protection; Order no. 70/2002 of the Minister of Agriculture on the establishment of the Commission for Organic Farming Development in Romania; Order no. 527/2003 of the Minister of the Agriculture for the approval of the Rules on the inspection and certification system and the accrediting conditions for the inspection and certification bodies in organic farming; Order no. 721/2003, of the Minister of the Agriculture for the approval of Rules on the import and export of organic agrifood products; Order no. 153/2006 regarding the approval of the componency of the Commission for the accrediting of inspection and certification bodies in the organic farming sector,

which inspects and controls the operators on Romania's territory; Order no. 317/2006 regarding the modification and completion of the Annex to the Order of the Ministry of Agriculture and of the President of the National Authority for Consumers' Protection no. 417/110/2002, for the approval of the Specific labelling rules for the organic agrifood products; OUG no. 62/2006 for the modification and completion of OUG no. 34/2000 on the organic agrifood products; Law no. 513/2006 on the approval of OUG no. 62/2006 for the modification and completion of OUG no. 34/2000 regarding the organic agrifood products; Order no. 219/2007 on the approval of Rules regarding the organic farmers' official registration. They provide information, rules and norms necessary in this field like: the authority responsible for organic farming; the general rules and principles of organic production; the duration of the conversion period; the inspection and certification system; the list of accepted products to be used by the organic farming practice; the list of ingredients and processing methods that can be used in the preparation of organic foodstuffs; sanctions etc.

In Romania, the government, the civil society and the business environment are becoming increasingly aware of the need to promote organic farming.

The governmental policy is elaborated and coordinated by Ministry of Agriculture, Forestry and Rural Development (MAPDR), under which the Office of the National Authority for Organic Products (ANPE) is operating, which is the authority in charge of the organic farming sector. ANPE is collaborating with different agencies, education and research institutions, foundations, among which we can list the following:

- The National Agency For Agriculture Consultancy – ANCA;
- The Academy of Agricultural and Forestry Sciences – ASAS;
- Higher education institutions, agricultural research institutes and stations;
- The National Organic Farming Federation, whose activity is based on the "sustainable development principle", a development type which should not disable the next generations' access to a clean environment.

The Ministry of Agriculture established an action plan for the development of the domestic market of organic products, which includes:

- The intensification of actions promoting the organic farming concept;
- The improvement of information on organic farming practice, and the qualification of the participants in this sector;
- The increase of areas under the experimental modules "organic microfarms";
- The delimitation of organic farming areas;
- Support to farmers during the conversion period;
- The creation of an information system accessible to farmers.

At the beginning of the year 2007, the following organizations were registered at MAPDR, with attributes or concerns in organic farming, rural development, environment protection and sustainable development: The As-

sociation for ecological agriculture "agrieco", with the headquarters in Cluj Napoca, the professional Organization ,,Agroecologia" – Cluj Napoca, the Association of the biofarmers in Romania ,,BIOTERRA" – Cluj' county, the Romanian Association for Sustainable Agriculture – Călăraşi County, the Association ,,Terra Verde" – Bucharest, the Association of the Biopoultry breeders in Romania – BIOAVIROM – Ilfov County, the Association for the organic farming development in Romania, "Ecofocus" – Bucharest, Ecorural – Bucharest, the Association for the Environmental Protection and ecological agriculture ,,TER'' – Bucharest, the Foundation ,,Mama Terra" – Bucharest, ,,The National Association of the Agricultural Consultants" – Bucharest, the Academic Foundation for Rural Progress ,,TERRA NOSTRA" – Iaşi, ,,The Ecologist Society in Maramureş" – Baia Mare, ,,The Foundation for Rural Development in Romania" – Bucharest, ,,The Ecological Group for Cooperation Bucovina" – Suceava, the Foundation ,,Business School Mehedinţi" – Drobeta Turnu Severin, the Society ,,Avram Iancu" – Cluj Napoca, the Foundation ,,The Operation Romanian Villages" – Bacău county, ,,The Ecological Club Transylvania" – Cluj Napoca, ,,The Romanian Rural Foundation" – Timişoara, ,,Bioclub Cluj" – Cluj Napoca, ,,the Group of Gardeners Biodynamics" – Târgu Mureş, ,,the Romanian Association for Applied Biofarming" – Arad county, ,,the Centre for Ecological Consulting Galaţi" – Galaţi, ,,the Association for Environmental and Nature Protection" – Târgu Mureş, the Foundation ,,Divers Eco" – Maramureş county, the Foundation ,,Noema Consulting" – Cluj Napoca, the Association ,,Albina" (the ,,Bee") – Bucharest, the Association for Environment Protection and Preservation of Resources – Bucharest.

Evolutions and trends

The data supplied by MAPDR reveal the increasingly importance of the organic sector for the domestic producers. The positive evolutions of areas, livestock herds and production subject to organic farming practices prove the existing potential, initiative, development prospects and increasing demand of consumers (see tables 4 and 5).

Both land areas and the number of animals increased in the investigated period (with minor exceptions). The trend is increasing and the perception of these crops as an alternative activity and income source is positive. Comparing the objectives established by the government's strategy with the field results, we could say that the objectives were achieved; the bases were created for the development of this activity and for the exploitation of the market niches, both in the domestic and world markets.

Table 4. Evolution of areas and livestock herds under the organic farming system

Specification	MU	Achieved						2006
		2000	2001	2002	2003	2004	2005	
1. Total area, out of which:	ha	17,438	28,800	43,850	57,200	73,800	110,400	143,000
Cereals	ha	4,000	8,000	12,000	16,000	20,500	22,100	16,310
Pastures and fodder crops	ha	9,300	14,000	20,000	24,000	31,300	42,300	51,200
Oilseeds and protein crops	ha	4,000	6,300	10,000	15,600	20,100	22,614	23,872
Vegetables	ha	38	100	700	200	300	440	720
Fruits (sour cherries, cherries, apples)	ha	-	-	50	100	200	432	292
Spontaneous flora collection	ha	50	100	300	400	500	17,630	38,700
Other crops	ha	50	300	800	900	900	4,884	12,100
2. No. of animals, out of which:								
Dairy cows	heads	2,100	5,300	6,500	7,200	7,200	8,100	9,900
Sheep and goats	heads	1,700	3,700	3,000	3,200	3,200	40,500	86,180
Laying hens	heads	-	-	-	2,000	2,700	7,000	4,300

Source: MAPDR Database (reported data by inspection and certification bodies)

As in the case of land areas and livestock, productions continuously increased in the investigated period. Although the production levels are much higher than those obtained 5-6 years ago, the domestic supply cannot totally meet the demand yet, which makes it possible for the imported organic products to penetrate the Romanian market.

At the end of the year 2006, 3092 organic operators were registered at MAPDR, classified by three large categories of products, i.e. crop, livestock and beehive products. They were organized either as independent producers, physical entities, or as family associations or commercial companies as legal entities under the form of limited liability companies or joint stock companies. Not all the counties are included in this evidence. Most organic farmers are from the counties Suceava, Mureş, Sibiu, Tulcea and Constanța.

According to this statistical evidence, organic farming can be considered a dynamic sector in Romania, with an increasing trend in recent years, both in crop and livestock production. As a result, the organization devoted to marketing of organic products (www.agriculturaecologica.ro) is becoming increasingly important. The sale of the organic products can take place directly from the farm, or through the traders registered at MAPDR. Organic products can be found both in the large store network and in the small specialized shops. At the beginning of the year 2007, only two shop networks were registered at MAPDR: the shop "BIOCOOP" (Sibiu) and the shop Naturalia (www.naturalia.ro), with units both in Bucharest and in the county Ilfov (Voluntari).

Table 5. The evolution of organic farm production

Specification	MU	Achieved						2006
		2000	2001	2002	2003	2004	2005	
1. Total crop production, out of which:	tons	13,502	24,400	32,300	30,400	87,200	131,898	166,574
Cereals, out of which:	tons	7,200	12,500	16,000	14,400	41,000	55,000	48,441
-Export	tons	-	-	-	-	7,100	11,100	18,100
Oilseeds and protein crops, out of which:	tons	5,500	7,200	11,000	12,480	37,000	45,600	73,082
-Export		-	-	-	-	9,800	12,100	22,100
Vegetables	tons	600	4,000	4,000	2000	3,000	7,200	8,708
Fruits (sour cherries, cherries)	tons	-	-	200	300	500	1,000	340
Spontaneous flora collection:	tons	200	400	300	320	4,500	16,748,	24,962
-Export	tons	-	-	-	-	3800	14,200	-
Other crops	tons	2	300	800	900	1200	6350	11,041
2. Animal production, out of which:								
Cow milk	hl	58,367	63,885	92,747	92,485	92,868	100,000	112,000
Ewe and goat milk	hl	701	1,740	1,360	1,470	1,800	13,500	15,500
Eggs	thou. pieces	-	-	-	500	650	1,820	1,075
3. Processed products								
Ewe hard cheese, out of which:	tons	18	46	36	45	48	480	520
-Export	tons	-	-	-	38	48	180	70
Schweitzer, out of which:	tons	23	23	100	110	116	268	576
-Export	tons	-	-	-	-	61	160	22
Cacciocavalo, out of which:	tons	-	121	250	220	253	330	642
-Export	tons	-	-	-	-	52	210	80
Canned fruit and vegetables	tons	-	-	-	-	35	50	42
Bee honey, out of which:	tons	10	20	80	110	320	610	1,243
-Export	tons	6	12	52	93	210	509	720

Source: MAPDR

An important role in market promotion and obtaining new market shares and segments of consumers is represented by the marketing activity. The presentation of products, the beneficial effects upon the human body, the gains obtained by buying clean and healthy products, even though they are more expensive than the conventional products, as well as consumers growing aware of their importance, are the main concerns that the producers and sellers of organic products should have in their development policy. The participation in exhibitions, fairs and other national and international manifestations is a modality to present the organic products and to establish new contacts for marketing these products. It is only a promotion modality among several possibilities, with a special impact upon consumers.

The fact that the organic products have a market in Romania is proved by imports, which are doubling almost every year. In 2007, the market of organic products was estimated at 2.5 mil EUR (1 mil EUR more than in 2006).

The Expert Group study reveals that only 30% of the organic production is sold on the domestic market (the rest was exported). The main organic products sold through the organized commercial network are eggs and dairy products.

The sale on the domestic market is through the wholesale networks Metro, Selgros mainly by retail shops. The main stores that introduced organic products in their assortment of goods are: Carrefour, Cora, Gima, La Fourmi, Mega Image, Nic, Primavera, OK.

Except for the processors that have their own presentation shops, no other shops respect the storage/handling/presentation rules for organic products. The organic products are found in the same place with the conventional products, they are handled and stored together. In the abovementioned study, it is also shown that on the domestic market there is confusion between "natural product" and "organic product" (most often maintained by the producers of the former), which makes it more difficult to promote an organic product under the conditions of the price difference. The World Bank and the Ministry of Agriculture, Forestry and Rural Development through the ASSP Program conducted the study within the project ExtEco - „Extension for Eco-Profit".

The Romanian organic products are mainly exported to Western Europe (Germany, for example) and attempts are being made to penetrate the US market. The wild berries, either organic or non-organic, have a much higher export price, and the price is even higher if these are organically certified (the volume of the exports of fruits in 2004, in Germany and Italy was 800 tons).

Unfortunately, not all the producers are satisfied with the evolution of this market and with the government's involvement in the activity to support organic farming. In the opinion of some farmers who had initiatives in this field, organic agriculture became a non-efficient business in Romania, not because the outlet is not large enough, but rather because the government has not shown

interest in this activity so far; on the other hand, this activity was given as an example of opportunity to conquer the foreign markets. The lack of financial support from the state, in addition to the extreme weather phenomena in the last years, is the main factor which determines the producers to think giving up their business. In many reports made by the producers or in the communications at the scientific events organized by them, it is mentioned that farmers are confronted with the problem of higher production costs as well as with the problem of products distribution.

The problem of the ratio of the production cost to the price of the product is not the only problem for organic farmers. The consumer is interested more in the price than in the quality of the product, and this constrains the development of the sector.

As always happens in such conflicts, on the other side, of the state institutions, the an-nouncements are optimistic, satisfactory, and even praiseworthy. All governmental state-ments and the official documents show the favourable evolution of this sector and government's active implication in its development. For example, the documents elaborated by Romania's Government in the last years regarding the strategy in this field in the future, comprise concrete references on the next steps and have clearly identified objectives. Thus, in the National Export Strategy for the period 2005-2009 states: the quantitative objective is to increase the areas under organic farming to 150,000 ha by 2007 and to create a domestic market of organic products; Romania has great opportunities for promoting and developing organic farming due to its large agricultural land area, i.e. 14.9 m ha and its non-polluted soils; the increase of organic farmers' participation to the economic events in the country and abroad (BioFach 2006). By the examination of the valoric chain and of the consumers' requirements on the world market, the following critical success factors could be identified: price, assortments, package, branding, and availability.

The reaching of the export targets is linked to other objectives as well (on the short, medium and long-term), which can contribute to the improvement of the competitiveness of the Romanian organic sector in the next period:

- The increase in the number of operators in this sector, receiving financial support from the Romanian Government Programs;
- Increase of the role of the non-governmental organizations (NGOs) in this sector through programs for the development of trade with organic products;
- Increase in the number of exporters who are actively involved in programs for organic agricultural trade development in the less-favoured areas;
- Support provided to organic commercial farms, so as to be more active on the market;
- The association of the small organic farmers so as to co-operate in the marketing of organic products;
- The increase in the number of municipal and regional organizations directly involved in the implementation of the National Export Strategy in its initial stage;

- The increase in the number of local processing units and foreign direct investment projects;
- The increase of investments in related activities in rural areas;
- The increase in the number of employees in the exporting units which are implementing the organic farming regulations;
- The increase of investments in the activities related to exportable organic products from the less developed rural areas;
- The increase of the organic farm output;
- The increase in the number of new companies involved in export activities with primary and processed organic agricultural products;
- The increase in the number of optimal operation modules by the association of crop and livestock farms;
- The development of processing capacities for the organic farming sector;
- Capacity improvement in terms of products and value added;
- The development of services oriented towards the export of organic products;
- The diversification of the exportable cultivated species (for example: vegetables, fruits) and of the range of processed products (e.g.: bakery and pastry products);
- Increase in the number of new approved investment projects.

Financial aspects

In the pre-accession period, Romania benefited from programs and funds with special destination for development of the organic farming. Among these, the most attractive and ample were those under the SAPARD Program (Measure 3.3 „Agricultural production methods designed to protect the environment and maintain the countryside"). Under this measure, the following 3 pilot submeasures were provided to farmers.

A. Soil conservation and protection against erosion:

- Transformation of arable land into grassland; the cultivation of arable land with mixtures of perennial grasses (the grass mix was recommended for each location taking into consideration the volume and distribution of rainfall and the soil conditions). Grazing was forbidden in the first year – the actions going beyond the Good Farming Practice. In the following years, rational grazing was practised to ensure the annual regeneration of the grassland. No synthetic (chemical) fertilizers and pesticides were used – actions in conformity with the Good Agricultural Practice (GAP).
- Establishment of grass strips (applicable in terraces with perennial crops when the slope is bigger than 8%); the placing of grass strips oriented in the general direction of contour lines. No grazing was practiced on these strips and no pesticides and chemical fertilizers were used – actions in conformity with the Good Farming Practice. The minimum width of the grass strip is 5 m. The maximum distance between the grass strips is 80 m – actions beyond the GAP.
- Establishment of hidden green crop on arable land, after harvesting. The hidden green crops to be used as green fertilizers or fodder had to be immediately established (not later than 30 days) after harvesting the main crop.

After harvest of these crops, the land is ploughed not later than 2 weeks before planting the next crop. Annual crop mix is used (grains, vegetables, rapeseed, and mustard).

B. Biodiversity preservation through traditional farming practices:
- Maintaining some temporary humid zones by traditional cultivation of rice. Crop rota-tions were introduced by at least 30% rice – actions in addition to the GAP, and without the use of mineral N fertilizers and pesticides – action in conforming to the GAP;
- The preservation of alpine pastures and hayfields by ensuring their rational operation with 0.3-0.5 livestock units/ha – action in conformity with the GAP;
- The elimination of the erosion effects by over-planting with domestic species, the maintenance of areas by mowing, at least once a year, not before June 15, the prevention of soil acidity, through the neutralization of at least 20% of the non-utilized pasture areas by 1-year rotation – actions in addition to the GAP and giving up chemical fertilization, pesticides or insecticides – actions in addition to the GAP.

C. Organic farming:
- The conversion to organic farming methods;
- Maintaining the current organic production methods.

With regard to the funding conditions, the applicant had to respect the following general eligibility conditions:
- The support was granted to the potential beneficiaries participating to an agro-environmental scheme on a voluntary basis and who concluded contracts for the application of obligations regarding the agro-environmental measures for a 5 year – period.
- The potential beneficiaries had to present an agro-environmental plan of the entire farm.
- The potential beneficiaries had to prove the farm bookkeeping and the preparation of the farm managerial accountancy (in detail, in the implementation procedure).
- The potential beneficiary had to prove the compliance of the good agricultural practice standards on the whole area.
- The potential beneficiaries made proof of land ownership or of land lease-concession or had to present any other document certifying the land use right according to the legislation into effect for at least 5 years from the date of the application for compensatory premium under the SAPARD Measure 3.3, in order to carry out the environmental actions.
- The final beneficiaries had to attach the cadastral plans of the entire area into ownership, which were asked for at the local town halls and had to be approved at the County Cadastral and Land Registration Office.
- The beneficiaries of this measure had to apply the GAP on the entire area they had into ownership, not only on the parcels for which they applied for financial support.

- The legal and/or technical entity in charge of the project had to make proof of professional expertise in the field attested by a copy of the study diploma or a document to prove an expertise of a least 3 years in the field (a copy of the record of employment) and a written commitment that this or one of the employees will attend a vocational training course under the Measure 4.1, and for the beneficiaries of sub-measure C, an additional training course (improvement of the professional skills), before the first payment of the compensatory premium.
- The funding contract comprised the mutual commitment of the Romanian state and of the support beneficiary.
- The beneficiaries had to agree under written form that they would provide knowledge on the agricultural production methods meant to protect the environment and to maintain the countryside at the demand of other agricultural producers.

All farmers who received support, on the basis of Measure 3.3, had to comply with the GAP standards during their agro-environmental project. These standards had to be complied with on the entire agricultural area administered by the project beneficiary.

The good agricultural practice is a new concept applied in Romania and it is essential that the proposed verifiable standards should be:
a) Relevant for the current environmental problems;
b) Clear and practical for farmers, to adopt in the present agronomic and socio-economic context;
c) Easy to be controlled.

The implementation of the pilot agro-environmental programs under Measure 3.3 provided a significant opportunity for testing the good practice standards that are fit for Romania and that could be clearly and easily defined and controlled at the farm level. Four fields for the GAP were identified that derived from the specific agro-environmental legislation, with regard to the farmers' activities in Romania:
• Soil protection;
• Biodiversity preservation;
• Crop Protection;
• Water Protection.

Under this measure farmers could participate to one or to all the sub-measures, on a simultaneous basis, and under the same sub-measure to all actions except for sub-measure A: soil conservation and protection against erosion, where the table of combination of actions is provided and the actions that can be carried out at the same time.

Post-accession support programs for organic farming

In the second half of the year 2006, the European Commission published a list of 31 projects concerning information and promotion of EU agricultural products on

the Single Market, selected to receive EU financial support. The total project budget for 1-3 years is 55.3 m EUR; 50% of which will be contributed by the EU.

The 25 Member States submitted 79 program proposals. The selected projects come from 19 states and have in view the promotion of the EU products that are not treated with chemical substances, of the agricultural products with specific quality standards (PDO, PGI, TSG), of dairy products, meat, wine, fruits, vegetables, herbs, bee honey and potatoes.

The envisaged measures included public relations and promotion and publicity actions designed to highlight the advantages of EU products in terms of quality, hygiene, safety, nutrition values, packaging, non-polluting production techniques, etc. The information campaigns on the European quality standards are also eligible. The European Union covers 50% of these projects budget, the rest representing the contribution of professional organizations, which initiate projects, or Member States' contribution, through their domestic budgets. Each year, until November 30, the interested professional organizations can submit the project proposals in the Member State they are part of. This makes a preliminary selection and sends the Commission the list of accepted programs. Subsequently, the Commission evaluates the programs and decides which of these will effectively benefit from the EU support.

Financial support can be also obtained for the assignment of the organic label. In the EU, the organic label is granted to 368 firms, for 2.500 items. In Romania, the rate for processing the application for organic label is 300 € for products and 100 € for services.

Those wishing to label their products or services as organic can get support from the Ministry of Economy and Finance. Thus, within the program for products competitiveness increase, financial support can be obtained on a 3-year period, for the SMEs the public financial support reaching 65%. An annual rate is charged, of 0.15% of the annual sales of the product that obtained the organic label. According to the representative of the National Agency for Environment Protection, so far in Romania the organic label was granted only for textiles and bed mattresses, although the organic labelling system includes various products and services, ranging from refrigerators, washing machines or dishwashers, to products of animal and vegetal origin.

It is expected that through EAFRD other projects will receive financial support, much larger projects, for organic farming development through the three priority axes established.

Conclusions

Although organic farmland continues to rise across the globe, most sales of organic food and drink are restricted to the industrialized world: USA, West Europe, Japan and Australia.

Two factors are adjudged to be responsible for consumer demand to be concentrated in the most affluent countries of the world. The price premium of organic products restricts demand to countries where consumers have high purchasing power. This explains why most sales are in countries where there is a sizeable middleclass in the population. The second factor is education and more specifically awareness of organic products. As consumers become more educated and informed of food issues, they are more inclined to buy organic products whether it is because of factors like food safety, concern for the environment, or health reasons.

As production of organic crops increases across the globe, regional markets are also expected to develop in which organic farmers will produce organic products for consumers in their region. This is expected to stimulate sales of organic products in many developing countries, especially in countries like Brazil, China, India, and South Africa where economic development is increasing at a rapid rate and a more educated and affluent middleclass of consumers is developing.

In Romania, there are a few main ways, which can contribute, to the improvement of the competitiveness of the Romanian organic sector in the next period:

- An increase in the number of operators in this sector, receiving financial support from the Romanian Government Programs;
- The association of the small organic farmers so as to co-operate in the marketing of organic products;
- An increase in the number of municipal and regional organizations directly involved in the implementation of the National Export Strategy in its initial stage;
- An increase in the number of foreign direct investment projects and investments in related activities in the rural area;
- An increase and diversification of the organic farm output;
- Capacity improvement in terms of products and value added;
- The development of services.

References

MAPDR Database, reported data by inspection and certification bodies. Voicilas D.M., 2007, *Organic farming*, In: Ionel I. (Ed.): *Non-conventional farming economics.* Romanian Academy, Institute of Agricultural Economics, Terra Nostra Publishing House, ISBN 973-8432-75-8, 65-125, Iasi, Romania.

Voicilas D.M., 2007, *Alternatives of rural development-organic farming,* In: *Multifunctional agriculture and rural development – Rural values preservation,* Institute of Agricultural Economics, Beograd, ISBN 978-86-82121-48-0, Beograd/Beocin, Serbia.

Willer H., Yussefi M. (Eds.), 2004, *The World of Organic Agriculture – Statistics and Emerging Trends*, 6th revised edition, ISBN 3-934055-33-8, International Federation of Organic Agriculture Movements, Bonn, Germany.

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Commercial and non-commercial benefits of Serbian forests

Abstract: *The present paper deals with the commercial and non-commercial benefits of Serbian forests based on officially published data, data available in existing studies, expert opinions and research data collected using one-to-one interviews on a representative sample.*
In the first section of the paper the basic characteristics of Serbian forests are described in terms of general data, which are then used in the second section to estimate the total economic value (TEV) in 2007. To obtain the TEV, the forestry-related values are classified in use and non-use values based on the various sub-groups of products and services. For the product and service valuations either domestic or international prices were applied. The results are shown in three potential scenarios, each yielding a different TEV estimate: 1) based on existing data, 2) based on additional inputs from experts and 3) based on estimates and assumptions derived from existing studies. Undoubtedly, wood is the most important forest product in Serbia, as it contributes between 42% and 90% to the TEV depending on the specific scenario.
The results of the paper are intended to help improve general awareness for the totality of benefits of Serbia's forests. By providing an overview in terms of both commercial and non-commercial value, the authors furthermore hope to assist Serbian decision makers in finding the mix of policies which will best support the nation's forests in the future.

Keywords: *forest, wood, non-wood forest products, use value, non-use value, Serbia*

Characteristics of Serbian Forestry

The Current Status of National Forest Statistics

Data on the forestry sector in Serbia are officially published by the Statistical Office of the Republic of Serbia. The data collection method is based on

reports and estimates. Reports are provided by forestry and other organisations involved in forest management. In addition, for areas managed by private forest owners or by entities which are not obliged to keep book records, estimates are available and these are compiled primarily using a comparative approach.

Data on forestry areas are collected in three-year periods whilst data on roads, means of transportation and mechanisation are collected annually. Statistics on the production, sale and assortment of forestry stocks are gathered via monthly reports. Other types of forestry data are collected annually by way of accounting reports.

Data on hunting are collected bi-annually via a standard reporting method. Reports are provided by hunting associations, entities engaged in hunting as well as entities having their own hunting grounds and game-rearing farms.

Official publications contain the following types of forestry data: general forest data, fallen timber, forest growing and tending, plantation and intensive plantation, statistics on the production and sale of forest assortments, forest damages and hunting data.

A forest is defined as an area larger than 0.05 hectares (ha) covered with stands of forest trees which have a protective function, are intended for the production of commercial forest assortments or have some other special purpose. Tree-lined paths and parks in inhabited areas do not meet the definition of a forest.

In addition to these official statistics, the Institute for the Protection of Nature (IPN 2007; IPN 2008) provided time series on quantities and values of non-wood forest products (NWFP) for our study; whilst the UN-FAO study on forest valuation in Serbia used the official data as well as household surveys and a representative sample of 800 households within the country (Rekola et al. 2007).

For the WATERWEB project, a representative sample of 150 commercial farmers was selected with whom personal interviews were conducted (Zaric 2008).

Socio-economic Importance of the Forestry Sector

Forestry contributes 0.54% to Serbia's GDP and the wood industry 2.47%, thus the contribution of the forestry sector as a whole is approximately 3%. However, official figures likely do not represent the true situation within the forestry sector for several reasons. For one, the official statistics do not register the entire production as there are many small plants which escape the control of state authorities. In addition, prices for wood products are depressed whilst the value of non-wood forest products is furthermore absent from the official records. An alternative, and more complex, value is the contribution of

forestry to the development of other sectors, such as agriculture, water supply and tourism. The direct contribution of the forestry sector to the country's total employment was 3.8% in 2007 and the sector accounted for approximately 1.8% of all Serbian exports (SYS 2007).

According to official statistics, forests covered approximately 25.6% of the country's area in 2007, whilst agricultural land covered roughly 65% of the total area. Therefore, some 90% of the territory is covered by agricultural land or forests. In Serbia there are 816,000 ha of pasture land and approximately 36,000 ha of pools, reed tracts and fish ponds, which are also counted as agricultural land (SYS 2007).

The structure of forest utilisation in Serbia is similar to other countries in the region and in Europe. There is obviously a conflict of interest between forest owners, foresters, nature protection advocates and other stakeholders interested in forest resources. Thus, there are also various lobbies which attempt to influence the decision making process regarding forest in order to promote their own positions.

In Serbia there are essentially two types of ownership: states forests on the one hand, which also include a small proportion of social forests, and privately owned forests on the other. The state manages 56% of the total forest area through dedicated public enterprises (PE) whilst the remaining 44% is managed by private owners. However, private forest owners work under the supervision of the state forest administration and PE (as per PE data).

Public enterprises manage larger areas whilst the majority of the private forests are very small in size. Private forests usually consist of single lots which are of irregular shape, long and in narrow strips. The structure of privately owned forests is similar to the structure of privately owned agricultural land: both types are typically fragmented and "scattered" in the area, which means utilisation costs are high. The small size of privately owned forests is a result of Serbia's inheritance law. Historically, the law permitted land to be physically divided upon inheritance and this frequently happened. Thus, the average area of forest holdings is less than 0.5 ha.

Species and Stand Composition

Serbia's natural conditions and diversity of ecosystems support a wide variety of tree species, which range in growth quality from well-stocked forests to severely degraded or depleted coppices and scrublands. Serbia is situated within the so-called "mixed forest belt" with a high percentage of broadleaf and mixed broadleaf stands.

Broadleaf varieties thus dominate the forest with a 91% share, whilst remaining stands consist of various types of conifers and mixed broadleaf-conifer stands – approximately 6% and 3%, respectively. The main tree species found in natural forests is beech *(Fagus moesiaca*), covering 30% of forest areas, followed

by oak *(Quercus ssp.)* at 27% and various other broadleaf families. Natural stands of conifers are confined to the southern and south-eastern part of the country, with the main species being *Pinus nigra, Pinus sylvestris, Picea abies* and *Abies alba.* In general, the quality of forests in Serbia is not at an optimum level. Only some 44.1% are high forests, another 25.9% are coppice forests and the remaining 30% are variously degraded forests (Srbijasume 2007).

To a great extent, Serbian plantations consist of coniferous species, especially pines, i.e. primarily *Pinus nigra*, and spruce *(Picea abies)*. The bulk of broadleaf plantations are confined to poplar *(Euro-American black poplar clone)* whilst the remainder consist of oak and other hardwood species. Plantations occupy nearly 8.4% of the total forest area or some 160,000 ha, with conifer plantations accounting for roughly 107,000 ha and broadleaf varieties for the remaining 53,000 ha. The major broadleaf species is poplar (33%), followed by oak and other hard wood species. Until the 1990s, the annual plantation rate in Serbia was more than 10,000 ha and there were annual forest operation programmes. During more recent years, however, annual plans were reduced to an eventual level of approximately 2500 ha annually. According to official data, most of the present plantation activities are undertaken by the state forest enterprises (Srbijasume 2007).

Taking into account estimates that 200,000 ha of state-owned land needs to be reforested, not to mention that the forestry ministry is planning to reforest some 1.3 million ha of vacant and abandoned agricultural land in the long term, special attention will need to be paid to the health condition of seedlings and to good management practices. Another precondition for successful reforestation is classification of the land which is best suited for forestry, something that unfortunately has not yet been done. Since part of the vacant land is privately owned, incentives should also be provided to land owners for planting forest trees (Zaric 2008).

Nurseries: The country has 33 forest nurseries, of which 22 are located in central Serbia. The latter are operated by the PE Srbijasume; whilst the other 11, in Vojvodina, are run by the PE Vojvodinasume. Seven of the nurseries specialise in producing poplar planting stock, however none of the private nurseries produce forest tree seedlings and private plantation activities do not amount to a significant level of production. Together, the country's nurseries produce some 30 million seedlings annually, but there are no greenhouse seedlings among them. In addition, there are 2,000 ha of seed orchards and seed stands, from which 400 tons of fruits and cones are collected annually.

The annual plantation area in nurseries usually ranges from 2,000-2,500 ha. Taking into account the possible density of seedlings per ha, annual seedling production levels have remained much lower than the nurseries' potential production capacity. Indeed, based on the current production figures, one must conclude that only approximately one third of capacity is being utilised despite the fact that low-capacity production causes higher unit production costs (Srbijasume 2007; Vojvodinasume 2007).

Damages to Forests: Damages to forests are a very frequent occurrence in Serbia. Although total damages are decreasing, they amounted to approximately 30,000 m3 of total volume in 2006. An examination of the causes of these damages leads to the conclusion that the majority are man-made. Insects and plant disease account for 10% in each forest on average. However, insect- and disease-related damages have not been very serious, which means protection efforts on both fronts have been efficient. On the other hand, it is very expensive for enterprises to maintain forest protection efforts. Thus, it can be expected that an adequate level of efficiency will be difficult to maintain under the present economic circumstances (SYS 2007).

Protected Natural Areas: In the Republic of Serbia some 5.8% of the total surface area has been declared as a "protected natural asset." The total protected area amounts to some 448,000 hectares. There are different levels of protection and different types of protected assets. The vast majority of protected areas are national parks, natural parks, landscapes with exquisite characteristics, reservations and natural monuments. Most of the country's protected areas fall under the responsibility of the state forest PE, although national parks and a very small number of additional areas of various types are managed by other enterprises (FMP 2007).

Data and Methodology for Estimating the Total Use Value

For our estimation of the total economic/use value of forestry in Serbia, we applied the FAO methodology published in „Forest Valuation for Decision Making" (Kengen 1997). The pertinent classifications of forest values are presented in the following table.

Table 3. Classification of Forest Values

A: Use Values: Direct-use values: Wood Products – all used for the commercial/industrial market, as well as non-commercial wood (timber, fuelwood, pulpwood, etc.). Non-wood Forest Products – wild berries and plants, wild mushrooms, wild animals and honey. Services – hunting and recreation Indirect-use values: use as watersheds and for flood protection, erosion control and carbon sequestration
B: Non-use values: Forest conservation and potential pharmaceutical value

Source: Adapted from Kengen (1997)

The data for calculating our estimates were derived from official statistics, the IPN, existing UN FAO studies and research results from the FP6 Project WATERWEB[9] .

9 WATERWEB (WATER resource strategies and drought alleviation in Western Balkan agriculture).

Results

Our calculations indicate that the total economic value of Serbian forests amounted to € 201.5 million in 2007 based on the official statistics. Factoring in expert opinions, the estimate increased to € 205.9 million, whilst UN-FAO methodology yielded € 385.3 million. Taking into account all forest products and services, the contribution of forestry to overall GDP thus does not exceed 5%.

Table 4. Estimated Total Economic Value of Serbian Forests in 2007

Product/Service Category	Statistical evidence	Expert opinion	UN FAO
A Use values	**m €**	**m €**	**m €**
1 Direct-use values			
1.1 Products			
1.1.1 Wood			
Wood used	69.5	111.5	59.9
Increment in the wood stock	112.6	70.9	100.8
1.1.2 Non-wood forest products			
Wild berries and plants	0.97	1.94	2.0
Wild mushrooms	2.40	4.80	2.5
Wild animals	0.89	1.78	1.0
Honey	1.0	1.1	0.0
1.2 Services			
Hunting	14.1	14.2	13.6
Recreation			80
2 Indirect-use values			
Watersheds/flood protection/erosion control			67.2
Carbon sequestration			40.8
B Non-use values			
Forest conservation			4.8
Potential pharmaceutical value			12.7
Grand Total	201.5	205.9	385.3

Source: Authors‘ own calculations

Explanation of Calculated Values

Officially recorded wood use

According to the official statistics, total annual wood use in Serbia averaged approximately 2.5 million m3 in the period 2002-2006, of which some 1.7 million m3 was produced in state-owned forests by the state enterprises. There were no significant changes in annual wood use during this period (SYS 2007).

Officially recorded wood value

The total value of all assortment types was officially reported as € 69.5 million in 2007. This value shows the stumpage value and is based on reports of the PE for state forests as well as the estimate for private forests. The PE reports contain the volume of wood sales and unit price of various timber assortments at the forest roadside. The cost of cutting and hauling has been deducted from the roadside price. The assortment structure in state forests is 53% technical wood, with the remaining 47% being wood of lower quality.

The same procedure as above was applied for price calculations in private forests. For the latter, the exploitation costs were assumed to be identical to those in state forests, whereas the private forest share of technical wood amounted to only 13%.

Administrative costs were not included in the calculation. Experts estimate that administrative costs in state forests amount to as much as 10% of the total costs whilst they are close to zero in private forests. However, no reliable data on administrative costs could be obtained for our research, and we therefore left them out of the calculation.

Expert estimate of wood use

The official statistics (SYS 2006) do not include any form of illegal production, yet experts estimate that illegal timber production amounts to some 1.5 million m^3 annually. Assuming the same assortment structure as officially recorded and the same average price of 28 €/m^3, the stumpage value of illegal production amounted to € 42 million. Thus, according to expert opinion, our calculated use value of total wood production in Serbia is € 111.2 million.

Estimate according to UN-FAO methodology

Using official data for 2006, the UN FAO estimated the use value of wood stumpage at € 59.9 million for all timber assortments sold. A UN-FAO survey for Serbia determined that fuel wood consumption from forests amounted to some 8.7 millions m^3, which is significantly higher than officially recorded. Using the weighted average price, the value of wood production in Serbia would be 153.5 million € (Rekola et al., 2007).

Increment in the wood stock

The wood stock increment is measured as the difference between total wood growth and total wood actually used. According to official statistics (SYS, 2006), annual increments amount to an average of roughly 3.3 m^3/ha, thus yielding an approximate total increment of 6.5 million m^3. It must be noted that this figure is based on old data and may be outdated. The latest forest inventory in Serbia was completed in 2007, but the data are not yet available. Nevertheless, applying our calculated average prices yielded a total wood

stock increment of € 112.6 million. In comparison, the expert-based calculation was € 70.9 million whilst the UN FAO-based estimate was € 100.8 million.

Production of non-wood forest products (NWFP)

With its natural diversity and multifarious flora and fauna, Serbia has preferable conditions for the sustainable production and trade of NWFP. Production of NWFP, such as berries, edible mushrooms, fruits, medical plants, game, etc. could thus contribute to the development of the national economy.

In Serbia, the Ministry of Science and Environmental Protection[10] is the regulatory body for NWFP and sets the annual quotas governing the collection of protected species. In addition, the IPN is responsible for implementing and monitoring the applicable regulations as it is the official state organisation responsible for nature protection.

In terms of quantity and value, the economically most important plant and animal species are: the boletus mushroom *(Boletus edulis)*, fox mushroom *(Cantharellus cibarius)*, bilberry *(Vaccinium myrtilu),* dog rose *(Rosa canina)*, elder *(sambucus nigra)*, snails *(Helix pomatia, Helix aspersa, Helix leucorum)* and beluga caviar *(Huso huso)*. These seven groups of products contributed 93% to the collected value of NWFP. All other NWFP categories accounted for only 7% together, whereas their combined share of the total NWFP value is less than 1% (IPN 2008 and personal interviews).

Using official data, the total value of Serbian NWFP amounted to € 5.26 million. The UN FAO study estimates the total amount at € 5.5 million, of which € 4.4 million is for commercial market use and the remaining € 1.1 million is for personal consumption. Expert estimation leads to a value of € 9.62 million.

In calculating NWFP values, the extraction costs were not taken into account. When extraction costs are considered – calculated by including the value of time for collection and picking at the average Serbian wage rate (2.25 €/ha) – the in situ (or "stumpage") value of NWFP would be negative.

This result can be explained from two different points of view. Firstly, the collection of NWFP in Serbia is an activity generally performed by persons who are officially unemployed or persons who have a part-time job. In both cases the opportunity costs are close to zero and this amount can be assumed to be the cost of extraction. The UN-FAO study assumed a wage rate of 25% of the average Serbian wage and a total time of approximately 7.8 million hours. The extraction costs were thus estimated to be € 4.4 million. In the second approach, the collection of NWFP is interpreted as a social activity and as recreation time. For example, in some parts of Serbia, NGOs organise

10 In the current government Ministry of Science and Environment Protection is divided in two ministries, Ministry of Science and Technological Development and Ministry of Environment and Spatial Planning. The latest is nowadays responsible for NWFP.

practical seminars on collecting mushrooms and the participant are persons interested in social contacts and recreation. However, these activities have a minor impact on overall NWFP collection.

According to the official data, it can be concluded that the quantity of collected and commercially traded protected species decreased during the past several years, with only the bilberry quantity increasing. However, the IPN has estimated that a large quantity of these species is also collected without registering (IPN 2007). With respect to the total market volume, it is estimated to be at least on the quota level, with the total consisting of a partial share for the domestic market and a share for export. The personal interviews conducted with farmers further supported the institute's figures.

The total annual production of honey in Serbia amounts to approximately 4,000 tonnes and shows an upward tendency, despite a relatively low and stagnant level of productivity. The predominant selling price is approximately 2.5€/kg whilst the farm production costs are estimated to be as high as 2.0€/kg. Subtracting marketing costs of approximately 0.25 €/kg results in a net value of 0.25€/kg. According to official statistics, the gross value of honey production thus amounts to € 10 million and the net value to € 1 million, whereas the UN-FAO determined a gross value of € 7.4 million and the net value close to zero.

Neither of the above figures includes the value of honey's production derivatives, such as wax and medications. However, experts estimate that these derivative products add approximately 10% in value. As a result, the total value of honey increased to € 11.0 million gross and € 1.1 million net when taking into account expert opinions.

Services

Hunting is probably one of the best organised subgroups in the NWFP sector, especially in fenced areas. However, most hunting areas currently operate at a low level of profitability, or even at a loss.

Under provisions of the national hunting law, Serbia is divided into 321 hunting areas. The Hunting Association of Serbia (HAS) manages forest hunting areas as well as all of the other land categories used – even those lands which are state or privately owned property.

All game in Serbia is considered state property and thus is only managed by the various hunting units, all of whom are HAS members. Hunting units do not pay taxes to the state, but they are responsible for the proper management of wild animals. In the event that wild animals damage private agricultural property, the units must pay compensation to the owners for the damages.

Units which manage hunting areas provide annual reports on their activities, income and expenses. Using the available official data, we calculated the use value for hunting to be approximately € 14.1 million in 2007.

Experts estimate that illegal hunting exists for both large and small game. The value of illegal hunting should be at least € 0.1 million, and thus the value of hunting amounts to € 14.2 million. The UN FAO estimate is € 13.6 million.

Recreation value

In practice, a wide variety of recreation activities are available for consideration. The total estimated value for recreation was taken directly from the UN-FAO study and amounts to € 80 million. This figure includes only the direct costs for any equipment used in recreation activities as the time costs are not taken into account.

Indirect-use values

Indirect-use values can be taken from the existing literature or be based on other countries' estimates. Specifically, indirect-use values include the role of forest areas in watersheds, flood protection and erosion control, as these functions contribute to increasing the value of agricultural land. Comparative values in the UN-FAO study were provided for Croatia (10 €/ha) and Greece (45.2 €/ha). For Serbia, the UN FAO calculated a value of € 67.2 million.

In the UN-FAO study, the carbon sequestration estimate is based exclusively on available incremental data for wood from forestry land under the assumption of a 20 €/t unit price to arrive at the carbon sequestration value. For Serbia, the study thus calculated a total carbon sequestration estimate of € 40.8 million.

Non-use values

There are different reasons for non-use values. In principle it is difficult to break down all non-use values into categories. The UN FAO estimated the forest conservation value at € 4.8 million (2.0 €/ha unit value). To calculate the potential pharmaceutical value, a unit price of 5.3 €/ha of total forest land was applied, yielding a total value of 12.7 million €.

Conclusion

Serbian forests cover approximately 25.6% of the country's area. State-owned forests make up 56% of the total forest area whilst the remaining 44% is privately managed. The direct contribution of forests to the Serbian GDP amounts to 0.54%. Importantly, official statistics do not include all benefits of forests and forestry. For example, existing data indicate an annual increment of 3.3

m^3/ha in the wood stock, which appears relatively low. The latest forest inventory in Serbia was completed in 2007, but the data are not yet available.

Our estimate of the total economic value (TEV) of Serbian forests was calculated using various data sources and expert opinions. Depending on the specific assumptions and unit prices that were taken into consideration, the TEV of Serbian forests amounted to a minimum of € 201.5 million in 2007. However, with all potential benefits factored in, the TEV increased to € 385.3 million. The category contributing most to the TEV was wood production (42%), followed by the sum of the indirect-use benefits, namely watersheds, erosion control and carbon sequestration (28%), and then services (24%) including hunting and recreation; whereas NWFP are only of marginal importance. In conclusion, in terms of total economic value the contribution of Serbian forests and forestry to GDP amounts to approximately 1.3%.

References

Forest Management Plans (FMP) 2007.

Forestry Development Programme, UN FAO Serbian Forest Valuation (UN FAO).

The Institute for the Protection of Nature – Internal Data on NWFP, (IPN, 2007; IPN, 2008)

Kengen S., 1997, *Forest Valuation for Decision Making. Lessons of experience and proposals for improvement;* Food and Agriculture Organization of the United Nations, Rome, ftp://ftp.fao.org/docrep/fao/003/W3641E/W3641E00.pdf

PE „Srbijasume“, 2007

PE „Vojvodinasume“ 2007

Personal interviews: Berislava Ilic, Institute for the Protection of Nature; Forest Directorate Serbia - Predrag Jovic; Personal interviews with farmers (Interviews).

Rekola M., Stamatović S, Petrović N., 2007, *Study on Forest Valuation and Financing in Serbia,* UN FAO Rome, http://www.forestryprojectserbia.org/PDF/srpski/strucni-izvestaji/serbian_forest_valuation_150108_srpski_rev.pdf.

Statistical Office of the Republic of Serbia, 2008, *Statistical Yearbook of Serbia* (SYS), (SYS, 2006; SYS, 2007).

Zaric V., 2008, *Analiza konkurentnosti poljoprivredno-prehrambenih proizvoda Srbije,* Poljoprivredni fakultet Beograd.

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* The work was supported by the János Bolyai Research Fellowship of the Hungarian Academy of Sciences

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Attitudes amongst farmers in Eastern Hungary and the East of England towards environmental, economic and social sustainability in a changing countryside

Abstract: *Globalisation, climate- and demographic changes, as well as the current global financial crisis, are likely to have a strong influence on the future of the Common Agricultural Policy (CAP). These processes are closely related to the three dimensions (environment, society and economy) of sustainable development. Farmers across the EU are experiencing a period of change and uncertainty caused by changes to the CAP and compounded in the case of Hungary by EU accession. Theory suggests that the business development strategies of European farming households should be based on multifunctionality, diversification and pluri-activity. However, the farming community is not normally recognised for its ability to embrace change and in some regions support structures have been put in place to assist farmers to make the necessary transition. One such example was the „Agricultural Development in the Eastern Region" (ADER) project which was implemented in the East of England between 2000 and 2007 with the aim of helping farmers to identify new opportunities and develop alternative business approaches. In late 2006 and early 2007 ADER conducted a questionnaire survey amongst its clients on their attitudes towards environmental, economic and social sustainability in the light of probable future developments in agriculture, particularly with respect to CAP funding. For almost five years there has been increasing collaboration between rural development researchers in East of England (EE) and eastern Hungary, resulting in the establishment of an informal*

partnership called the Cross-Border Centre of Expertise in Rural Development (HVTK). In early 2008, the ADER questionnaire was translated into Hungarian and distributed to farmers in the Northen Great Plain Region (NGP). This paper compares the attitudes of farmers in the two regions to sustainability in the light of anticipated changes in agriculture.ding the mix of policies which will best support the nation's forests in the future.

Keywords: *attitudes amongst farmers, CAP, diversification, multifunctionality, sustainable development*

Introduction

Sustainability is a horizontal, cross-cutting principle in European Union policies. When sustainable development is an objective to be achieved - at global, national, regional, local, branch and farm levels - it is desirable to establish the harmonisation of environmental, social and economic goals. In our view, **sustainability means a long term, sustained harmony between the economic, social and environmental dimensions.** The problem is that one of the three components depends on the rules of the economy and the global market, whereas social (political) considerations have a decisive impact on the other two – but not independently of the economy (Szabó and Katona-Kovács 2008).

The introduction of the paper structured in five parts. The first three follow the dimensions of sustainable development; the fourth tries to collect information which shows the possibilities for the future changes and the last outlines the hypothesis behind our work. In the introduction those facts and characteristics of agriculture in the two countries are collected which are important regarding the survey we carried out and the conclusions of our work.

The main statistics of agriculture in the UK and Hungary are presented on the basis of Eurostat data (Eurostat 2007a). These provide an insight into the statistics from the Farm Structure Survey (FSS) in the two countries for 2005. The data in Table 1 focus on holdings of at least 1 European Size Unit (ESU).

Table 1. Data from holdings of at least 1 ESU, 2005

Indicator	UK	HU
Number of agricultural holdings (in 1000)	183.4	155.4
Labour input (1000 AWU)	289	512
Average UAA/holding (ha)	37.6	26.0
Utilised agricultural area(1000 ha)	14961.6	4045.3
Arable land (1000 ha)	6042.9	3445.5
Permanent pasture (1000 ha)	8884.9	454.6
Permanent crops (1000 ha)	33.8	140.5
Total livestock (in 1000 LUs)	14273.8	2104.5
GVA at producer prices (million €)	7667.0	1945.5
Overall subsidies (million €)	4250.4	1000.4
Other gainful activities (in % of total holdings)	27.1	13.3

Source: Eurostat 2007a

On the other hand the role of holdings below 1 ESU regarding the sustainable future of rural areas is important as they use a high percentage of the total regular labour force, especially in Hungary, so some available data from these farms are also presented (Table 2).

Table 2. Data from holdings below 1 ESU, 2005

Indicator	UK	HU
Number of holdings, % of total	36.1	78.3
Regular labour force (person), % of total	26.2	71.0
Regular labour force (AWU), % of total	14.2	51.3
Agricultural area (ha), % of total	6.2	5.2
Livestock (LU), % of total	0.4	15.6
Holders 65 years old and older %, of total	36.4	29.7
Holders with other gainful activities %, of total	44.4	38.9

Source: Eurostat 2007a

The core factor of sustainable development is dynamic and harmonised development in economic and financial terms, the major indicator of which is the stable and optimal growth rate of GDP (Szabó and Katona-Kovács 2008). The percentage of GDP represented by agriculture has declined substantially in the last decade, from 1.8% to 0.9% of GDP in the UK between 1995 and 2005, and from 6.7% to 4.3% in Hungary during the same period (Eurostat 2007a). The **role of agriculture in the economy** is however much higher if we take the whole agribusiness sector into account.

Agrifood markets and **supply chain structures** are changing in dynamic and unprecedented ways (Vorley and Proctor 2008). Market liberalisation, changes in consumer preferences and purchasing power and modernisation of food processing and retailing – including the rise of supermarkets and globa-

lisation – are primary drivers of change. It can take developing and transition economies (including Hungary) as little as ten years to reach the levels of agri-food market restructuring that took five or more decades in Western Europe (including the UK) or North America. As a result of the land ownership reforms, currently in the Central European Countries (CEC) there is a mixed farm structure including various combinations of relatively large scale and large number of small farms (Csáki and Forgács 2008), while family farms of increasing average size are dominant in Western Europe. How farmers with different background can find their role in the supply chain is very important as the gap between different parts of the sector seems to be growing. These are also stated in a whole food chain analysis produced by the UK Department of Food and Rural Affairs (Defra), which shows that the difference in average GVA per employee is three or four times higher in some sectors e.g. food manufacturing than in farming (Defra, 2007).

The **structure of CAP support** affects the patterns of agricultural production and farming practices which, in turn, determine the environmental impact of agriculture. Price support and subsidised prices for inputs such as fertilisers, pesticides, water or energy have generally encouraged higher production and led to intensification of agriculture. Compensating farmers with more direct income support, such as area payments, or conditional payments requiring set-aside or agri-environmental measures, may benefit low-income farmers or those with less intensive production methods (EEA 2001). In the early years the CAP focused on increasing agricultural productivity and one of the main strands of support has been on the use of intervention prices to maintain producer prices above world levels. Price support addressed three major regimes: cereals, beef and dairy, and resulted in changes in crop and animal production structure.

Climate change can also affect the structure of production in the long term. The potential positive impacts of climate change on agriculture in general are related to longer growing seasons and new cropping opportunities in northern Europe, and increased photosynthesis caused by higher atmospheric CO2 concentrations throughout Europe. These potential benefits are counterbalanced by potentially negative impacts including increased demand for water and periods of water deficit, increased pesticide requirements and crop damage, and fewer cropping opportunities in some regions in southern Europe. In general, changes in atmospheric CO2 levels and increases in temperature are changing the quality and composition of crops and grasslands and also the range of native/alien pests and diseases. These may affect livestock and ultimately humans as well as crops. In addition, the increase in ozone concentrations related to climate change is projected to have significant negative impacts on agriculture, mainly in northern latitudes (EEA, 2008).

The expansion of agricultural production can be achieved by expanding the land area under production (especially for crops and beef cattle), raising crop and livestock yields through technological improvements, or a combination of both. Based on trends in farm production and land area over the period 1990-92 to 2002-04, OECD categorised countries into four broad groups:

Group 1: Increasing production and expanding land area
Group 2: Increasing production, but on a reduced or near stable land area
Group 3: Decreasing production and land area
Group 4: Decreasing production, but on an expanding land area

Grouping countries in this way helps to identify the implications for the environment. Both the **UK and Hungary belong to Group 3.** The difference is that for the UK, the input levels until now have been above the OECD average whilst for Hungary agricultural production levels and input use fell sharply following the transition to a market economy in the early 1990s, although as these countries moved towards EU membership in the late 1990s production levels and input use began to rise (OECD, 2008). Examining indicators which form part of the driving forces group inside the DSR (driving forces –state – response) model, the pressure of agriculture on the environment in HU and in the UK compared to the EU-15 in 2000 is illustrated in Figure 1.

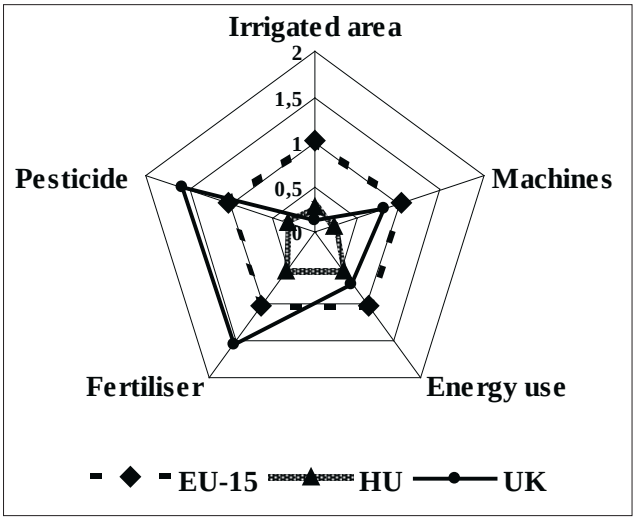

Figure 1. Driving forces related to the EU-15 average in 2000
Source: own illustration on the basis of OECD (2002) data

Farm management practices are characterised from the response indicators of the OECD DSR model. Around 7 million hectares (44% of the 15.8 million hectares UAA) of farmland in the UK (Defra 2007) and 1.5 million hectares in Hungary (25% of the 5.9 million hectares UAA) (Katona-Kovács 2007) are managed under **agri-environment schemes**. The share of organic farming area in the total UAA was 4.59% in the UK and 1.77% in Hungary in 2002 (EEA 2005). The survey results in Hungary of Kormos-Koch (2007) indicate that the establishment of environmentally conscious agriculture requires extended participation in agri-environmental programmes and financial subsidies, because the findings show that among farmers **environmentally conscious behaviour** is not particularly ingrained.

Table 3. Labour force in agriculture (1000 AWU)

	1995	2000	2005
EU-25	:	10540	9310
EU-15	7209	6529	5797
UK	391	334	299
HU	780	676	521

Source: Eurostat (2007a)

The farm workforce in the EU25 is getting increasingly older (SERA, 2006). The size of the labour force in agriculture is decreasing (Table 3) and there is no indication that this trend will change. On the other hand, in the CEC countries **holdings below 1ESU** still account for a significant share of the total number of farms, although they play an important social rather than economic role. Over 38% of the holders responsible for a small unit in the EU-27 were at least 65 years old, 29.7% in HU and 36.4% in the UK (Eurostat 2007a). Data from the SERA study (2007) show that the proportion of young people under 35 in agriculture rises with increasing size of family farms (16% on holdings with less than 5 ha and 24 % on holdings with more than 50 ha in the EU15). In Hungary the number of holdings under 2 ESU is over 700,000 (90% of total holdings), but their economic contribution is small, as their share in Standard Gross Margin is 23%.

As a result of **liberalisation** of the world agricultural market European farmers face the problem of cheap products from different part of the world. The European Agricultural Model, which emphasises **multifunctionality** of agriculture, tries to address this problem. Huylenbroeck et al (2007) state that, in the broadest sense, multifunctionality of agriculture includes four kinds of functions provided by agricultural enterprises:

1. The green functions consist, amongst others, of landscape management and the upkeep of landscape amenities, wildlife management, the creation of wildlife habitat and animal welfare, the maintenance of biodiversity, improvement of nutrient recycling and limitation of carbon sinks.
2. Other public benefits that can be created by agriculture are the blue services and contain water management, improvement of water quality, flood control, water harvesting and creation of (wind-) energy.
3. Yellow services refer to the role of farming for rural cohesion and vitality, ambience and development, exploiting cultural and historical heritage, creating a regional identity and offering hunting, agro-tourism and agro-entertainment.
4. Finally, many authors acknowledge the white functions produced by agriculture, such as food security and safety.

Bearing in mind the consumers' needs in Europe nowadays, these functions are on their list. The green, blue and white functions have close relationships with the environment dimension of sustainability, and the yellow one with the social dimension.

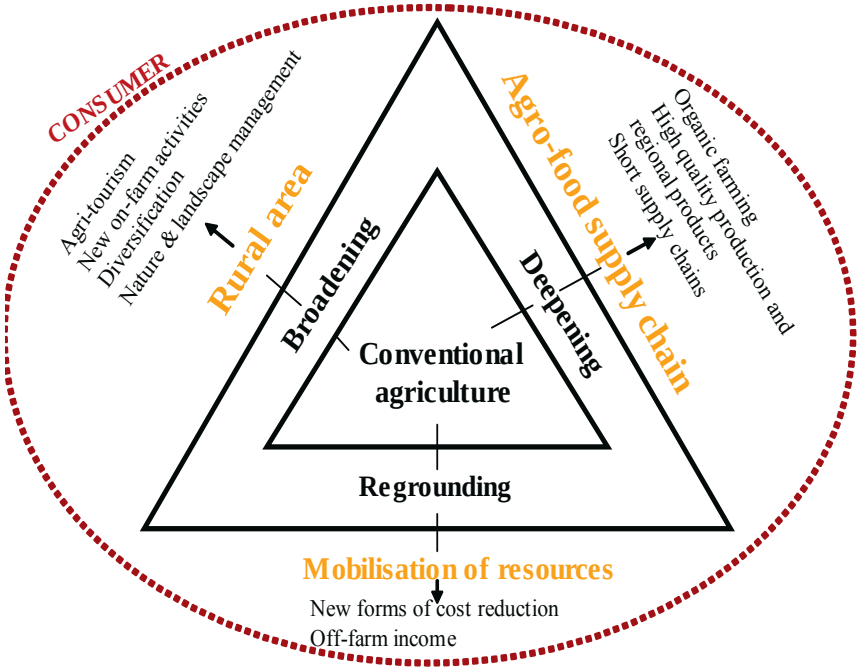

Figure 2. Possibilities for conventional farmers for change
Source: Ploeg and Renting (2004) completed with the consumer circle by the authors

Conventional farmers, especially those with small ESU, must find new ways in which they can meet the new demands of the consumers. Ploeg and Renting (2004) describe three ways to shift (Figure 2). Farmers must be aware of the resources at their disposal and make decision which way to move.

The questionnaire carried out between farmers in the two regions of the UK and Hungary aimed to compare their attitudes in the light of the above expected changes in agriculture, along the three dimensions of sustainable development. Our "null hypothesis" was that we will detect no differences in attitudes between farmers in the two regions, although in fact there are a number of factors which suggest that significant differences are in fact likely to exist.

Methodology

The questionnaire was designed by drawing upon the experience of the ADER officers working in the rural sector everyday (Murphy 2007). The main issues that keep arising were highlighted and condensed into 18 statements (the statements and primary results of the survey are in the Appendix) to which each participant had six choices in how they answered; strongly agree, agree, neither agree nor disagree, disagree, strongly disagree and not applicable. A five point Likert-scale was chosen due to its simplicity in regards to compiling and inputting the data into a statistical package. Age, gender, county of resi-

dence, membership of environmental groups in the case of East of England, and size of the farm in the case of Hungary were also requested to allow deeper analysis of the results. The design of the questionnaire had two aims; to be quick and easy to complete and to create a personal and emotional reaction within the individual which would provoke an opinion on each statement. The questionnaire was restricted to one side of A4 paper and 18 statements. These were designed to be extremely relevant to each farmer and were based around current and future **environmental, economic and social issues** about which a farmer would be likely hold a private personal opinion but would perhaps not regularly articulate.

In England the data were mostly collected at ADER events because these provided quick and widespread access to farmers in the industry. In Hungary the data were collected different ways: HVTK posted the questioners to farmers in the region, data were collected at the Farmer Expo in Debrecen and also students from the Faculty of Agricultural Economics and Rural Development were asked to collect data from their family or neighbours working in agriculture. 377 questionnaires were collected in England and 105 in Hungary. Once the questionnaires had been returned, the data were manually inputted into a SPSS computer package. The UK data were cross-tabulated by age, gender and the Hungarian data also by the size of the farm to find significant relationships in the sample. This was done by SPSS as was the calculation of the Mean and the Standard Deviation. The cross-tabulated results were then tested for significance by using the Chi² test at the 5% level of significance.

As the aim behind this survey was to assess the feelings and opinions of farmers, it was felt that farmers were qualified to interpret the results of the survey. Therefore the results were put in front of focus groups who were simply asked to discuss the results that they found interesting.

Results

In both regions the percentage of women who participated in this survey was quite low (14%) and the highest number of participants were from the age group 36-55 years old. Actual percentages were as follows: 18-35 years old: 16% (HU), 20% (UK); 36-55 years old: 61% (HU), 50% (UK); over 56 years old: 23% (HU), 30% (UK). The share of questionnaires did not represent the Hungarian farm structure, as farmers with farm size between 10-50 ha represented the highest percentage of the participants (≤5 ha 8.9%; 5<-10 ha 12.9%; 10<-50ha 42.6%; 50<-100 ha 14.9%; 100< 20.8%), while farmers with less than 5 hectares give the highest number of Hungarian holdings (Vásáry-Osztrogonácz 2008).

Ranking the statements according to those with which farmers agreed most, four from the first five were the same in both countries. These were:

S18. Over the next ten years, learning and taking advantage of new information will be critical for successful management

S5. I am planning ahead with an eye on market trends and opportunities

S7. I am willing to change my farming to satisfy customer needs
S17. I'll continue to manage environmental features (field margins, hedgerows, etc.) even after EU funding ends

For the following statements the differences between the means of countries were above 0.5 resulting in a difference between agreement or disagreement between the countries (Appendix):

S2. In the management of my farm, I don't distinguish between the landscape and production (1.8)
S8. There are too many competing update events for farmers to attend (1.2)
S4. I cannot afford to change the way I farm (1.0)
S9. The next generation is actively involved in the long-term business decision making on the farm (0.6)

Gender

No significant differences were observed between the opinions of men and women in this survey. On the other hand, there were similarities between genders in the statements of the two countries. S1 *Compared with last year I will invest more capital in my business next year.* 43% in UK and 73% in Hungary of men agreed or strongly agreed with this statement compared to only 32% of women in the UK and 43% in Hungary. S7 *I am willing to change my farming to satisfy customer needs.* 87% in UK and 88% in Hungary of men agreed or strongly agreed with this statement compared to only 65 % of women in the UK and 64% in Hungary.

Age

A number of significant differences were noted between the age categories in relation to certain statements in England. In Hungary there were some differences between the three age categories in the case of two statements (S6 see Figure 3; S14 see Figure 4), but these differences were not significant (level of significance p=0.084 for S6 and p=0.12 for S14). One reason for this is the lower number of questionnaires in Hungary.

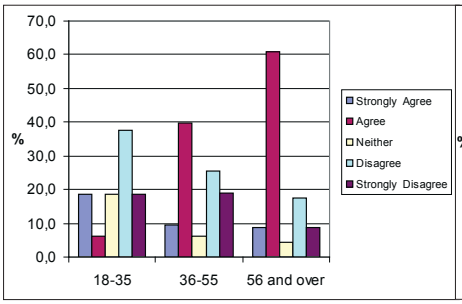

Figure 3. S6 HU

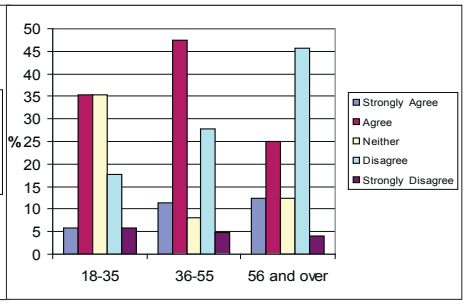

Figure 4. S14 HU

Farmers in England who were 56 years old and over were more likely to agree with statement S8 *'There are too many competing update events for farmers to attend'* than younger farmers (Figure 5, $p<0.05$). This was not the case in Hungary (Figure 6. $p=0.450$). In Hungary farmers from different groups rather disagreed with this statement. The mean was 4.0 in Hungary and 2.8 in UK.

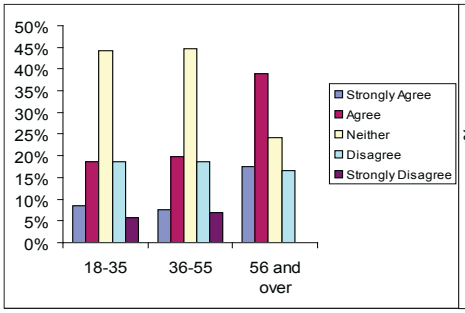

Figure 5. S8 UK

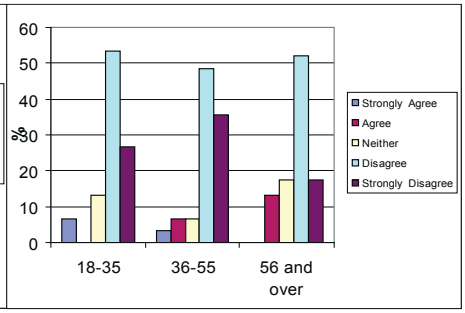

Figure 6. S8 HU

Farmers who are 56 years old and over tended to agree less with the statement S12 *'There is a soil erosion problem across the country'* and disagree more with it than younger farmers (Figure 7, $p<0.05$). In Hungary there was stronger agreement with this statement, the mean was 2.3 (c.f. 2.8 in UK) and farmers who are 56 years old and over agreed more with it (Figure 8, $p=0.903$).

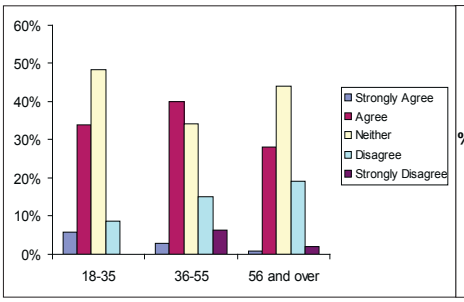

Figure 7. S12 UK

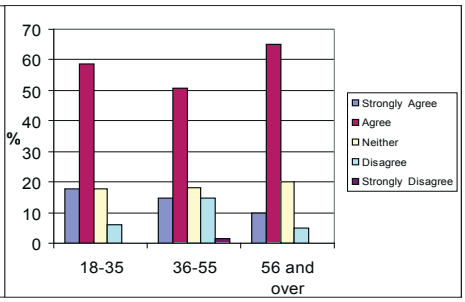

Figure 8. S12 HU

Farmers who were 56 years old and over tended to agree less and disagree more with statement S15 *'Farming in the 21st century will focus more on environmental management than food production'* than younger farmers (Figure 9). This was a just significant relationship ($p<0.05$). The most common answer was agree or neither agree nor disagree in each age group in the case of Hungary (Figure 10, $p=0.43$).

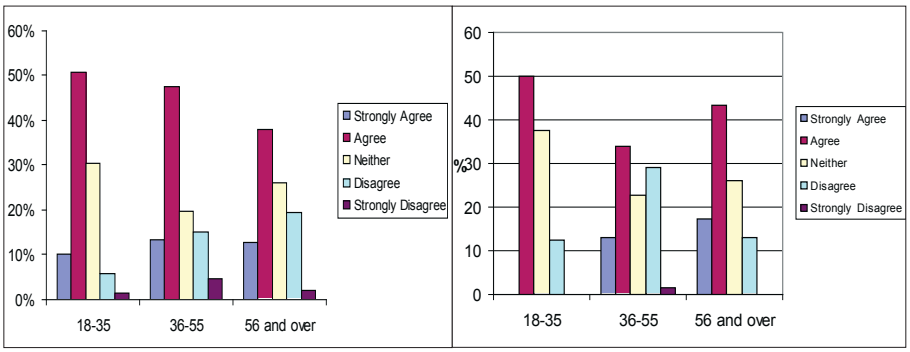

Figure 9. S15 UK

Figure 10. S15 HU

Farmers in the 36-55 age group disagreed more with the statement S16 '*I believe strongly farming is only about production of commodity foodstuffs'* than the other two age groups (Figure 11, $p<0.05$). Farmers in the 36-55 age group also disagreed more (Figure 12, $p=0.14$).

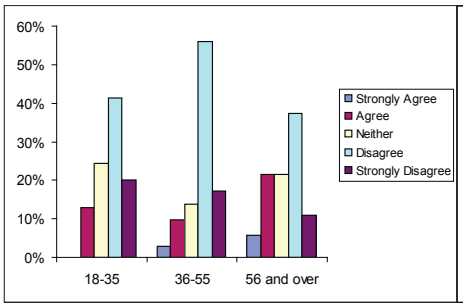

Figure 11. S16 UK

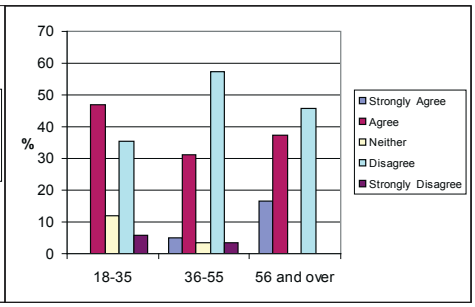

Figure 12. S16 HU

The farmers emphasised at the focus group meeting that their feeling is that the answers in the case of some statements differ depending on the size of the farm.

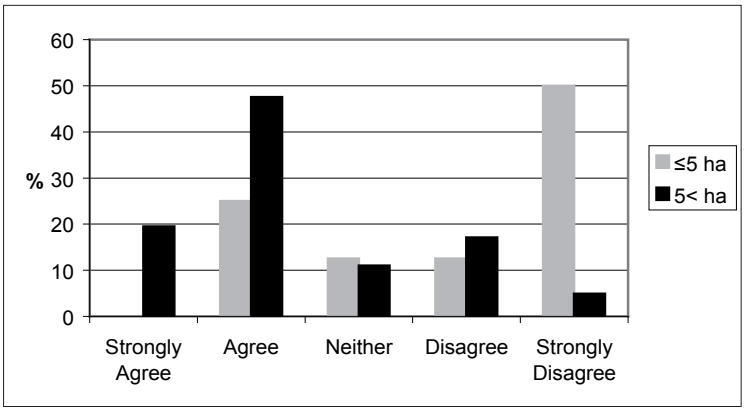

Figure 13. Responses by farmers in Hungary to statement S9 based on farm size.

Although because the low size of the sample in Hungary significance could not be shown, the farmers' opinion was underlined (Figure 13) by the responses to statement S9 *The next generation is actively involved in the long-term business decision making on the farm.*

Discussion

The statement-by-statement conclusions of the focus groups are used as the basis of our discussion.

S1. *Compared with last year, I will invest more capital in my farm business next year.* Focus groups from both countries stated that **age has an important role regarding investment,** as to see the return takes years. The members of the UK group were not sure that farmers are confident to invest for the long-term any more. In Hungary it was added that mainly those who applied for **EU subsidies** and have farms over 50 ha invest in farming. In the questionnaire, 80% of **farmers over 50 ha** agree or strongly agree with this statement, while this figure is 64% in the case of farmers under 50 ha.

S2. *In the management of my farm, I don't distinguish between the landscape and production.* We should note that the translation of the English version into Hungarian was in some cases difficult, to make it clear and understandable for Hungarian farmers. Even the UK focus group found the use of the word 'distinguish' difficult to define. This statement was translated into Hungarian as follows "I take care of landscape and production in the same way." In Hungary farmers said that they take the same care as a **consequence of subsidies.** The UK group believed that the **landscape/production dilemma is being driven by EU policy**. Younger Hungarian farmers added that they think smaller farms take more care, while larger farms are interested rather in the profit. They think that farmers today feel more responsibility for nature. English farmers did not believe that farmers distinguish between landscape and production as farming has always been a mixture of both. While the group conceded that some farmers are focussed solely on production, they believed that most people farming for the long-term want to manage both landscape and production correctly. The group felt that farmers need to get more people out on to farms and that school students should be educated about farming. An example of this from Belgium is the Network of West Flemish Visiting Farms (www.onthaalopdeboerderij.be) whose members host visits by schools and other groups (Fieldsend and Boone 2007).

S3. *I'm confident I can farm successfully after 2012 with no government support payment.* Hungarian farmers said they **cannot farm without support** because of input prices. They were sure that there will be support as there always were support behind farming even before joining the EU. Young farmers added the **problem of the supply chain;** there is not the same profit at different stages and if the balance were be better than may be they could farm without subsidies. There is still the problem of too many small farms. UK

farmers agreed that subsidies are also still being too heavily relied upon by many farmers. The group was surprised to see that some farmers had actually strongly agreed with this statement. It was suggested that these were probably farmers **who had decoupled completely from production** and were getting their income from alternative enterprises. It was also suggested that the large number of people disagreeing with this statement was due to **most farm incomes still being heavily reliant on production** and if this remains the case, then the group felt that most farms who have not diversified probably won't survive after 2012. When they were investigating the appendices it was noted that 38% of Essex farmers agreed with this statement compared to 29% in Cambridgeshire etc. The group believed this was because Essex farms enjoyed **higher land prices** due to development opportunities and that the **location** of Essex farms **in relation to urban areas** offered more opportunities in general.

S4. *I can't afford to change the way I farm.* Both the UK and Hungarian groups feel there is an **age issue** in this statement. Older people are not inclined to change but younger people can because they are not tied to the past. But **there is a risk** as these days young farmers can't afford to make mistakes because **margins are so tight.** Hungarian farmers said that the capital behind farming is difficult to move, and they do not see other possibilities which are better. Some in the group felt that **women** don't affect the core farm business but do **have a large impact on diversifications.** Farm diversifications are a different business from farming. The female participant was inclined to disagree. The group feel that they are at the **wrong end of the supply chain** as the middlemen make all the money. They felt that **farmer markets are a joke** in England as many of them are only held once a month, they can hardly be expected to be serious competition compared to the volumes that supermarkets sell daily.

S5. *I'm planning ahead with an eye on market trends and opportunities*. Hungarian farmers said this is obvious as this is how the economy works. On the other hand the UK group **did not believe that farmers are good marketers,** they felt that a farmer can't be everything. They noted that **farmers are locked into their production systems** and it is not easy to change. Young Hungarian farmers added that they think market is not transparent.

S6. *I can easily obtain the advice and information I need to develop my farm business.* Farmers in both countries agreed that there is **no problem with information flow.** In Hungary those, mainly small, farms who do not have IT access are less informed. The UK focus group highlighted an issue about the wording of the statement. They felt that most farmers interpreted the statement in **relation to access to production advice**. They believed that this sort of advice is easily accessible but if someone requires advice on **developing an alternative farm enterprise or income stream** then it is a nightmare to get the help they really need.

S7. *I'm willing to change to satisfy customer needs*. The Hungarian group said theoretically farmers are ready, but in practice they think this is missing, and Hungarian farmers are **"not good at the markets",** are not well informed about it. Small farms are not prepared and the animal welfare institutions are against them. The result in the UK was similar as on the one hand the focus group agreed with this statement as they felt it was a case of necessity, but they believed that the stable period of the past, especially in regards to wheat production, had resulted in **farmers losing touch with consumers.** The group was unsure if the word customer in this statement should be interpreted as their grain merchant or a food consumer. They did not consider Tesco to be a customer because there are so many different components in the supply chain that the link is lost. Some farmers are trying to close the gap but others say it involves too much cost for too little benefit. They also believed that farmers have lost the trust of consumers when **quality assurance schemes are mismanaged** and that many consumers have lost confidence in the safety of their food. The group states that changing is fine if you believe that the **customer is backing you**. But the group did not seem to believe that they had that backing. Tesco is using environmental benefits as an edge to get customers in. The group believe that customers are not actually asking for this and that **supermarkets are misleading customers because the farmer on the front of the package has no relation to the food inside the package.** The group pondered as to would it be better if all farmers in Europe were tied to the same quality assurance scheme? This would create a level playing field. The group was upset as they believe that they are disadvantaged by having to adhere to **costly higher welfare standards while still having to compete on price with inferior products imports.**

S9. *The next generation is actively involved in the long-term business decision making on the farm.* This statement had higher importance in Hungary. On the other hand also in Hungary it was a statement **with the highest percentage giving not applicable answers.** Hungarian farmers said that it depends from the size of the farm, aligned with the results of the SERA project (2006, 68). Where the farm is big they take part only in the leading, the management and not in the field work. Where the farm is small they see only the hard work, so they look for other possibilities and when they do not find they carry on farming.

S10. *The public is a barrier to my farm business developments.* In the Hungarian version the translation was, those living around the farmer, not the public. So they asked who we understand as these people. Neighbours were mentioned as barriers, complaining about different things such as "smell", mainly in the case of small farms.

S11. *Soil erosion is not a problem on my farm* and S 12 *There is a soil erosion problem across the country.* Farmers in both countries felt that this was not a big problem.

S13. *Climate change will affect my business.* Climate change will always be a problem but as it is very difficult to predict the future it is also difficult to plan ahead.

S14. *Diffuse pollution is a major issue for farming.* While in the UK the first idea on this statement was fertilizer, Hungarian farmers mentioned the problem of plastic. Farmers were of the opinion that much of the pollution today comes from non-farming activities. It is an issue but not only the fault of farming. Farming practices have changed dramatically in recent years due to fear of consequences in regard to regulations and also from litigation. Also the high cost of fertilizers means that farmers don't want to waste it in run-off.

S15. *Farming in the 21st Century will focus on more on environmental management than food production;* S16. *I believe strongly farming is only about production of commodity foodstuffs.* Farmers from both countries **disagreed with S15** because the population will still need to be fed. They said they have to produce feed for the population of the Earth, of course taking care of the environment. **EU funds** inspire to focus more on environment. The UK focus group said they strongly believe that the **landscape cannot be paid for and sustained without profitable food production.** The environmental agenda is being taken over by carbon footprints, **food miles** etc. They believed there will be a **shift away from imports** and that each country will have to learn to feed itself and that this will be good for UK farming. The group believed that climate change issues will be integrated more with food production. They strongly believed that the environment won't survive without food production. They believe that at the moment **farming systems are polarising between large commodity producers and niche market farmers.** If **large commodity producers** keep getting bigger by buying land from farmers leaving the industry, then this will **significant impact on the landscape**. If outside bodies keep having too much influence on agricultural practices then more farmers will have to sell up resulting in farms getting bigger but not better.

S17. *I'll continue to manage environmental features (field margins, hedgerows, etc.) even after EU funding ends.* Hungarian farmers thought **funds will not end.** The question is to whom, what and how to produce?

S18. *Over the next 10 years, learning and taking advantage of new information will be critical for successful management.* It is very important. The technology and science will not stop, improvements have to be known if we want to be competitive and among the leaders.

Conclusion

We conclude that our "null hypothesis" was not correct. Although farmers in the two regions have many attitudes in common, some clear differences exist.

Regarding statements on the environment, there is often a difference between stated and real behaviour (Kormos-Koch 2007). It can be an answer why farmers in both countries agreed with S17. Focus groups think that the answers on the environment issues are the result of the effect of CAP and its subsidies. Although maintenance of the environment is seen by academics and decision makers as a major component of multifunctionality of agriculture which deserves to be valorised, farmers in the UK already consider this to be an integral part of food production. One reason why in the case of Hungarian farmers environmentally conscious behaviour is not particularly ingrained (Kormos-Koch 2007), can be that they have been owners of the land from a shorter period. Hungarian farmers may attach more importance to EU subsidies as a driver to maintain the environment.

Farmers are aware of the importance of customer demand, but even in the case of the UK they feel themselves far from customers and they think do not have the knowledge on marketing. They said that the information they get is on conventional agriculture and not on the new ways to reach customers (Figure 2.). NGP farmers feel less able to afford to change the way they farm and are less inclined to agree that adequate advice is available. These differences may perhaps be ascribed to lower farm capitalisation, fewer local urban markets, a genuine lack of advice, and attitudes conditioned under the former economic and political system in Hungary. Kovács (2008) states that the success of farmers in Hungary differs, depending on their family's past role in agriculture.

In order to adjust to funding arrangements for agriculture post-2013, farm business diversification is considered to be the most important strategy by the focus groups. This is in line with the results of other research such as the Eurolan project, which underlined the importance of multifunctionality of agriculture (Brouwer et al. 2008). To this can be added pluri-activity, i.e. members of the family spending some or all of their time working off the farm. In this process of application for funds, the role of human and social capital is very important, which also requires adequate local institutions (Gatweiler et al. 2002). Good practices such as ADER can assist with this process.

References

Brouwer F., van Rheenen T., Dhillion S.S., Elgersma A.M., 2008*, Sustainable Land Management. Strategies to Cope with the Marginalisation of Agriculture.* Edward Elgar Publishing.

Csáki Cs., Forgács Cs., 2008, *Observation on Regional Level.* In: Csáki Csaba et al. (eds.), *Restructuring Market Relations in Food and Agriculture of Central and Eastern Europe: Impacts upon Small Farmers.* ISBN 978-963-502-883-2, 29-51.

DEFRA, 2007a, *Agriculture in the UK*, Chapter 7. https://statistics.defra.gov.uk/esg/publications/auk/2007/08%20AUK%202007%20Chapter%207.pdf (accessed October 2008).

DEFRA, 2007b, *Environment,* Chapter 15, https://statistics.defra.gov.uk/esg/publications/auk/2007/16%20AUK%202007%20Chapter%2015.pdf (accessed October 2008).

EEA, 2001, *Indicator Fact Sheet Signals 2001,* Chapter Agriculture, http://themes.eea.europa.eu/Sectors_and_activities/agriculture/indicators/cap/ag09_16.5.01.pdf.

EEA, 2005, *Area under Organic Farming,* (CSI 026), Assessment published Nov 2005, http://themes.eea.europa.eu/IMS/ISpecs/ISpecification20041007132106/IAssessment1116845979277/view_content (accessed October 2008).

Eurostat, 2007a, *Agriculture. Main statistics 2005-2006,* Eurostat Pocketbooks, ISBN 978-92-79-05698-7.

Eurostat, 2007b, *Agricultural statistics. Data 1995-2005,* Eurostat Pocketbooks, ISBN 92-79-02955-X.

Fieldsend A.F., Boone J.M., 2007, *A Practical Guide to Stimulating Entrepreneurship in Rural Areas,* Essex C.C., Chelmsford, UK. 68 pp.

Gatzweiler F.W., Judis R., Hagerdorn K., 2002, *Sustainable Agriculture in central and Eastern European Countries.* The Environment Effects of Transition and Needs for Change, Institutional Change in Agriculture and Nature Resources, vol. 10, Aachen, Shaker, ISBN 3-8322-0366-4.

Katona-Kovács J., 2007, *Analysis of Agri-environmental Measures in Hungary – a Regional Perspective,* Studies in Agricultural Economies, 107, 79-96.

Kormos-Koch K., 2007, *Characteristics of environmentally conscious production behaviour in agricultural waste management,* Studies in Agricultural Economies, 107, 97-108.

Kovács T., 2008, *Gazdaportré* (Portrait with farmers), Agroinform Kiadó.

Murphy J., 2007, *ADER Farm Survey 2006/07,* http://212.219.114.60/documents/ADER%20Farm%20Survey%20complete doc, 51pp., (accessed 14 March 2008).

OECD, 2002, *OECD környezeti adattár 2002. Szemelvények az OECD környezetpolitikájából. Környezetvédelmi és Vízügyi Minisztérium* (OECD environmental indicators).

OECD, 2008, *Environmental Performance of Agriculture in OECD Countries since 1990,* Paris, France, www.oecd.org/tad/env/indicators.

SERA, 2006, *Study on Employment in Rural Areas,* Final Deliverable, Copus et al., Study commissioned by European Commission http://ec.europa.eu/agriculture/publi/reports/ruralemployment/sera_report.pdf (accessed 11 October 2007)

Szabó G., Katona-Kovács J., 2008, *A fenntarthatóság, környezetvédelem és hatékonyság* (Sustainability, Environmental Protection and Efficiency), In: Szerk Szűcs I., Farkasné Fekete M. (eds.), *Hatékonyság a mezőgazdaságban* (Elmélet és gyakorlat), ISBN 978-963-502-889-4, 319-338.

Vásáry M., Osztrogonácz I., 2008, *A közvetlen támogatások implementációjának egyes hazai tapasztalatai* (Some effects of the implementation of direct payments in Hungary), Georgikon Napok, Keszthely, CD.

Vorley B., Proctor F, 2008, *Small-scale Producer in Modern Agrifood Market,* In: Csáki Csaba et al. (eds.), *Restructuring Market Relations in Food and Agriculture of central and Eastern Europe: Impacts upon Small Farmers,* ISBN 978-963-502-883-2, 21-27.

van der Ploeg J.D., Renting H., 2004, *Behind the 'Redux': a Rejoinder to David Goodma,* Sociologia Ruralis, 44(2), 233-242.

van Huylenbroeck G., Vandermeulen V., Mettepenningen E., Verspecht A., 2007, *Multifunctionality of Agriculture: A Review of Definitions, Evidence and Instruments,* Living Reviews in Landscape Research 1(3), Online article Cited 6 December 2007, http://www.livingreviews.org/lrlr-2007-3.

Appendix. Primary results of the survey.

	Percentage								
	Strongly agree (1)	**Agree (2)**	**Neither (3)**	**Dis-agree (4)**	**Strongly disagree (5)**	**Not appli-cable**	**Not an-swered**	**Mean**	**Standard Deviation**
S1. Compared with last year, I will invest more capital in my farm business next year									
UK	5.8	35.5	30.0	15.6	3.7	8.0	1.3	2.7	0.96
HU	8.6	59.0	10.5	15.2	3.8	1.9	1.0	2.5	0.99
S2. In the management of my farm, I don't distinguish between the landscape and production									
UK	1.1	19.1	19.4	29.4	19.1	9.0	2.9	3.6	1.40
HU	30.5	61.0	6.7	1.0	0.0	0.0	1.0	1.8	0.61
S3. I'm confident I can farm successfully after 2012 with no government support payment									
UK	4.5	21.2	22.8	23.3	18.0	8.8	1.3	3.5	1.41
HU	2.9	13.3	13.3	46.7	22.9	1.0	0.0	3.7	1.05
S4. I can't afford to change the way I farm									
UK	3.2	21.5	23.3	30.5	12.7	6.9	1.9	3.4	1.33
HU	15.2	48.6	11.4	20.0	1.9	0.0	2.9	2.4	1.05
S5. I'm planning ahead with an eye on market trends and opportunities									
UK	17.2	61.8	9.0	3.2	1.6	6.1	1.1	2.3	1.22
HU	21.0	66.7	6.7	3.8	1.0	0.0	1.0	2.0	0.72
S6. I can easily obtain the advice and information I need to develop my farm business									
UK	8.2	56.0	21.5	6.1	2.9	4.0	1.3	2.5	1.13
HU	10.5	39.0	7.6	24.8	16.2	1.0	1.0	3.0	1.32
S7. I'm willing to change my farming to satisfy customer needs									
UK	16.4	63.9	9.3	1.9	1.9	4.2	2.4	2.1	1.12
HU	18.1	62.9	7.6	6.7	0.0	2.9	1.9	2.0	0.75
S8. There are too may competing update events for farmers to attend									
UK	10.6	25.7	37.1	16.7	4.2	3.4	2.1	2.8	1.22
HU	2.9	6.7	9.5	48.6	28.6	2.9	1.0	4.0	0.97
S9. The next generation is actively involved in the long-term business decision making on the farm									
UK	7.4	32.9	23.1	13.5	5.6	15.9	1.3	3.2	1.58

	Percentage								
	Strongly agree (1)	**Agree (2)**	**Neither (3)**	**Dis-agree (4)**	**Strongly disagree (5)**	**Not appli-cable**	**Not an-swered**	**Mean**	**Standard Deviation**
HU	15.2	40.0	9.5	14.3	8.6	10.5	1.9	2.6	1.24
S10. The public is a barrier to my farm business developments									
UK	4.2	19.4	29.7	26.8	12.7	4.8	2.4	3.3	1.30
HU	6.7	7.6	21.0	41.0	14.3	9.5	0.0	3.5	1.09
S11. Soil erosion is not a problem on my farm									
UK	10.9	49.9	17.5	11.4	2.4	6.4	1.6	2.6	1.30
HU	5.7	41.0	8.6	33.3	4.8	6.7	0.0	2.9	1.12
S12. There is a soil erosion problem across the country									
UK	3.4	34.5	38.2	13.5	3.4	4.0	2.9	2.8	1.07
HU	13.3	52.4	17.1	10.5	1.0	4.8	1.0	2.3	0.88
S13. Climate change will affect my business									
UK	11.4	54.4	22.5	5.0	1.6	3.7	1.1	2.4	1.08
HU	21.9	56.2	18.1	1.9	1.9	0.0	0.0	2.1	0.81
S14. Diffuse pollution is a major issue for farming									
UK	7.2	46.4	30.5	7.7	2.4	2.9	2.9	2.5	1.10
HU	10.5	39.0	13.3	29.5	4.8	1.9	1.0	2.8	1.14
S15. Farming in the 21st century will focus more on environmental management than food production									
UK	11.9	44.8	23.3	13.8	3.2	1.1	1.9	2.5	1.09
HU	11.4	37.1	24.8	21.9	1.0	1.0	2.9	2.6	1.00
S16. I believe strongly farming is only about production of commodity foodstuffs									
UK	3.2	14.3	19.4	44.8	15.4	1.1	1.9	3.5	1.15
HU	6.7	34.3	3.8	49.5	2.9	1.0	1.9	3.1	1.12
S17. I'll continue to manage environmental features (field margins, hedgerows, etc.) even after EU funding ends									
UK	10.1	52.5	18.3	9.3	3.7	4.5	1.6	2.5	1.22
HU	19.0	67.6	5.7	3.8	1.9	1.0	1.0	2.0	0.77
S18. Over the next 10 years, learning and taking advantage of new information will be critical for successful management									
UK	27.6	55.7	10.9	1.9	0.8	2.1	1.1	2.0	0.96
HU	38.1	52.4	5.7	1.9	0.0	0.0	0.0	1.9	0.67

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Livelihood strategies in a disadvantageous micro-region of Hungary

Abstract: *In Hungarian rural areas the low level of population density and income, the unfavourable age structure and the other economic conditions significantly differ from urban areas; and the differences among micro-regions are also increasing, which results in different standards of living and types of livelihood. Due to this unfavourable process some underdeveloped micro-regions have to face considerable economic and social problems (low economic activity, high unemployment rate), which leads to a critical situation.*

In this paper we focus on one single micro-region called Abaúj-Hegyköz, which is one of the most underdeveloped micro-region of the country. The main objective of this paper is to examine the livelihood strategies through employment possibilities, level of social aid, migration, educational level and infrastructural conditions in the micro-region. The basis of the fieldwork (including questionnaire and interview) was three selected settlements: Boldogkőváralja, Vizsoly and Hidasnémeti with about 1000 inhabitants each.

In all the three villages the visited households were selected on the basis of economic and social criteria. The respondents represent each of the social strata; however, the article focuses first of all on the livelihood strategies of the two extreme groups of society. Based on the analysis a very heterogeneous picture was obtained and also strong differentiation was found within the surveyed community. The overall picture shows a considerable and broad-based poverty in the micro-region. The income differences increase the gap between the livelihoods' of the two extreme strata.

There is no economic base evolved in rural areas, which would mitigate the territorial differences. In case no significant changes occur, depopulation of the countryside might become a serious problem in the near future. Despite of the reduced economic importance of agriculture, almost all inhabitants of the examined region were involved in farming at some time either for subsistence or for market production. Therefore agriculture still has importance for the livelihood of a significant part of the population and can have a role in reduction of social tension in the future.

The policy is inadequate to treat the problem of unemployment effectively on the long-term. It should encourage people to remain in the educational system and afterwards search actively for a job. Placing poverty alleviation first also requires innovative institutional arrangements and partnerships between the government, municipalities, NGOs, civil society groups and poor people.

Keywords: *livelihood strategy, rural area, household income, employment, Abaúj-Hegyköz*

Introduction

The rural poor have always been particularly exposed and especially vulnerable to livelihood shocks and variability. Their insecurity is likely to increase in future due to political instability, increasingly bad weather events (climate change) or declining social support. The exploitation of possibilities provided by the European Union is weak and inelastic due to the lower educational level and the lack of information (Tóth et al 2007). In addition, agricultural activity and production at these regions has important role, and therefore the possible reduction of EU agricultural direct payments might have an adverse effect on these areas.

The study of livelihood strategies and rural diversification is appearing as a new approach in rural development and it has become central issue in recent years. The concept of livelihood strategies has been affected and formed by several aspects. It can be restricted to the economic and social activities performed by households to secure livelihoods, but sometimes broader definitions are used including such components as household assets, educational levels or access to services (Chambers and Conway 1992; Ellis 2000). Kinsella et al. (2000) also recognises the importance of different assets such as human, physical, natural and social assets in farming but they emphasis the role of the wider economic, political and technological climate in which they are situated.

According to Walker et al. (2001) livelihood is a dynamic concept, therefore besides current activities the past experience and future aspirations are all included. He defines livelihood strategy as an organized set of lifestyle choices, goal and values, and activities influenced by biophysical, political/legal, economic, social, cultural and physiological components and designed to secure an optimum quality of life for individuals and their families or social groups.

Based on the overview of the above literature the definition of livelihood strategies can be defined in the following way: activities and decisions undertaken by households to provide a means of living. The shaping of this strategy is strongly determined by individuals, communities and policy factors. A key goal of livelihood strategies is to ensure the households' short- or long-term economic and social security.

According to earlier researches (Dorgai et al. 2008; Laki 2007) in most Hungarian rural areas the low level of population density and income, the unfavourable age structure and other economic conditions significantly differ from urban areas; the differences among micro-regions are also increasing. Additionally insufficient infrastructure of rural areas strongly reduces the capital movements, investments and thus the possibilities of these underdeveloped regions. The deepening territorial differences result in different standards of living and types of livelihood. The livelihood possibilities (number of new companies, distribution of the foreign capital, tourism) vary greatly, show an uneven spatial pattern and there are significant regional disparities concerning unemployment, personal incomes and wealth and so livelihood approaches. Unemployment is one of the factors, which has a strong linkage with livelihood strategies. After the economic and political transformation unemployment, as an accompanying phenomenon, has arisen in all regions, creating high social tensions. The impact of change of regime differs from region to region considerably.

Due to this unfavourable process some disadvantageous micro-regions have to face considerable economic and social problems (economic activity is low, unemployment rate is getting higher extending over several generations), which leads to a critical situation.

The Agricultural Economics Research Institute – based on previous researches (Hamza and Tóth 2006) – launched a comprehensive study in 2008, which intends to discover the subsistence opportunities of rural population and will be finalized in 2009 as a complete research [11]. The topic addressed in this article is only a part of this research and therefore the focus is on one single micro-region of Hungary called Abaúj-Hegyközi, which is located in the north-eastern part of Hungary and it is one of the most vulnerable micro-region of the country. This targeted area was selected because of several reasons. According to OECD methodology[12], Abaúj-Hegyközi is counted to be a 'predominantly rural region' (together with 110 other micro-regions in Hungary). Secondly, according to the classification criteria of the new Governmental Decree No. 67/2007 (VI. 28.) [13] Faluvégi (2008) defines Abaúj-Hegyközi micro-region as the most disadvantageous one among the 33 disadvantageous micro-regions granted additional supports. Out of the 174 micro-regions only 30 are both predominantly rural and disadvantageous as well (Figure 1).

11 Tóth E.: The livelihood possibilities and strategies of rural population in the underdeveloped micro-regions of Hungary. (in Hungarian: A vidéki népesség megélhetési jellemzői, stratégiái a kritikus helyzetű kistérségekben). AKI, Budapest.

12 The OECD (Organization for Economic Co-operation and Development) classified rural areas as follows:
- Predominantly rural region: more than 50% of the population of the region is living in "rural" local units (< 150 inh./km2);
- Intermediate region: 15% to 50% of the population of the region is living in "rural" local units (< 150 inh./km^2);
- Predominantly urban region: <15% of the population of the region is living in "rural" local units (< 150 inh./km2) (Source: OECD, 1994).

13 Governmental Decree on the regional development subsidies, principles of decentralisation, and the criteria system applied for the classification of the beneficiary regions

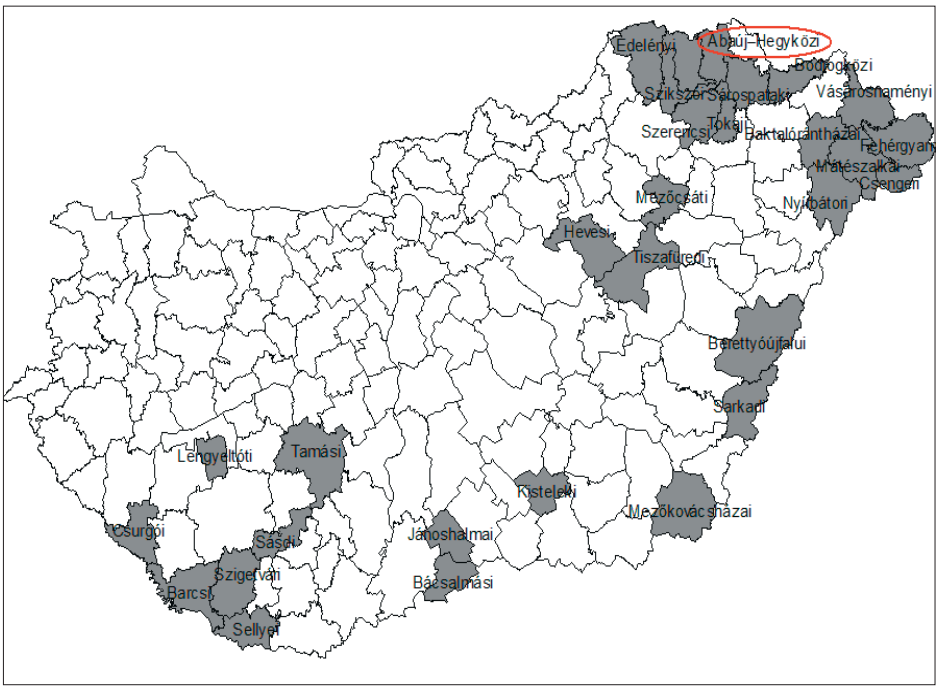

Figure 1. Most vulnerable, dominantly rural areas in Hungary
Source: Agricultural Economics Research Institute (AKI), Budapest

The fact that Abaúj-Hegyközi is one of the most disadvantageous parts of the country is also backed up by several employment related statistical data. It is located in a county – called Borsod-Abaúj-Zemplén – which had the highest number of inactives per 100 employed people in 2005 (HCSO 2006a; 2006b). Out of the 30 most disadvantageous micro-regions Abaúj-Hegyközi has the highest registered unemployment rate of the active population (23% in 2006) of which 62% is considered to be long-term unemployed (over 180 days). The average rate of recipients receiving regular social benefits is 8% (of the total inhabitants), which is the third highest among the 30 micro-regions and five times higher than the country average (HCSO 2007a).

Our interest in livelihood strategies has emerged in response to persisting disparities among the micro-regions of Hungary, the capital and the periphery, as well as urban and rural areas. The main objective of this paper is to characterize the most affected disadvantageous areas and vulnerable groups in Hungary. It is also essential to define the possibilities of these people and in line with that, identify the most typical livelihood strategies and patterns applied for the groups of households studied through focusing on the issue of employment possibilities, level of social benefits, migration and educational level.

Methodology

Understanding the context of poor people's livelihoods is essential, although precise identification of livelihoods in quantitative data is a methodologically difficult task. There is a wide range of methods which can be used for characterizing household livelihood strategies. In the literature Barrett et al. (2005) as well as Ilbery et al. (1996) group households by shares of income earned in different sectors of the rural economy. Brown et al. (2006) used an asset-based approach to identify livelihood strategies.

Effective poverty alleviation requires assessment of poor people's livelihood approaches and identification of opportunities that may allow future development in the standard of living. Rural people's livelihoods often depend on a range of resources and livelihood activities, of which agriculture may be an important component. In these cases, agriculture needs to fit with and complement other activities, rather than attempt to replace such activities.

As a basis of our fieldwork we selected 3 settlements (Boldogkőváralja, Vizsoly and Hidasnémeti) in the Abaúj-Hegyközi micro-region with about 1000 inhabitants each. According to the preliminary desk research, these settlements provide an overview of the situation in similar villages in the micro-region. This paper does not intend to be a representative survey, since it is only a part of a comprehensive study on the livelihood situation in the Hungarian rural areas.

Besides the statistical analysis of the selected settlements, the survey consists of two parts, namely the questionnaire and the interview. Interviews were conducted with the mayors, the representatives of the municipalities or the local agricultural advisors of the selected settlements. They provided information about the community, structure of the population (in terms of education, age, and nationality), current land use, land ownership, subsistence activities and specific conditions, such as the distance from the railway or from the country's border.

The second part of the survey was the questionnaire, which focuses on the whole family or household. In this present analysis of livelihood strategies emphasis was given to the evolution of livelihood strategy including on one hand the income structure (range of income sources) by different activities and branches, social allowances and the role subsistence agriculture, on the other hand expenditures and the diversification of activities.

In the three selected villages 31 people were asked (which means 31 households), the questions referred to family members as well, altogether 111 people. In all the three villages the visited households were selected together with the mayors of the settlements based on some economic and social criteria. The respondents represent each of the social strata (extremely poor, middle class and prosperous households); however, this article focuses first of all on the livelihood strategies of the two extreme groups of society.

Based on the results of the questionnaires and the interviews two distinct livelihood strategy clusters were identified. Households were grouped by the level of net household income per capita. The case studies of these clusters were created to present applied practices in terms of livelihood strategies. They set a good example for villages with similar economic and social circumstances and backgrounds.

Results of the interviews

Based on the conducted interviews on site the three examined settlements had the following features. Number of inhabitants was moderately decreasing due to the rural-urban migration. One third of the households in the sample reported that they would leave their village. Many of them said that they had sons, daughters or husbands living and working in town. At the same time it is more and more common that people from bigger cities, from the capital or even from Slovakia (as the border is very close especially to Hidasnémeti) buy houses or plots in these villages. Income transfer from these urban migrants might become an important element of the village revenue in the future. However, there is also a trend that the poorest people move to the villages as a last chance to survive. These people with their economic problems can lay a great charge on the local social support system.

There used to be local agricultural production cooperatives, developed industry with huge state-owned enterprises, construction companies in the region of Miskolc, which is the biggest city in that area. Earlier there were regular bus transfers to these sites of work, and a great number of inhabitants left the village for a whole week to work; commuting at that time was more common.

After the transition a great number of people lost their jobs and therefore a part of them left the villages as well. In one of the settlements studied (Hidasnémeti) the EU accession caused another shock to its labour market as the Hungarian Customs and Finance Guard and Border Guards, which used to be the biggest employer with 100 employees, were abolished. Many women and men lost their jobs involuntarily in the economic restructuring accompanying the transformation to market capitalism. Owing to these changes unemployment has become one of the most serious problems in the area. Unemployment rate is very high in the settlements studied, 20% compared to the economically active population and the majority of them are long-term unemployed. Once you get out of the labour market, it is extremely hard to get back to it again.

Nowadays the largest employer of these settlements is the local government (municipality) and its related institutions (children's home in Boldogkőváralja employs about 100 people; daycare centre for addicts in Hidasnémeti). The local governments try to employ as many jobless people as public workers as they can afford from their budget, but it is not a long-term solution of the employment problems.

The main barrier of being employed is the lack of education. The inhabitants are extremely uneducated. On average in the three villages 66% of the registered unemployed had the education of primary school or even less in 2007 (TeIR, 2008), while the country average was 58% in 2006 (HCSO 2007b). The problem is more serious among the young people, who have no qualification. Some incentives are applied – without any significant success – in order to encourage the ethnic minority (Roma) to attend secondary schools or universities. They would receive around 4 000 HUF (16 Euro) per month if their performance is above 65%.

Besides the young people the other vulnerable group consists of women. They have been much more likely than men to leave the labour market or which is even worse they have never been employed. It is also supported by statistical data that the unemployment rate of males was 7.2%, while that of females reached 7.9% at country level in 2006 (HCSO 2007b). Most women are employed by the local government, but for unskilled women there are only a few appropriate working possibilities; in most cases the public work offered by the municipality cannot be carried out by females. Unskilled men can get a job more easily (sometimes illegally – the rate of illegal work is unknown) in the construction and transportation sector, mostly in road construction. It does not need any qualification, and it is seasonal.

As a result of the insecure livelihood some forms of criminality are typical in these communities such as: crop and wood stealing, shoplifting, non-ferrous metal stealing, abuse of social benefits, practice of usury.

Results of the questionnaires

Out of the targeted 111 inhabitants on average 3-4 family members live together in one household[14] and only three families are counted as new settlers. In each case the shift of lodging is strongly related to the employment possibilities. One third of the families are affected by unemployment and only 30% of the families have not been affected by either unemployment or retiring.

One quarter of the unemployed respondents are under the age of 30 and 70% of them are women. This fact justifies the mayors' opinion on the most vulnerable groups in rural areas. Half of the unemployed respondents are extremely uneducated, they do not even have elementary education; for the additional 25% of them the primary school is the highest completed level of education. They usually do not even have any agricultural qualification either, which limits further their possibilities. Two third of them reported that they did not even search for jobs, because it is not worth them working, since the salary they would receive is about the same amount as the social aids they receive.

14 Household: A (private) household is a group of persons living together in a common housing unit or in a part of it, bearing together, at least partly, the costs of living (e.g. daily expenses, meals). Persons living in the same dwelling but on the basis of independent tenure status are not considered as persons living in the same household even if the above conditions are fulfilled (HCSO).

Based on the answers of the 67% of unemployed people the chance of getting a job is practically zero and the rest of the respondents find it a big challenge. Two third of the jobless does not have any gainful activity, and only 17% of them are engaged in farming. The last jobs of the unemployed are divided evenly among the three main economic sectors (agriculture, forestry, food industry; industry, construction; services). The overall duration of the unemployment period also differs from 11 months to 25 years.

Case studies

The classification or grouping of these strategies is challenging, since each household represents an individual case. A comparison of the average income portfolio among the sample households reveals several important features of families' livelihood strategies. Finally the households are classified by the amount of monthly net income per family members, as this can be considered as an outcome of the livelihood strategy and the measurement of household's productivity. In the following only the two extreme groups of households will be presented as case studies, which can provide an overview of the possibilities and constrains of rural livelihood.

Wealthy farmers' case study

This case study presents an example of a successful use of land as a natural resource and a basis of income. A few farmers in the region invested their money in land and/or agricultural machinery. This level of investments reflects the importance of agriculture in rural livelihood and the lack of alternative economic opportunity.

The head of these wealthy families are either retired or early retired men with wide experience in the field of agriculture and management. They usually used to be in a managerial position before they retired; therefore they have a broad network of relationship.

On the partly owned and partly rented land, they have plantation of apricot, arable crops or grass land. They receive a considerable amount of money as area payments for their land. The average monthly net incomes of these families are the highest among all the respondents (above 300 000 HUF, above 1 200 Euro) and the net income per capita is above 88 000 HUF (352 Euro).

However, they have good managerial experiences and the unemployment rate is extremely high in the region, they have recurrent problems to get seasonal or casual labourer/workers. The demand for local seasonal work is very much depend on the actual yield. The fee for day labour is 3 000-4 000 HUF (12-16 Euro).

Besides the subsidies for heating received by a very few households, they do not receive any social benefits. On average 64% (181 000 HUF = 724 Euro) of the households' total income comes from labour income and the pension makes

36%. Three quarters of their labour income originated from the agriculture and 25% from services or public sector (Figure 2). Most of these farmers operate their agricultural activity in the form of an enterprise. They usually sell their crops through production contracts or the purchasers buy them up right after harvesting. Their success is proven by the fact that more than half of these households have developed their agricultural activity in the last five years.

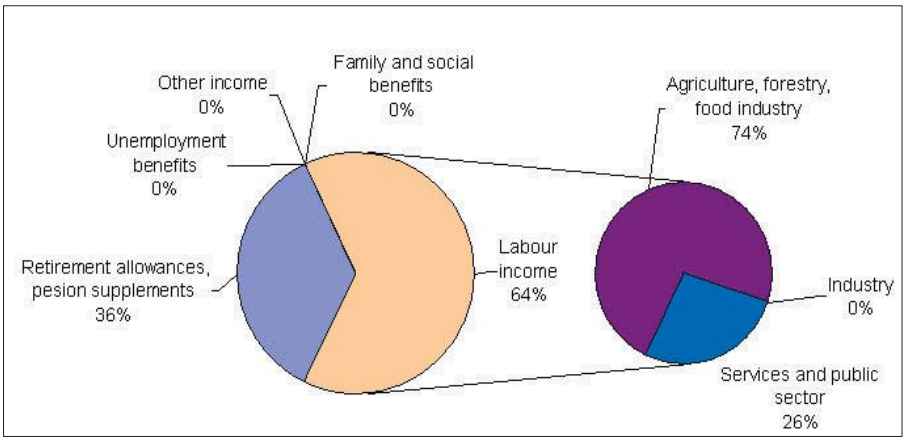

Figure 2. Composition of incomes of the wealthy farmers' households
Source: Based on the questionnaires

Functionally vulnerable households

The group of these households represents a younger generation. In this cluster the average monthly net income per family member (capita) is below 33 000 HUF (132 Euro), which amounts to 38% of the income per capita in the "wealthy group". Some of these poor households produce a range of "food crops" in order to be self-sufficient, but some of them leave their land uncultivated. From the total of the 5 surveyed Roma families 4 of them could be classified into this category, which shows that the Roma population is much more vulnerable than the Hungarian.

It is very critical that on average only 35% of the households' income originates from employment or work and this ratio is only half of the wealthy households' labour income. Consequently these families rely heavily on unemployment and social benefits (36%). Their wages and salaries [15] (labour income) are about equally divided among the three main economic sectors (Figure 3).

These people are in an economically insecure situation and are particularly sensitive to changes in conditions. They have to face several kinds of risks such as health problems, bad weather conditions, increasing food prices declining aid flows. For some of them the only job opportunity is the public work.

15 Labour income (net): Wages and salaries are equal to compensation of employees directly paid to them. They do not include the values of any social contributions, income taxes, etc. payable by the employee.

But it is not a long-term solution and cannot be the basis of a sustainable livelihood strategy. As their income diversification is very little and they have no savings, these people can easily come down.

Due to temporary financial problems these families have different kinds of debts (debts to public utilities, delayed deferred payments of loans, private debts), which make them more vulnerable to the usurer. They reported that on average they would need 50 000 HUF (200 Euro) additional amount of money (per household) in order to live in a financially safe condition.

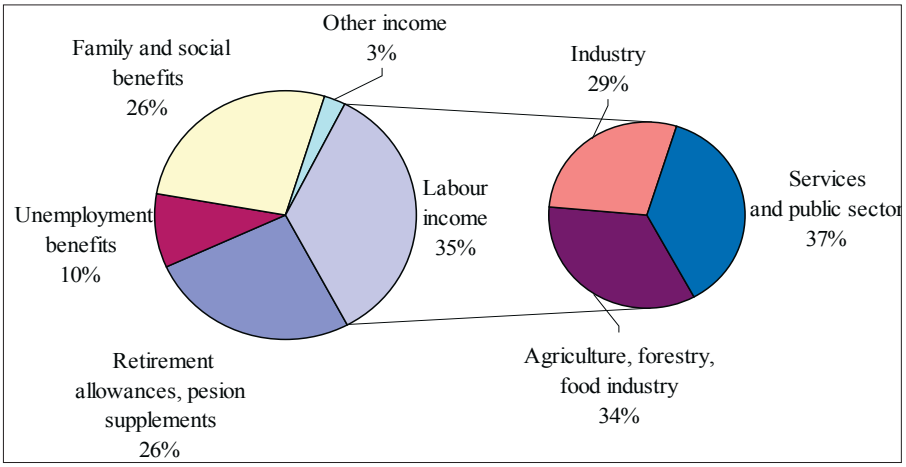

Figure 3. Composition of incomes of the functionally vulnerable households
Source: Based on the questionnaires

Conclusion

Based on the analysis made on the questionnaires and interviews conducted in the disadvantageous Abaúj-Hegyközi micro-region, a very heterogeneous picture was obtained and also strong differentiation was found within the surveyed community. Besides the living conditions of the individuals (family, network) the conditions and opportunities are also strongly influenced by the educational and employment possibilities as well as by the infrastructure and strategy of the settlement.

The livelihood strategies vary a lot but the overall picture shows a considerable and broad-based poverty in the micro-region. The income differences increase the gap between the livelihoods' of the two extreme strata. The low level of education compared to the country's average led to the unfavourable labour-market situation and to the high rate of long-term unemployment. The rural poor are not prepared for and cannot respond to livelihood insecurity; this problem has occurred since the political and economic transition (1989). For this uneducated group of people the requirement in terms of learning and creative response is more challenging.

There is no economic base evolved in rural areas, which would mitigate the territorial differences. In case no significant changes occur, depopulation of the countryside might become a serious problem in the near future. The agricultural production can have a role in reduction of social tension and the importance of that will not be reduced in the future. However, the form of it should be developed, because in this present way it cannot be a viable sector for rural people. As a conclusion it is suggested to exploit the opportunities offered besides the conventional agricultural production: either diversifying the agricultural activity (on-farm, off-farm) or involving other economic branches (such as services, tourism).

The policy is also inadequate to treat the problem of unemployment effectively on the long-term. One of the right approaches from the policy side could be to decrease the ratio of social benefits in households' income by encouraging people to remain in the educational system and afterwards search actively for a job. Placing poverty alleviation first requires innovative institutional arrangements and partnerships between the government, municipalities, NGOs, civil society groups and poor people. Vertical information flow and changing of views and experiences are essential. The local governments have to identify their comparative advantages, emphasize their local knowledge, and launch common initiatives by bottom-up approaches.

This research emphasises that the importance of livelihood should not be underestimated. Analyzing the historical, current and potential livelihood strategies of local people is essential for achieving an understanding of how to implement the rural development policy effectively and maintain the sustainability of these villages.

Acknowledgement

The author would like to acknowledge the contribution of Erzsébet Tóth, senior research fellow, whose cooperation was most helpful in improving the paper.

References

67/2007, VI. 28., *OGY határozat a területfejlesztési támogatásokról és a decentralizáció elveiről, a kedvezményezett térségek besorolásának feltételrendszeréről* (Governmental Decree on the regional development subsidies, principles of decentralisation, and the criteria system applied for the classification of the beneficiary regions).

Barrett C.B., Bezuneh M., Clay D., Reardon T., 2005, *Heterogeneous constraints, incentives and income diversification strategies in rural Africa,* Quarterly Journal of International Agriculture 44(1), 37-60.

Brown D. R. et al., 2006, *Livelihood strategies in the rural Kenyan highlands,* African Journal of Agricultural and Resource Economics (AfJARE), 1(1), 21-35.

Chambers R., Conway G., 1992, *Sustainable rural livelihoods: practical concepts for the 21st century,* IDS Discussion Paper 296, Brighton, IDS, In: Kinsella J. et al., 2000, *Pluriactivity as a livelihood strategy in Irish farm households and its role in rural development,* Sociologia Ruralis 40(4), 481-496.

Dorgai L. et al., 2008, *A közvetlen támogatások feltételezett csökkentésének társadalmi-, gazdasági- és környezeti hatásai – első megközelítés* (The social, economic and environmental impacts of the hypothetical reduction of direct payments - first approach), Agrárgazdasági Tanulmányok, No 6, AKI, Budapest.

Ellis F., 2000, *Rural Livelihoods and Diversity in Developing countries,* Oxford University Press, Oxford.

Faluvégi A., 2008, *Tájékoztató a kiemelten támogatott kistérségekről* (Information material on the micro-regions granted additional supports), KSH, Budapest.

Hamza E., Tóth E., 2006, *Az egyéni gazdaságok eltartó-képessége, megélhetésben betöltött szerepe* (Sustenance of private farms and their role in subsistence), Agrárgazdasági Tanulmányok, No 2., AKI, Budapest.

HCSO - Hungarian Central Statistical Office, 2006a, *Területi statisztikai évkönyv* 2005 (Regional Statistical Yearbook of Hungary 2005).

HCSO - Hungarian Central Statistical Office, 2006b, *Mikrocenzus 2005* (Micro census 2005).

HCSO - Hungarian Central Statistical Office, 2007a, *Területi statisztikai évkönyv 2006* (Regional Statistical Yearbook of Hungary 2006).

HCSO - Hungarian Central Statistical Office, 2007b, *Munkaerő-piaci helyzetkép 2006* (Labour Force Survey 2006).

Ilbery B. et al., 1996, *Agricultural adjustment and business diversification by farm households,* Geography, 81(4), 301-310.

Kinsella J. et al., 2000, *Pluriactivity as a livelihood strategy in Irish farm households and its role in rural development,* Sociologia Ruralis, 40(4), 481-496.

Laki L., 2007, *Vidék, falvak és a szegénység (*Rural areas, villages and poverty), A Falu, 22(4), 17-25.

OECD, 1994, *Creating rural indicators for shaping territorial policy,* Paris.

TeIR - National Regional Development Planning Information System (2008): www.terport.hu.

Tóth E. et al., 2007, *Az agrár- vidékfejlesztési programok megvalósulásának, a támogatások felhasználásának főbb tapasztalatai* (Major experiences of the implementation of agrarian and rural development programmes and the utilization of supports), Agrárgazdasági Információs Kiadvány, AKI, Budapest.

Walker J. et al., 2001, *Livelihood strategy approach to community-based planning and assessment: a case study of Molas, Indonesia,* Impact Assessment and Project Appraisal, 19(4), 297-309.

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Polish rural municipalities: Can we say what do people do there on the basis of the official data?

Abstrac*t: On the basis of data on all of the Polish rural municipalities – close to altogether 1,600 entities – a preliminary study was carried out, meant to identify certain key characteristics of the population studied in terms of economic activity and its reflection through the indicators, related, first of all, to: (i) the non-agricultural employment, (ii) the number of businesses, (iii) the registered unemployment, (iv) the share of agricultural tax in the local budgets, (v) the overall structure of the local budgets, and (vi) the equipment with basic technical infrastructure.*

Given the limitations of the official statistics, characterised in the paper, and often leading to statistical artefacts, the analysis attempts to verify certain simple hypotheses, which can be forwarded on the basis of these statistics. Some simple models and relations are identified for the entire population of the rural municipalities in Poland and for its significant sub-populations. This analysis constitutes also a preliminary step towards identification of regional differentiation with respect to the phenomena considered.

The primary purpose of the analysis, whose initial stages are presented here, is to identify the development paths of rural municipalities in order to be able to assess the quality (degree of balance or sustainability) of their development with respect to the paths identified.

Keywords: *Poland, rural municipalities, municipality types, employment, balanced development, migrations*

Introduction – the administrative structure

Poland has a three-level administration structure (see Figure 1), with the upper level (NUTS-2) being constituted by 16 provinces (“voivodships”), each of these divided into the intermediate-level (NUTS-4) units of counties (“poviats”), 379 in total, and, at the lowest level, the municipalities, or communes (“gminas”), NUTS-5. Fig. 1 shows the structure of the Polish

administrative divisions, with emphasis placed on the distinction between central governmental and self-governmental bodies, functioning on the particular levels.

Poland is divided into roughly 2,500 municipalities of self-governmental character. Of these, some 300 are the urban communes, among them big cities, including the capital, and some 600 are urban-rural communes, meaning that a small town is merged in terms of administration with the surrounding rural commune. There are, namely, in Poland approximately 900 locations with formal "urban rights", but many of them are really very small (e.g. 3,000-4,000 inhabitants). We use here the expressions like "roughly", "some" etc. with respect to the numbers of units at various levels, because there are year-to-year changes with this respect (e.g. as of January 1st, 2009, a couple of small localities gained the "urban rights" and the respective municipalities moved from the "rural" to "urban-rural" category).

Below the communal level there are, in rural areas, village marshals, elected also through direct voting of the inhabitants, whose primary duties consist in tax and fee collection, and communication with the communal authorities.

Note that we speak of rural communes or even areas, we refer here to these formally rural entities on the NUTS-5 level, and not to any of the otherwise popular, but not unambiguous, definitions of "rurality" in terms of population densities and proportions of units with definite population densities. Later on we shall yet return for a while to this subject.

Communes have their own budget, made up of own revenues and means from the central administration, usually addressed to definite needs or projects. Under Polish conditions most of the revenue at the municipal level comes from the estate tax and the part of the personal income tax, which remains with the commune. Of course, in big city communes and in those, where highly earning companies are located, the share from corporate tax also makes up an important portion of the budget.

In principle, counties, which consist of just a couple up to a dozen or so communes, should provide, in a local urban centre (see the very similar numbers of counties and urban communes), the complete set of services (health care with a local hospital, secondary or tertiary education, court, etc.).

Naturally, rural communes are highly differentiated, their population usually in the thousands, but, actually, population densities ranging from about 20 to well above 200 (while the average for the whole of Poland, i.e. including urban areas, is at 130). The differentiation is, both in view of the intrinsic "statistical" properties (much larger group of objects) and the diversity of the actual situations in the municipalities, much bigger than in the other two types of communes (urban and urban-rural). This gives rise to the conviction that, indeed, there are different kinds of rural communes, not just in terms of their (proportion-wise) functionality, but over a much broader socio-economic domain.

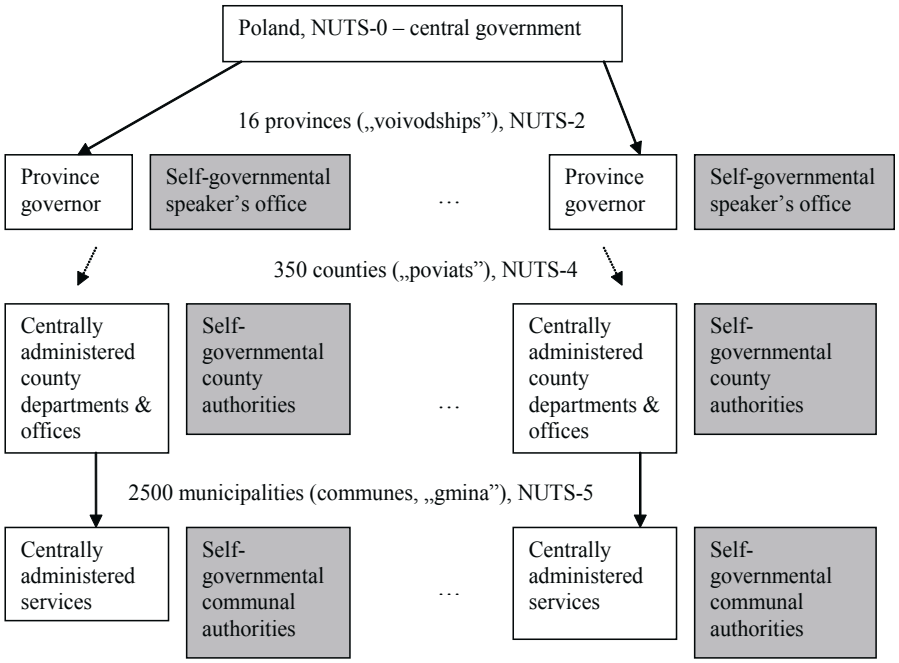

Figure 1. Overall structure of Polish territorial administration. NUTS-1 and NUTS-3 levels in Poland are only statistical entities

The goal of the study and the data problem

On the basis of data on all of the Polish rural municipalities a preliminary study was carried out, meant to identify some key characteristics of the population studied in terms of economic activity and its reflection through the indicators, related, first of all, to: (i) the non-agricultural employment, (ii) the number of businesses, (iii) the registered unemployment, (iv) the share of agricultural tax in the local budgets, (v) the overall structure of the local budgets, and (vi) the equipment with basic technical infrastructure.

This attempt was meant to provide an initial insight into the existing *types* or *paths of development* of the communes, meaning both the magnitudes of definite variables and indicators, and relations between them. The objective, in turn, of such an exercise would be to gain the capacity of relating the actual developments to the *type- or path-dependent indicators of balanced or sustainable development*. It is, namely, assumed that for clearly differing trajectories of socio-economic variables the quantitative and qualitative criteria of the balanced or sustainable growth must also differ.
Thus, while the differentiation of rural communes in Poland is, in terms of almost all characteristics, much bigger than in the case of the two other categories of communes, it is interesting to try to quantitatively characterise the

potential types of communes with respect to their socio-economic features, emphasis being placed on the economic activity of the inhabitants.

Such an attempt encounters in Polish conditions three major obstacles: **(1)** the acute shortage of data on employment in farming, due to lack of data on family farm employment, since there is no "official" and systematic registering of employment within the family farms (such data are available for the true-to-life farming enterprises, though even in this case one can hardly distinguish farming from industrial employment), this is amplified by the fact that farm owners cannot register as unemployed, **(2)** the data on (non-agricultural) employment are provided according to the seats of the companies, and not according to the place of residence of the employed [16], and **(3)** farmers are not obliged to register their petty businesses, so that very often small repair and craft shops exist on the farms, agriculture being frequently only subsistence or even hobby activity in such cases. Figure 2 shows schematically the potential relations concerning the data in question, indicating the ambiguities and traps. Hence, the conclusions from the data available must be drawn with utmost care, and additional information must be used in order to formulate more in-depth analytical results. That is also why the modest study reported relies on several indicators and tries to look at a number of diagnostic features.

The data we refer to are the data from the so-called Regional Data Bank (BDR) of the Central Statistical Office (GUS) of Poland. This is, indeed, a very rich database, with hundreds of data items on each commune, annual data, in principle, for the period, more or less of the last decade (i.e. after the administrative system in Poland had been reshuffled). We refer to this database for two essential, interrelated reasons: (1) it is generally the most reliable of the official data sources in Poland in view of the repetitiveness, methodological homogeneity, interrelations with other data (migrations, natural movement, etc.), and degree of use; (2) it, specifically, avoids, to a larger extent than other sources, the biases associated with the regional and local differentiation in the intensity of various data-twisting phenomena.

While, therefore, it is possible and justified, for various purposes, to use other and additional data, like in determination of the "functions" of definite areas, and of municipalities in particular, it is obvious that these are (also) just approximations of a certain reality, and that uncovering of relations within the BDR data is of primary importance in view of the fundamental significance of these data.

16 This applies to the regularly collected statistical data, contained in the Regional Data Bank (BDR) of the Central Statistical Office (GUS). There exist other sources of information, including data on on-farm employment, like the National Census, the Agricultural Census, the farmers' social security registration or the special studies, made by the Central Statistical Office (BAEL), but the reliability and the verifiability of these other data is much more doubtful (e.g. there are regions in Poland where it is suspected that up to 25% of persons registered for farmers' security system do in fact live off non-agricultural jobs elsewhere).

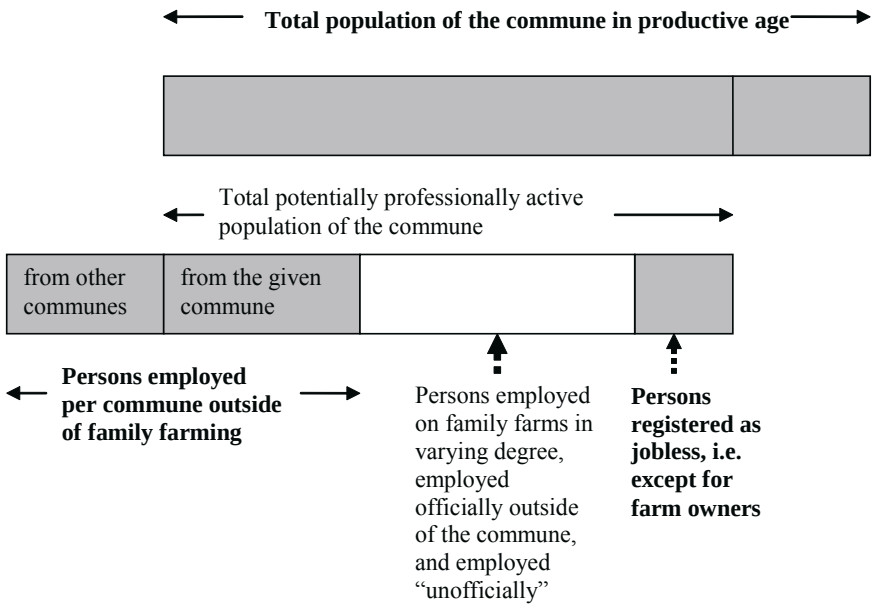

Figure 2. Schematic view of the data on employment in communes used in the study

The data we refer to are the data from the so-called Regional Data Bank (BDR) of the Central Statistical Office (GUS) of Poland. This is, indeed, a very rich database, with hundreds of data items on each commune, annual data, in principle, for the period, more or less of the last decade (i.e. after the administrative system in Poland had been reshuffled). We refer to this database for two essential, interrelated reasons: (1) it is generally the most reliable of the official data sources in Poland in view of the repetitiveness, methodological homogeneity, interrelations with other data (migrations, natural movement, etc.), and degree of use; (2) it, specifically, avoids, to a larger extent than other sources, the biases associated with the regional and local differentiation in the intensity of various data-twisting phenomena.

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The doubts and the hypotheses

We shall now present some of the consequences of the situation depicted above, first in the form of a couple of observations, emphasising the shortcomings of the statistics, and then in the form of some hypotheses, linking the variables and the phenomena here considered.

Table 1 presents the overall relative statistics from the domain for the years 2003-2006. One is definitely surprised by the maximum for the relative number of persons employed in a rural commune: around 4,500 per 1,000 inhabitants! Even though such data are in terms of the definition adopted "true", and, indeed, informative (employment provided in a given commune), they – as shown in Fig. 2 – leave completely unknown the numbers of persons having a job, but who come to work there from other communes (where they actually live and pay taxes). In the particular maximum case shown in Table 1 we deal with a formally rural municipality hosting a large-scale opencast lignite mining and power generation complex. Another clear consequence of the previously mentioned character of the data is the joint share of the employed and jobless, on the average at around 17% of the total population! Thus, a vast proportion of farming employment is concealed away from these data.

On the other hand, though, it should be noted that the minima of the relative numbers of registered businesses are consistently higher than those of the registered employed persons! This is, definitely, not an error in data (in principle, a person might own more than business, although it would certainly be strange to have the average number of businesses per one professionally active person higher than one), but calls for a deeper insight as to where these minima are attained and under what other conditions.

Table 1. Registered employed, jobless and businesses per 1,000 inhabitants in rural communes in Poland in 2003-2006 (approximated to the nearest integer)

Category	Years	Minimum	Mean	Maximum
Registered employed per 1,000 inhabitants	2003	18	82	4580
	2004	19	83	4439
	2005	18	85	4352
	2006	22	87	4108
Registered unemployed per 1,000 inhabitants	2003	18	91	306
	2004	17	87	215
	2005	16	82	211
	2006	12	70	270
Registered businesses per 1,000 inhabitants	2003	22	57	316
	2004	21	55	324
	2005	23	56	329
	2006	23	57	349

Source, here and further on: own calculations on the basis of data from BDR GUS

The character of these data is also very clearly confirmed by Figure 3: a cone is visible, with a very dense part close to the "hard bottom" in terms, especially, of the number of employed. One can suspect that in some cases just the municipal staff makes up for the statistics, and in fact, in some communes *virtual zero registered employment* is recorded!

It is exactly in view of this wide gap that several other sources of data are being used in Poland, as mentioned in footnote 16, having a different status and being less reliable. Thus, in particular, it is pointed out that declarations related to the farmers' social security system are especially suspect in some regions with supposed rural-agricultural overpopulation (South-East of Poland), where many alleged farm owners and farmhands, making up this overpopulation, actually work unofficially, on place, in other parts of Poland or abroad.

On the other hand, an unquestionably positive phenomenon is constituted by the observed neat improvement trend of the employed-unemployed ratio, both in terms of minima (from 1 to 1.83) and the means (from 0.90 to 1.24).

Finally, Table 1 shows the extraordinary differentiation, characterising the population of rural communes in Poland – even for the quite limited, as to their values, variables of registered employment and joblessness the range is more than one order of magnitude.

This latter statement suggests that some reasonable hypotheses might be formulated and then checked referring to the internal diversity of the population of rural communes. Although Figure 3 does not provide any clear hint as to an effective breakdown of this population, it is felt that even an artificial division of the population might bring some reasonable relations between respective variables.

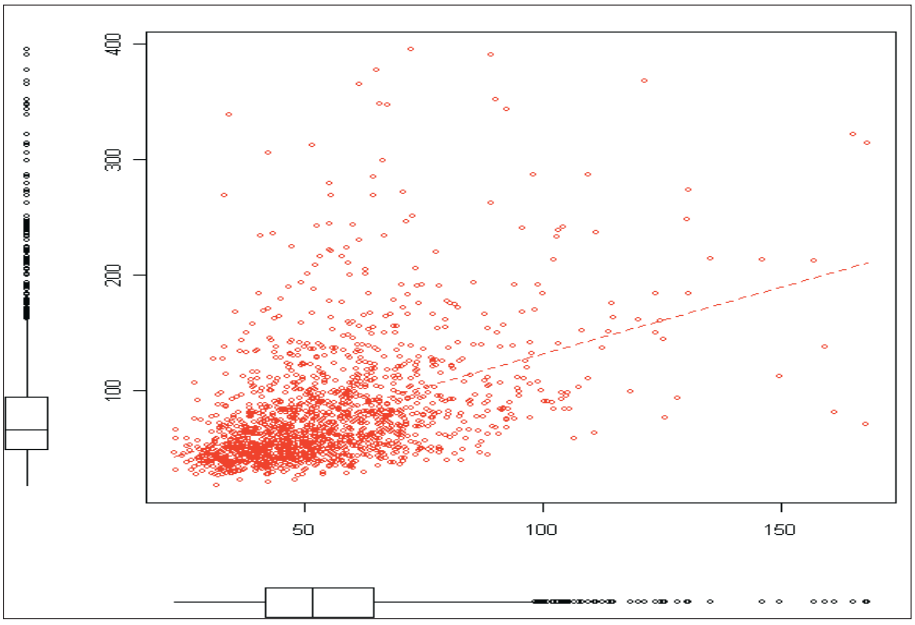

Figure 3. Number of businesses per 1,000 inhabitants (horizontal axis) against the number of registered employed per 1,000 inhabitants (vertical axis) in rural communes in Poland in 2005 (upward extremes removed)

So, the basic proposition is that:

- when both employment and joblessness figures are low, then we deal with the truly farming and/or peripheral areas, whose characteristics qualitatively differ from those with higher figures on these dimensions,
- the numbers of businesses should, roughly, also follow this image, but if they are, "surprisingly", high, this may mean that the area offers little other chances, even within farming itself,
- it may also occur that employment and joblessness are positively correlated over some segments along the "rural-to-urban" dimension,
- it can therefore be hypothesised that a connection with population density exists, and also, of course, with location (e.g. peri-urban, tourist, peripheral, etc.).
- it is interesting to see whether, and if so – what is the connection with the financial standing of the communes (the capacity of implementing own plans, but also the indication of the economic standing of the inhabitants).

We shall follow here some of these lines of reasoning or questioning, leaving other ones for further study.

To what extent is population density a telling dimension?

The general hypothesis behind asking the question is that in municipalities with higher population density other economic activities must have developed to the extent showing in the official statistics through employment and business registration data. (It is, in this context, of secondary importance, what is the location of a particular commune, the location aspect being relegated to a separate study, associated mainly with the reach, character and dynamics of urban influence.) If, however, we do not find traces of the tendency mentioned above in a definite group of communes, some (more) specific factor(s) must be at work, related primarily to either hidden existence or lack of multifunctionality.

Figure 4, showing the numbers of communes in successive intervals of population density values, largely confirms the image from Figure 3. The nature of this distribution is emphasised by the average (over the population of rural communes) population density equal 68.4 persons per sq. km, as compared to the median – 51.3, and the average population density on the area of all the rural communes in Poland – 54.0. This total area, namely, of 199,475 sq. km altogether, is inhabited by close to 11 million people.

Given that the average population density in Poland is at slightly more than 120 persons per sq. km, and the distribution from Figure 4, the threshold of roughly 90-100 might be considered appropriate as the first approximation for analysing the sub-populations of rural communes. Table 2, below, provides a complementary information to that of Figure 4.

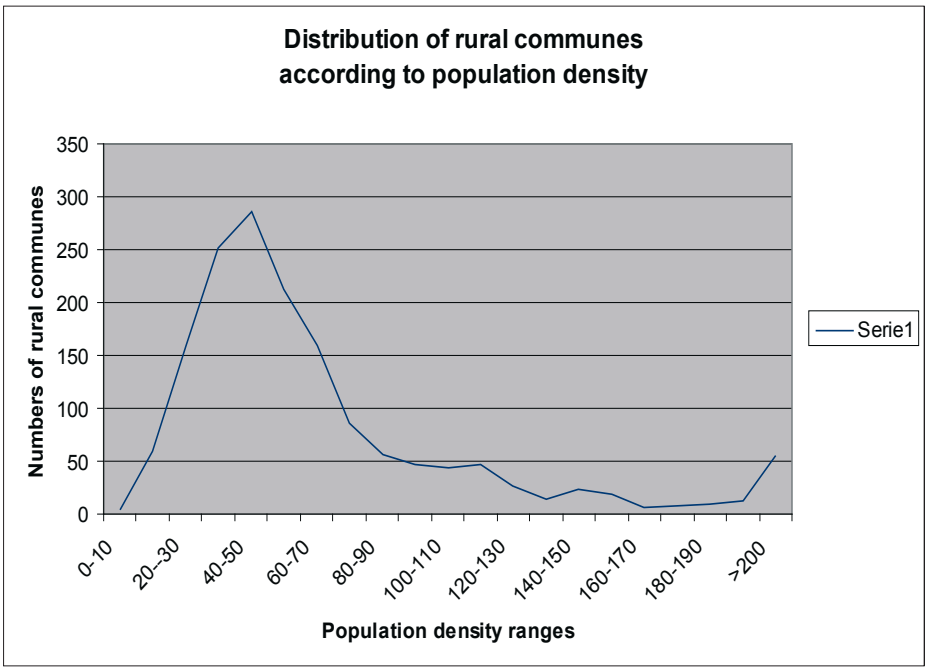

Figure 4. Distribution of numbers of rural communes in Poland along population density value (2006)

Table 2. Population numbers in rural communes with definite population density levels (2006)

Population in rural communes with population density exceeding:							
0 (all communes)	80	100	120	140	160	180	200
10 760 000	3 736 000	2 827 000	1 948 000	1 569 000	1 093 000	913 000	689 000

Let us add that there are 54 rural communes with densities above 200 persons per sq. km, and 9 with densities exceeding 400! The maximum is close to 550! Altogether, we are not dealing with a marginal population at all.

In order to gain an additional insight into the processes, driving the changes in the distribution of Figure 4, let us cast a look at simple linear regression models of migration balances, identified for rural communes in Poland, as a function of seven selected variables.

Table 3. Linear regression models of net migration in rural communes in the years 2003-2006

Model element / variable	Scale of magnitude	2003	2004	2005	2006
Constant	-	-11.4	-10.9	-8.5	-8.9
Population density	100	2.8	1.6	1.8	1.7
Own revenues of commune per capita	102	-0.001	-0.002	-0.001	-0.0001
Employed per 1000 inhabitants	101-102	0.013	0.012	0.011	0.006
Jobless per 1000 inhabitants	101	-0.013	-0.015	-0.030	-0.004
Businesses per 1000 inhabitants	101-102	0.097	0.118	0.104	0.079
% of population with sewage	101	-0.01	-0.01	0.002	-0.02
Financial independence	10-1	16.42	18.38	12.74	20.22
R2	-	0.34	0.33	0.32	0.36

Thus, given that the most important (and statistically significant) role in the models is played by *population density, financial independence* of the municipality, and the *number of businesses per 1000 inhabitants*, it is obvious that migrations tend towards the places "where life (already) is", amplifying, naturally, the existing differentiation. Yet, is this fact (and the associated process) sufficient to warrant the (trivial) use of population (density) as the discriminating / classifying variable?

At the end of this section let us, therefore, look yet at the correlation coefficients between some variables, characterising rural communes. The few places with higher correlation values in Table 4 have been indicated in boldface. The observations from Table 3 are, indeed, confirmed, but the implied strength of interdependences is not overwhelming.

There are clearly two variables in this selection that play the "negative" role. One is, of course, the ratio of the jobless, but the other one is the farming tax per capita, an element of the municipal budget. Definitely, it is a telling indicator of the rural / agricultural / peripheral character of the communes.

Two other features of the interrelations ought to be emphasised, as well. First is the curiously indicative role of "financial independence" of the communes, which seems to collect, or represent, several other characteristics. Then, the "detached" character of the variable expressing the number of graduates of secondary and higher educational establishments, which is due to the fact that only few rural communes actually run such establishments (usually one or more of primary schools and a gymnasium, a lower secondary school).

Table 4. Correlation coefficients for selected variables characterising rural communes (2006)

Variables	1	2	3	4	5	6	7	8	9
1. Population density	1	0.094	-0.326	0.302	0.318	0.024	0.057	0.283	-0.339
2. Employed per 1000	0.094	1	-0.085	0.224	0.268	0.045	0.702	0.392	-0.120
3. Jobless per 1000	-0.326	-0.085	1	-0.107	-0.271	-0.043	-0.080	-0.189	0.192
4. Businesses per 1000	0.302	0.224	-0.107	1	0.460	0.010	0.253	0.613	-0.252
5. Net migration	0.318	0.268	-0.271	0.460	1	-0.001	0.242	0.526	-0.263
6. Secondary graduates per 1000*	0.024	0.045	-0.043	0.010	-0.001	1	-0.016	0.005	-0.047
7. Investment outlays per capita**	0.057	0.702	-0.080	0.253	0.242	-0.016	1	0.235	-0.124
8. Financial independence***	0.283	0.392	-0.189	0.613	0.526	0.005	0.235	1	-0.101
9. Farming tax per capita	-0.339	-0.120	0.192	-0.252	-0.263	-0.047	-0.124	-0.101	1

* Graduates from secondary and higher educational establishments, located in the commune
** Investment outlays from municipal budget per capita
*** Ratio of own revenues of the municipality to total budget

In particular, the role of population density does not seem to be "decisively" telling, even though it certainly plays some role, especially when compared to most of other variables. The apparent nexus is constituted by the **(i)** *number of businesses per 1000 inhabitants;* **(ii)** *net migration,* and **(iii)** *financial independence of the communes*. The strong link between the number of employed per 1000 inhabitants and municipal investment outlays per capita seems to result straight from the financial capacity of the communes, indirectly due to the share of the employed, influencing the municipal budget.

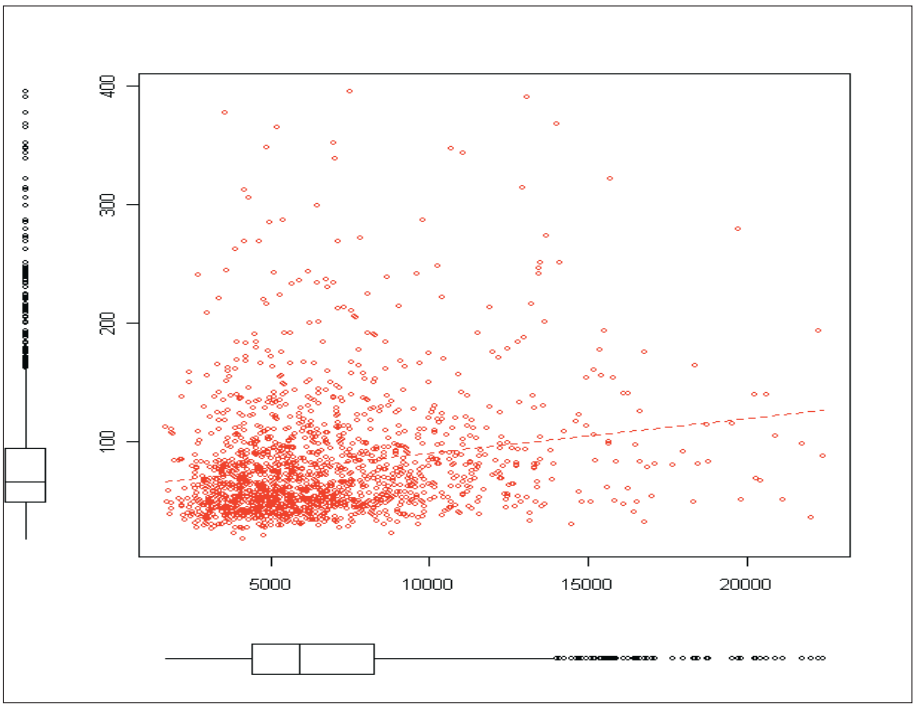

Figure 5. Population numbers (horizontal axis) against the number of registered employed pr 1,000 inhabitants (vertical axis) in rural communes in Poland in 2005 (extremes removed)

Especially striking is the lack of connection between population density and employment, while there appear to exist connections between population density on the one hand, and joblessness, business registrations and net migration. Indeed, Figure 5 confirms that it is hard to associate a distinct statistical (to say nothing of causal) relation to the population dimension, through a pattern that is almost identical with that of Figure 3.

In the attempt to verify the hypothesis of different characteristics of municipalities along some of the dimensions analysed, therefore, another way of proceeding was selected.

Namely, the population of rural communes was divided into pairs of *overlapping sub-populations,* one division pertaining to the number of businesses per 1000 inhabitants, and the other – to the number of registered employed per 1000 inhabitants. The two divisions and the numbers of communes in the respective subpopulations are shown in Table 5.

Table 5. Divisions into two sub-populations – limits and numbers of communes

Division according to:	Definitions	Numbers of communes in consecutive years			
		2003	2004	2005	2006
Number of registered employed per 1000 inhabitants	> 90	410	416	450	458
	< 100	1281	1261	1240	1214
Number of registered businesses per 1000 inhabitants	> 70	286	255	274	310
	< 75	1398	1407	1395	1360

The data from Table 5 confirm the ones from Table 1, of course, along with the improved situation in terms of employment. For each of the sub-populations the correlation coefficients were calculated for selected variables, similar as in Table 4. Thus, Table 6 compares the correlation coefficients of the registered employed per 1000 inhabitants for the two pairs of sub-populations.

Table 6. Correlation coefficients of the registered employed per 1000 inhabitants for the two pairs of sub-populations of rural communes, defined in Table 5 (ranges of values for 2003-6)

Variables, with which correlation was calculated	Division according to the employed per 1000 inhabitants		Division according to registered businesses per 1000 inhabitants	
	> 90	< 100	> 70	< 75
Population density	0.03 - 0.04	0.09-0.15	0.18 - 0.23	0.02
Agricultural tax per capita	-0.10	-0.05 - -0.07	-0.10 - -0.15	-0.07 - -0.09
Investment outlays per capita**	0.72 - 0.88	0.00 - 0.07	0.25 - 0.27	0.62 - 0.77
Employed per 1000 inhabitants	1	1	1	1
Jobless per 1000 inhabitants*	-0.11 - -0.12	0.08 - 0.12	-0.22 - -0.28	-0.02 - -0.04
Businesses per 1000 inhabitants*	0.08 - 0.09	0.35 - 0.39	0.33 - 0.34	0.14 - 0.15
Graduates per 1000 inhabitants	0.00 - -0.01	0.12 - 0.15	0.14 - 0.18	0.02 - 0.03
Net migration	0.13 - 0.23	0.19 - 0.30	0.28 - 0.31	0.17 - 0.23
Financial independence	0.26 - 0.44	0.30 - 0.40	0.49 - 0.53	0.36 - 0.42
Revenue from personal income tax per capita*	0.13 - 0.15	0.33 - 0.37	0.44 - 0.48	0.20 - 0.23
Revenue from corporate tax per capita**	0.76 - 0.93	0.23 - 0.25	0.54 - 0.60	0.81 - 0.93

It can be concluded, on the basis of Table 6 that we indeed deal with two different sub-populations, although this initial choice of the division limits was only superficially guided by the descriptive statistics.

First, let us notice high stability of the coefficient values over the period studied. In addition, some of the coefficient values are persistently high, while not reflecting the "arithmetically" derived variables. This confirms the supposition that we can treat these (or similarly derived) sub-populations as proper objects of study.

Then, there are very distinct differences between the two sub-populations, in terms of relations to some other variables, indicated in the table by bold and italic figures. We shall return to them when formulating the initial conclusions, but now the tables, analogous to Table 6, shall be presented, for the variables of the number of registered jobless per 1000 inhabitants (Table 7) and the number of registered businesses per 1000 inhabitants (Table 8).

Table 7. Correlation coefficients of the registered jobless per 1000 inhabitants for the two pairs of sub-populations of rural communes, defined in Table 5 (ranges of values for 2003-6)

Variables, with which correlation was calculated	**Division according to the employed per 1000 inhabitants**		**Division according to registered businesses per 1000 inhabitants**	
	> 90	**< 100**	**> 70**	**< 75**
Population density*	-0.41 - -0.46	-0.27 - -0.29	-0.45 - -0.50	-0.28
Agricultural tax per capita	0.19 - 0.24	0.15 - 0.17	0.31 - 0.39	0.13 - 0.16
Investment outlays per capita	-0.06 - -0.11	-0.02 - -0.05	0.02 - -0.09	-0.03 - -0.06
Employed per 1000 inhabitants*	-0.11 - -0.12	0.08 - 0.12	-0.22 - -0.28	-0.02 - -0.04
Jobless per 1000 inhabitants	1	1	1	1
Businesses per 1000 inhabitants	-0.14 - -0.19	-0.02 - 0.01	-0.04 - -0.09	0.00 - 0.01
Graduates per 1000 inhabitants	-0.05 - -0.07	-0.03 - -0.08	-0.07 - -0.10	-0.04 - -0.07
Net migration*	-0.29 - -0.32	-0.08 - -0.23	-0.33 - -0.41	-0.09 - -0.19
Financial independence	-0.18 - -0.26	-0.10 - 0.03	-0.07 - -0.28	0.00 - -0.10

Table 8: Correlation coefficients of the registered businesses per 1000 inhabitants for the two pairs of sub-populations of rural communes, defined in Table 5 (ranges of values for 2003-6)

Variables, with which correlation was calculated	**Division according to the employed per 1000 inhabitants**		**Division according to registered businesses per 1000 inhabitants**	
	> 90	**< 100**	**> 70**	**< 75**
Population density	0.29 - 0.32	0.19 - 0.29	0.17 - 0.21	0.16 - 0.18
Agricultural tax per capita	-0.24 - -0.26	-0.18 - -0.21	-0.17 - -0.18	-0.15 - -0.17
Investment outlays per capita**	0.22 - 0.26	0.01 - 0.11	0.42 - 0.47	0.04 - 0.07
Employed per 1000 inhabitants*	0.08 - 0.09	0.35 - 0.39	0.33 - 0.34	0.14 - 0.16

Variables, with which correlation was calculated	Division according to the employed per 1000 inhabitants		Division according to registered businesses per 1000 inhabitants	
Jobless per 1000 inhabitants	-0.14 - -0.19	-0.02 - 0.01	-0.04 - -0.09	0.00 - 0.01
Businesses per 1000 inhabitants	1	1	1	1
Graduates per 1000 inhabitants	-0.02 - -0.07	0.01 - 0.02	-0.06 - 0.01	0.02 - 0.03
Net migration	0.45 - 0.46	0.35 - 0.43	0.29 - 0.31	0.27 - 0.31
Financial independence	0.49 - 0.58	0.43 - 0.50	0.39 - 0.53	0.37 - 0.41

Some conclusions

The conclusions we formulate here are primarily related to the further course of the study, as the results reported constitute just the starting point for a broader analysis, involving also the geographical, or regional, aspect of the phenomena considered.

Thus, definitely, the variable of registered employment is telling for the division of the population of rural communes in Poland into the respective subpopulations. Based on Tables 6, 7 and 8 we can state that the other two variables here considered cannot be treated as thus telling (especially not the joblessness). Thereby, a foundation is provided for a more detailed insight into the employment and professional activity issues, designed, in terms of classes of communes and variables looked at, following the here presented results and conclusions.

Even though population density was not found to determine (decisively) the shape of the relations studied, it was found to be closely associated with some of the key variables. Quite in line with the models of Table 3, this variable displays stronger "influence" in the "upper" sub-populations. On the top of this, such variables as, in particular, capital outlays per inhabitant have been found as closely related to the division sought.
Although of feeble strength, the previously suggested positive correlation of employment and joblessness data was also found (Tables 6 and 7) for the lower employment-wise sub-population.
The primary outcome of the consideration of the results here quoted consists in the possibility of asking reasoned questions, oriented at causal relations, such as:

- wherefrom the striking difference between the correlations of employment and capital outlays in the two employment-wise subpopulations? is it just due to the very low such outlays in the lower sub-population? and, even if so, why are these (per capita!) outlays so low there?
- a similar question can be asked with respect to the municipal budget revenue from the corporate tax: are the differences, shown in Table 6, due to the

fact that, in particular, employment and associated revenues, personal and municipal, are not so much associated with the total number of registered businesses, as with the existence of larger businesses, both employing more people and paying altogether higher payrolls; yet, the probability of appearance of such businesses increases, of course, with the total number of businesses within an area;
- the above question naturally extends to the number of employed, as also seen in Table 8;
- further, why the revenues from personal income tax display (even though quite modest) reverse shift in correlation? (we should keep in mind that all these are relative, not absolute values).

These are just examples of the research issues to be undertaken in the next stage of research, also, as mentioned, in the spatial dimension, both regional and in terms of the "urban-rural" and/or "central-peripheral" axis.

Even though the study, as of this instance, does not take up explicitly the aspect of dynamics, i.e., the data on the past and the consideration of potential future changes in the characteristics analysed, the hypotheses considered are also related to the supposed dynamics and its future course. A kind of "ergodic" assumption could, namely, be made, meaning that the fate of some types of communes shall – or at least can – constitute the future pattern for some other ones. (This applies, in a particular manner to the "extreme" types, like the municipalities in the suburban zones of larger agglomerations and their actual and potential transformations, as well as the peripheral municipalities, with low level of economic activity and threatening or actual depopulation.)

On the other hand, the hypotheses forwarded concern also the limits to the thus conceived "ergodicity", that is: is this particular kind of evolution sustainable? what are the limits to the repetition of this kind of evolution? and: what are the alternative paths?

And an illustration

To illustrate the aspect of spatial dimension we shall quote at the end two tables. The first of these, Table 8, shows the "top 20" communes in the ranking, based on the decreasing values of the difference between two indicators, one called *"economic"*, summing up the following here considered relative variables: (i) registered employment per 1000 inhabitants, (ii) number of businesses registered per 1000 inhabitants, (iii) jobless per 1000 inhabitants (entered as negative), (iv) net migration, (v) investment-project-related expenditures from the municipal budget per capita, and (vi) expenditures from the municipal budget on communication and transport per capita, and the other one called *"civilisational"*, summing up (i) the number of graduates of secondary and higher schools, (ii) number of computers in schools located in the municipality per 1000 inhabitants, (iii) water supply system availability in % of inhabitants, (iv) and (v) sewage and wastewater treatment facility availability, in % of inhabi-

tants served. Thus, the "top 20" communes here listed in Table 8 feature the biggest (absolute) differences between the values of the two indicators.

Table 8. Top 20 communes with the biggest differences of the economic and civilisational indicators

Commune (area in Poland)	Type	Economic	Civilisational	Absolute difference
Józefów (near Warsaw)	1	537.22	62.73	474.49
Łomianki (near Warsaw)	3	547.05	83.49	463.56
Raszyn (near Warsaw)	2	588.08	158.83	429.25
Michałowice (near Warsaw)	2	563.22	179.85	383.37
Stryszów (near Cracow)	2	361.44	13.38	348.06
Siewierz (Silesia)	3	432.91	102.71	330.20
Radziejowice (not far from Warsaw)	2	338.54	33.19	305.35
Jabłonna (near Warsaw)	2	311.01	39.81	271.20
Marki (near Warsaw)	1	373.17	105.78	267.39
Pełczyce (Western Pomerania)	3	-3.76	261.22	264.98
Puszczykowo (near Poznań)	1	428.25	168.29	259.96
Bełżec (region of Lublin)	2	272.60	20.19	252.41
Karnice (Western Pomerania)	2	-57.98	192.54	250.52
Podkowa Leśna (near Warsaw)	1	397.35	147.04	250.31
Grzmiąca (Western Pomerania)	2	-36.72	208.12	244.84
Ślemień (Beskid Mts., near Silesia)	2	254.03	11.67	242.36
Dobra (Western Pomerania)	3	-18.56	215.55	234.11
Trzciana (not far from Cracow)	2	242.67	12.81	229.86
Radzymin (near Warsaw)	3	301.89	75.77	226.12
Dębe Wielkie (region of Warsaw)	2	238.43	16.39	222.04

Type: 1 – urban; 2 – rural; 3 – urban-rural

It is, indeed, highly striking that this table gathers almost exclusively, within two extremes (i.e. of municipalities with the economic indicator overwhelmingly higher than the civilisational one, and vice versa), two kinds of communes: **(i)** the suburban, peri-urban or "satellite" municipalities of large agglomerations (where the economic aspect is, as a rule, far in excess of the civilisational one), and **(ii)** the well-equipped, in terms of basic infrastructure, peripheral communes of the post-state-farm areas, within the territories formerly belonging to Germany, where there is virtually no economic activity and outmigration takes place nowadays (it ought to be emphasised that many of those municipalities are located close to very attractive areas from the point of view of tourism; thus, there are often, within one county, deeply depressed and dynamically developing communes, side by side). Definitely, for the sake of further study these two groups should be kept apart as "special cases" of the (nominally) rural areas.

Let us return here to the issue of proper definitional "rurality". As indicated, we deal in the study with formally rural municipalities in terms of the Polish territorial administration. This is not only for the sake of simplicity (the definitions are "given"), but also in view of the policy perspective, which has to account for the definite competence of local authorities of different levels, and of different types. It is highly probable that most of the communes from group (i) above would end up as parts of "urban" areas, were the definitions of OECD, EU etc., followed – this, however, for quite specific a priori defined areas, encompassing these communes. For other ones, they may still be perceived as rural. The quasi-infinite regression problem arises, which we do not want to take up here, and thus stick to the formal designation of the respective territories. In further course of the study an attempt might be undertaken to improve the definitions of rural areas, alluded to here.

Then, Table 9 shows the top 40 rural communes with respect to population density. There is a definite overlapping of the two subsets of communes, associated with the correlation of population density and the variables forming the economic indicator. It can, of course, be argued that most, if not all, of the "rural" communes with high population densities could have been transferred to the category of urban units. This, however, is not so simple. Decisions of this sort – like everywhere in the world – are not being made overnight based on just one criterion. Tradition, cultural and historical aspects play decisive role. This applies equally to municipalities that could have been "absorbed" by their respective urban agglomerations, as representing their quasi continuation, and to that can hardly be (directly) associated with any urban agglomeration. Yet, even if some of those were thus transferred, the phenomenon would still be there, though of somewhat smaller proportions.

Actually, we can see that a vast majority of the communes listed in Table 9 make, in fact, the elements of (broader) agglomeration or direct influence zones of just a couple of Polish large urban agglomerations: (Upper) Silesia (3-5 million inhabitants) – 24 out of the 40 above, Warsaw (2.5 million) – 4 out of 40, Cracow (up to 1million) – 5 out of 40, Lodz (close to 1 million) – 2, Poznań (half a million) – 1, as well as a couple of smaller centres, virtually uniquely in the quickly developing South-East of the country (Rzeszów, Krosno, Tarnów). Most presumably, with the consideration of less densely populated municipalities, other agglomerations and their influence zones would appear, as well, but it is worth emphasising that yet in the next dozen or so communes in the same ranking the very same spatial organisms appear almost uniquely. This also calls for a special analytic, as well as administrative treatment of these units, so as to, generally, discern the "proper rural" from what can be called "suburban" or "urbanising" or "post-agricultural", but also to differentiate the urban agglomerations (in Poland) with respect to the characteristics of their surrounding zones.

In further course of the study these issues shall be taken up, first having in mind the separation of the types of communes, mainly from the point of view of the occupations of their inhabitants.

Table 9. Polish (formally) rural communes with the highest population density (2006)

Name of commune, corresponding county	Population density (persons per sq. km)	Nearest urban agglomeration and relation to it
Buczkowice, Bielsko-Biała	548	Silesia, southern border, tourism-oriented
Ksawerów, Pabianice	527	Lodz, adjacent to the South
Andrespol, Łódź	503	Lodz, East
Jejkowice, Rybnik	487	Silesia, western edge
Świerklany, Rybnik	466	Silesia, western edge
Michałowice, Pruszków	452	Warsaw, adjacent to the South-West
Raszyn, Pruszków	452	Warsaw, adjacent to the South
Gaszowice, Rybnik	440	Silesia, western edge
Kozy, Bielsko-Biała	435	Silesia, southern border
Marklowice, Wodzisław	373	Silesia, western edge
Łodygowice, Żywiec	370	Silesia, southern border
Ornontowice, Mikołów	360	Silesia, centre-South
Wilkowice, Bielsko-Biała	360	Silesia, southern border
Godów, Wodzisław	328	Silesia, western edge
Zielonki, Cracow	326	Cracow
Krościenko Wyżne, Krosno	318	Local urban centre of Krosno
Jaworze, Bielsko-Biała	313	Silesia, southern border
Miedźna, Pszczyna	308	Silesia, South
Gorzyce, Wodzisław	304	Silesia, western edge
Zebrzydowice, Cieszyn	304	Silesia, southern border
Czerwona, Poznań	290	Poznań
Chybie, Cieszyn	287	Silesia, South-West
Gierałtowice, Gliwice	281	Silesia, West
Tarnów, Tarnów*	280	Local urban centre of Tarnów
Bestwina, Bielsko-Biała	277	Silesia, southern border
Miejsce Piastowe, Krosno	262	Local urban centre of Krosno
Stare Babice, Warsaw West	260	Warsaw, adjacent to the West
Mogilany, Cracow	260	Cracow, adjacent to the South
Świerklaniec, Tarnowskie Góry	246	Silesia, North
Siepraw, Myślenice	246	Cracow, southern extension
Krasne, Rzeszów	245	Rzeszów
Chełm Śląski, Bieruń-Lędziny	245	Silesia, centre-South-East
Psary, Będzin	244	Silesia, centre
Lesznowola, Piaseczno	239	Warsaw, adjacent to the South
Rędziny, Częstochowa	235	Częstochowa (Silesian influence)
Pawłowice, Pszczyna	232	Silesia, South

Name of commune, corresponding county	Population density (persons per sq. km)	Nearest urban agglomeration and relation to it
Porąbka, Bielsko-Biała	230	Silesia, southern border
Zabierzów, Cracow	227	Cracow, East
Mszana, Wodzisław	225	Silesia, western edge
Oświęcim, Oświęcim*	224	Silesia – Cracow

* rural communes surrounding the urban communes with county seats;

References

Owsiński J. W., Więcław A., 2007, *Finding the Odd-Man-Out In Development Scoring and Classifications*, In: Hryniewicz O., Studziński J., Szediw A. (eds.), *Environmental Informatics and Systems Research,* vol. 2, Workshop and application papers, Shaker Verlag, Aachen, 195-199.

Owsiński J.W., 2008, *On measurement of sustainability and life quality in Polish municipalities*, In: Hryniewicz O., Straszak A., Studziński J. (eds.), *Badania operacyjne i systemowe: środowisko naturalne, przestrzeń, optymalizacja,* Badania Systemowe, 63, Instytut Badań Systemowych PAN, Warszawa, 185-195.

Owsiński J.W., 2008, *How can we read out life quality assessments from the official socio-economic data on Polish municipalities?* In: Ostasiewicz W. (ed.), *Quality of Life Improvement Through Social Cohesion,* Proc. of the 4th International Conference, Wrocław University of Economics, Department of Statistics, 140-155.

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The development of social infrastructure in rural areas of Ukraine

Abstract: *Our primary focus in the present paper is to research the current state of social infrastructure in rural areas of Ukraine. In addition, we attempt to identify the factors which impact the establishment of appropriate conditions in support of vital social functions and services among the country's rural population.*

Keywords: *social infrastructure, rural areas, multifunctional agriculture*

Introduction

Issues and challenges related to developing social infrastructure in rural areas of Ukraine were traditionally dealt with topically. Until the 1980s, under conditions of command economy and the centralised distribution of resources, social infrastructure development in rural areas was financed according to a residual approach. From 1990 onwards, when conditions called for the reorganisation of kolkhozes, many social infrastructure installations ceased to function altogether. An alternative system for building infrastructure in these areas has not been applied until now; however, the problems have already become acute.

Overview of current challenges

Recently, the discussion surrounding the development of rural areas in Ukraine has become more active. The term rural areas is defined as that portion of a territory located beyond the limits of urban settlements and within whose boundaries natural, manpower and other resources are allocated. Not only is agriculture vital to safeguarding the country's food supply, but it also plays a determinant role in the makeup of rural areas. However, beyond focusing on the production environment, policy considerations must also extend to the rural social environment.

Unfortunately, the existing social infrastructure in rural areas of Ukraine was neglected in recent times. Beginning in the early 1990s, the predominant view was to reject direct, common methods of economic regulation and instead rely on means of implementing market leverage, thus leaving problems to be solved "automatically" – including those related to developing the social infrastructure. Ukrainian scientist-economists made every effort to research the process of agricultural transformation according to pure market economy principles, which caused their investigation of questions relating to social infrastructure to fade into the background. This approach has since been confirmed to be incorrect. Indeed, special programmes for the permanent and complex development of rural areas have become a fact of life even in developed countries.

Modern European policies in support of rural area development aim to defend not only the interests of peasants and farmers, but also those of consumers and taxpayers. Furthermore, the evolution of a common agrarian policy has been achieved by shifting from standard agrarian policy towards one which targets the multifunctional development of rural territories. For the latter, the most important element is the balanced and permanent development of agriculture [1].

Multifunctionality is attained at farm level when a certain type of activity delivers different outputs; and at regional level by combining multifunctional farms or activities [2, 3]. Yuriy Hubeni defines "multifunctional agriculture" not only as the development of farm activities, but also the strengthening of two key types of functions: the "usual" (educational, social, cultural) and the "new" (recreational, ecological, renewable energy sources) [4].

Ukraine's aspiration for integration within the European Community will require a considerable adjustment in the situation of rural areas. To overcome the prevailing depression and fuel future development, an urgent need for scientific substantiation and the practical application of targeted actions exists. Thus, the development challenges which these areas face require further research, particularly within the context of providing the necessary social facilities.

Aim of the study

Our aim was to investigate the current state of social infrastructure in Ukraine's rural areas, and to identify the factors impacting the establishment of appropriate conditions in support of vital social functions and services among the country's rural population.

Results

There is close correlation between the economic growth of a given territory and the development of its social infrastructure. Establishing and maintaining a functioning social infrastructure is a necessity dictated by large po-

pulation centres. Though such infrastructure may not contribute directly to the production of end products it does provide the conditions needed for production processes to thrive. It is thanks to social infrastructure that the manufacturing sector has skilled workers available, whilst infrastructure also contributes to cultural development, educational quality and even job satisfaction. Conventionally, infrastructure is divided into production and socially related facilities, with some elements of infrastructure functioning in support of both production and social needs. Roads, utilities, communication services, etc., count among the latter.

For many years, the Ukrainian economy developed under socialism, during which time a priority was placed on socialised means of production. Thus, the policy focus was on increasing production and establishing enterprises which worked for all of society. Such enterprises were founded in towns, where economic growth was higher than in rural settlements and this in turn affected the level of social infrastructure development.

Today, a differentiated degree of social infrastructure development in rural areas is noticeable between regions of Ukraine based on their varying levels of economic growth. To illustrate this dependency, we have grouped the Ukrainian regions by agricultural output per capita of rural population and provide key social infrastructure indices for each (see Table 1).

Table 1. The influence of production environment on social infrastructure development in rural areas of Ukraine

Index	Grouping of regions by agricultural output per capita of rural population				Average
	1	2	3	4	
	≤ 999 UAH*	1000 – 1449 UAH	1500 - 1999 UAH	2000 ≥ UAH	
Number of regions	5	7	7	6	X
Per capita retail sales in rural areas (UAH)	709.4	375	463.43	523.3	517.8
Number of hospital beds per 10,000 inhabitants	8.3	8	9.5	13	9.7
Restaurant seats per 10,000 inhabitants	226	167	363	254	252.5
Average per capita housing space (square metres)	23.8	23.5	24.0	27.3	26.5
Level of providing preschool institutions (% of existing demand)	29.7	22.8	25.4	28.0	51.3
Level of providing secondary schools (% of existing demand)	48.9	54.2	53.9	48.2	43.1
Level of providing					
post offices (% of existing demand)	44.6	43.8	37.7	46.1	1.3

Index	Grouping of regions by agricultural output per capita of rural population				Average
	1	2	3	4	
	≤ 999 UAH*	1000 – 1449 UAH	1500 - 1999 UAH	2000 ≥ UAH	
Level of providing communal services (% of existing demand)	1.8	1.6	0.8	1.0	17.6
Level of providing sports buildings (% of existing demand)	14.7	19.2	17.2	19.3	24.7

*UAH: Ukrainian hryvnia (national currency)

Several index values are higher in the group whose agricultural output per capita of rural population reaches a maximum of 999 UAH. This can be explained by the fact that these five regions also contain industrially developed areas and part of the population works for industrial enterprises. Urbanised rural areas are located around big cities such as Donetsk, Dnipropetrovsk, Luhansk, Kyiv (Kiev) and Lviv. These cities are permanently expanding by using agricultural land for housing and industrial building construction. Thus, agricultural usage of land within these areas is statistically insignificant and the share of agricultural output is considerably lower than its industrial counterpart. At the same time, the industrial enterprises are a source of revenue for the regions' budgets, and these revenues are also used to finance social infrastructure installations in the rural areas.

From 1991 onwards, a decrease can be observed in Ukraine's rural and urban population alike, which can be explained by imbalances in the birth and mortality rates, as well as migration. More recently, it has been noticed that the lack of workplaces in towns is contributing to the rural population's migration abroad (Spain, Italy, Poland, Czech Republic) in search of employment. Between 1991 and 2007, the share of rural population decreased from 32.5% to 31.7% (see Figure 1).

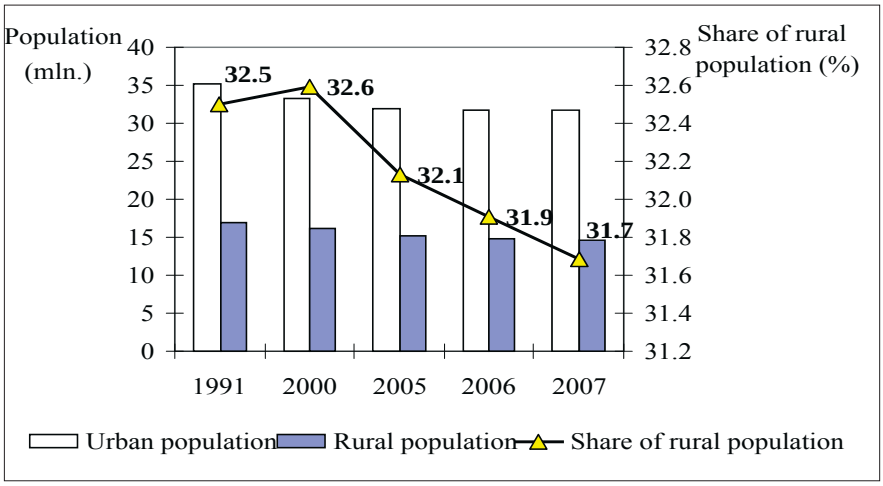

Figure 1. Urban and rural population of Ukraine

The decrease in rural population has led to declining demand for social infrastructure services and thus also lowered profitability for related investments. The government's desire to rely on market forces, together with the limited availability of state financing, has furthermore resulted in a net reduction in the quantity of social infrastructure facilities in rural areas (see Table 2).

Table 2. Social infrastructure installations in rural areas of Ukraine

Social facilities	1990	1995	2000	2005	2005 vs. 1990 (in %)
Preschool institutions (thsd)	12.6	10.9	8.9	8.4	66.7
Secondary schools (thsd)	15.1	15.2	14.9	14.3	94.7
Clubs and community centres (thsd)	21.0	19.8	17.7	16.8	80.0
Libraries (thsd)	18.7	18.0	15.7	15.1	80.7
Cinemas (thsd)	22.2	13.6	5.9	2.5	11.3
District hospitals (thsd)	1.5	1.4	0.9	0.7	46.7
Pharmacies (thsd)	…	3.0	3.2	1.6	X
Distribution facilities (thsd)	60.5	48.2	33.5	19.0	31.4
Restaurants and cafes (thsd)	18.3	10.9	10.3	8.1	44.3
Communications centres (thsd)	9.9	10.4	10.8	11.0	111.1
Housing dwellings (mln)	5.9	6.2	6.2	6.1	103.4

Source: [5]

Currently the share of "tumble-down clubs," preschool institutions, secondary schools, libraries and hospitals stands at 47.9%. As such, the spatial distribution of social infrastructure installations does not meet the needs of rural areas whilst the accessibility of such installations is furthermore impaired by a lack of travel facilities and transport connections. The end result of the deficient state of social facilities is discouragement of, and a de facto decrease in, economic activity in Ukraine's rural areas.

The difficult financial situation is the key factor limiting the effectiveness of commercial operations by social infrastructure enterprises. In addition, it is difficult to determine a profitable rate of return for market related activities and ventures. The problem of social infrastructure development can therefore only be solved by using a complex system approach; and it will be necessary to create more advantageous conditions to promote the development of various types of business enterprises in rural areas.

When carrying out reforms in housing and communal services, the government needs to guarantee housing conditions which meet adequate social standards for the poor population. The government should also actively intervene and encourage the development of education and health protection facilities in rural areas by stimulating the formation of market relationships. However, there is no reason to expect that this alone will lead to the establishment of a large quantity of private hospitals and schools in rural territories.

With respect to providing budgetary financing for social care purposes, funding must be distributed among Ukrainian regions and settlements according to index-based medical and educational requirements as opposed to basing it on the absolute quantity of social installations within a given region. Direct government aid to needy persons would seem the best approach.

Conclusion

The quality of life of Ukraine's rural population depends on the economic activities of enterprises located in rural areas. Thus, establishing new social infrastructure systems which encourage the development of non-agricultural activities can be a key motivating force for rural development.

References

Doitchinova J., 2005, *Multifunctional Agriculture as Opportunity for Rural Development*, Trakia Journal of Science, 3, 7, 41-43, http://www.uni-sz.bg.

van Huylenbroeck G., 2006, *Multifunctionality or The Role of Agriculture in The Rural Future,* http://www.ruralfuturesconference.org/2006/Van%20Huylenbroeck.pdf.

van Huylenbroeck G., Durand G., 2003, *Multifunctional Agriculture,* Ashgate Publishing.

Губені Ю.Е., 2007, *Розвиток сільських територій: деякі аспекти європейської теорії і практики,* Економіка України, 4, 62-70 (Hubeni Y., 2007, The development of rural areas: some aspects of European theory and practice, Economy of Ukraine, 4, 62-70).

Розвиток сільських територій України, 2006, К.: ІВЦ Держкомстату України (The development of rural areas of Ukraine, Kyiv).

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Multifunctionality and policy learning in the finnish agri-environmental policy subsystem: A multilevel governance perspective

Abstract: *During the past fifteen years Finnish agricultural, agri-environmental and rural policies have undergone significant changes. Structural changes of agriculture, emphasis on the joint production of food and public goods, as well as the recognition of general multifunctional nature of agriculture and rural activities have all contributed to the policy change. The term multifunctionality has been used in various ways in the agricultural and rural policy debate, depending on the political agenda and on the context in which it has arisen. From the theoretical point of view, it is of particular interest due to its various dimensions. This paper addresses the role of the notion of multifunctionality in the development of the Finnish agri-environmental policy. The main finding is that the concept of multifunctionality is closely related to the formation of a new advocacy coalition in the agri-environmental policy subsystem. However, it is not seen that the concept has much to contribute to agricultural, agri-environmental or rural policy. It seemingly acts for consensus in the policy field but it has hardly been used as a conceptual tool for creating any new space for integrative policy framing.*

Keywords: *agricultural multifunctionality, policy coalitions, policy learning, Finnish agriculture*

Introduction

The issues on sustainable agriculture are becoming more prominent in the European Union, and particularly the reforms of the EU Common Agricultural Policy have aimed to broaden the general understanding about the role of agriculture. There have also appeared novel policy concepts, which aim to act for sustainable rural and territorial development. An interesting example is the notion of multifunctional farming, which refers to the simultaneous and interrelated provision of different functions. The general idea of agriculture having other functions besides producing food and fibre is certainly not novel (Noe et al. 2008). As Pretty (2002; also McCarthy 2005) has noted, agriculture is inherently multifunctional, since it jointly produces many unique non-food functions that cannot be produced by other economic sectors as efficiently. According to the core policy assumption of multifunctionality, however, rural development consists of a wide variety of "new" activities and services such as nature conservation and environmental management, agri-tourism and the development of short supply chains. A common denominator of these activities is the re-configuration of the way rural resources are used within the farm and between agriculture and other rural activities (Ploeg et al. 2000). This may open up a new field for environmental-political and socio-economic innovations in the rural area not only on a local basis but also in the all-European interest.

The frequently cited definition by OECD (2001) states that the key elements of multifunctionality are, firstly, the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture and, secondly, that some of the non-commodity outputs exhibit the characteristics of externalities or public goods, with the result that markets for these goods do not exist or function poorly. Characterised this way, agricultural multifunctionality appears primarily an economic concept attempting to capture special economic and policy characteristics of the agricultural production process. However, the term has been used in various ways in the agricultural policy debate, depending on the political agenda and on the context in which it has arisen. The issue is often linked to agricultural trade negotiations and to the EU's defence of an exceptionalist "European model of agriculture" within the WTO circles. The political discourse of multifunctionality is also tied in multi-level governance and it is therefore more diverse and more complicated than the main reference to the trade agenda implies.

Actually, the concept is of particular interest due to its various dimensions (Garzon 2005). The economic side maintains the traditional view that agricultural policy should increase economic efficiency and competitiveness. Its social dimension assumes that agricultural employment remains a strong factor in the social cohesion of rural areas, even if maintained on economically non-viable farms. The environmental argument encompasses both incentives with an increase in agri-environmental funding and obligations through regulations. As a legitimising discourse the idea of multifunctionality is addressed both to consumers, citizens, and farmers. To consumers, it continues to bring the search for low prices but also quality insurance due to regulations and

incentives to farmers. As to citizens, it aims to explain the continuation of the level of budgetary costs (however, allowing also the redistribution in favour of public goods). Finally, the farmers shall of course be paid for the private provision of public goods.

In examining the sociological components of agricultural multifunctionality, Tilzey (2003) has offered two distinct approaches to framing the issue: multifunctionality as "reality" and as a "discourse". The latter represents both the policy ideas speaking for the soundness and appropriateness of policy programmes and the interactive processes of policy formulation and communication serving to generate and disseminate those policy ideas. The same discourse may, therefore, have one function at the national level and the reverse at the international (Schmidt & Radaelli 2004).

Institutional setting makes difference in the ideas projected in the discourse. Losch (2004) has identified four main currents that have moulded MF ideas and discussions during the last 20 years. They are: (1) The serious objections to the inherited productivist model of agricultural policy goals (2) The relation to an increasing environmental awareness (3) The demands of food security constituting one point of reference (4) The movement towards economic liberalization at the international level highlighting the scale of protection measured in the industrialized countries. As Garzon (2005; also Bjørkhaug & Richards 2008) has noted, the concept of multifunctionality is of a normative and discursive nature – and importantly, contrary to previous experiences of policy change, the conceptualisation process does not stem from academic or experts arena. Actually, the concept has its roots in a social welfare justification for state assistance dating from the earliest years of the Common Agricultural Policy (Potter & Tilzey 2005).

Multifunctionality now seems to be a controversial and somewhat discredited term in WTO circles. It retains, however, considerable discursive resonance in EU countries such as Finland. Particularly when speaking to domestic audiences, also European policy-makers have continued to qualify their support for market liberalisation with the need to maintain multifunctional agriculture. What kinds of forms does the notion of multifunctional agriculture take at different spatial levels? It certainly implies contextual interpretation. The idea on multifunctionality figures in the debates concerning multilevel governance and post-productivism and, basically, it is applied to a wide range of locations and goals (e.g. Fouilleux 2004; Wilson 2008).

This paper addresses the role of the notion of multifunctionality in the development of agri-environmental policy: how do the adoption, interpretation and application of the concept of multifunctionality reflect and illuminate the policy change that has taken place in the Finnish agri-environmental policy? How have agri-environmental policy actors interpreted and used the ideas of multifunctional agriculture? Has multifunctionality created some new space for multi-level governance? The analysis draws on Paul Sabatier's Advocacy Coalition Framework (ACF). Empirically this study is based on

documentary material and on semi-structured interviews with the Finnish government officers in environmental and agricultural administrations and with the representatives of relevant stakeholders [17].

Theoretical understandings of multifunctionality

The notion of multifunctionality and the encouragement for agriculture to play several roles in society may be linked to a major change in agricultural thinking which has been referred to as the transition from the productivist to the post-productivist era (e.g. Marsden et al. 2002; Wilson & Rigg 2003). This shift implies a redefinition of the relationship between agriculture, environment and society. According to the post-productivist model, agriculture has to respond to mounting demands of consumers, tax-payers and citizens concerning environmental quality, animal rights, food security and viability of rural areas. Consequently, the productivist economic rationale behind farming is inevitably transforming. The farmers cannot anymore pursue farm-level profitability only by increasing physical productivity and the amount of production, but they also have to take into account values of positive and negative externalities that they produce as a result of the joint production process.

Marsden et al. (2002) have, however, criticised post-productivist thinking strongly on the grounds that it ignores the farm as the central place in generating sustainable rurality. Evans et al. (2002) have examined post-productivism with an empirical approach and found the term rather useless in understanding agricultural changes. It has been used to cover, for instance, political culture, the policy and the market as well as the farmers themselves. In empirical terms, however, Evans et al. found practically no support for the over-arching rural change post-productivism aims to describe. Instead, they conclude that the changes in agricultural policy have not led to any new and less productivist agriculture. They also argue that the dominant agri-environmental schemes do not represent any substitution of productivism. It thus seems to us that superficially the concept of multifunctionality may be consistent with the post-productivist thinking. Basically, however, rural sustainability is often associated with multi-functionality at the production premises, which may make it an alternative to both an industrially minded productivist concept of agriculture and the post-productivist trajectories presented as current alternatives for rural development (Marsden 2003; Wilson & Rigg 2003; Mather et al. 2006).

Another candidate to be related to the idea of multifunctionality is the ecological modernisation (EM) perspective, which is known as a sociological theory and a framework for environmental policy analysis. Due to the growing number of studies, the EM discussion has taken in a wide range of issues. It follows that ecological modernisation has been interpreted in various, even

17 23 in-depth interviews have been conducted with officials in the agricultural and environmental administration and with different stakeholders. The data concerning interaction between actors, their preferences and policy beliefs rests on the interviews and also on stakeholders' statements on policy proposals. Documentary material has been used as the data on changes of institutional settings, administrative procedures and characteristics of agri-environmental policy. It consists of official documents on policy and administration, such as committee and workgroup reports, government papers and official notes.

conflicting ways (e.g. Mol & Sonnenfeld 2000; Fisher & Freudenburg 2001). In spite of the theoretical diversification, the concept of EM is essentially tied up with the question how the existing institutions are able to address environmental problems. The key idea is that a new form of modernisation may unify economic growth and environmental improvements. It is expected that the process of ecological change in society proceeds as an active institutional reorganisation, which utilises science and technology and economic dynamics (Mol & Spaargaren 2000). This implies learning processes for the central institutions such as the state and the market. As a paradigm of environmental policy, EM basically holds that economic development and environmental measures can be compatible (Berger et al. 2001; Holm & Stauning 2002; Jokinen et al. 2008). It also aims to introduce alternative and innovative policy measures and to increasingly integrate environmental policy with other policy sectors, especially those related to production e.g. agricultural policy. Economic policy measures are also gaining increasing importance. Thus, environmental management, interactive environmental policy and institutional greening can be seen among the core elements of this policy paradigm (e.g. Marsden 2003; McCarthy 2005).

As Evans et al. (2002) correctly note, the EM perspective has not often been applied to agri-environmental policy analysis. Since multifunctionality aims to be a dynamic notion bringing together economic prosperity and environmental improvements, it seemingly keeps with the EM paradigm. It shall encourage farmers to manage landscape and the environment, and accordingly environmental policy is not seen as a zero-sum-game. Instead, it can be argued that a successful agri-environmental policy and economic goals can be realisable at one and the same time (c.f. Buller & Morris 2004). Multifunctionality thus fits in the major idea of EM that the centrality of production is retained, although also the environmentally-led changes in the nature of the market are recognised and taken seriously. In principle, multifunctionality may also advance the integration of the agricultural and environmental policy sectors, though in empirical terms this is an open question yet.

Policy change conceptualised by the advocacy coalition framework

Policy changes do occur, and various network approaches focus on policy processes (Thatcher 1998). Agricultural policy has traditionally been seen as an illustrative example of corporatist structures and practices. This theoretical view has been further developed with the concept of policy community (e.g. Marsh & Smith 2000). The concept refers to mutual interests and, thus, to a close and institutional relationship between pressure groups and the state in the process of policy-making. The policy network/community approach recognises the importance of institutional and structural power and explains the constancy of policy. However, it may lead to rather static analysis of policy, for instance, by overlooking the emergence of new actors and ideas in the policy field.

As it is an interesting issue whether there are new positions of actor groups to be observed, the approach should profoundly address the temporal dimension and the broad context of policy change. It should also identify the multi-level interplay between thematic and institutional factors of agricultural policy-making. In order to analyse how different actors within the Finnish agri-environmental policy have adopted and used the concept of multifunctional agriculture, we draw on Paul Sabatier's Advocacy Coalition Framework (ACF).[18] This approach enables to structure both institutional and constructivist aspects of the policy process, and it aims to focus on policy learning and on the effects of external variables. Policy change is analysed at the level of a policy subsystem, which consists of organisations concerned with a given problem. As explicated below, policy change is basically seen as a function of several sets of processes.

The ACF is an actor-based framework for analysing policy change. It was developed in response to the complexity of environmental policy subsystems by Sabatier and Jenkins-Smith (Jenkins-Smith & Sabatier 1994; Sabatier & Jenkins-Smith 1993; Zafonte & Sabatier 2004). The ACF suggests that the most useful unit of analysis for understanding policy change is a policy subsystem, for instance agri-environmental policy, which involves actors from different public and private organisations who are actively concerned and regularly interacting with a certain policy area. Within the subsystem actors can be aggregated into a number of advocacy coalitions, each composed of people from various organisations who share a set of basic beliefs and show co-ordinated activity over time. The ACF assumes that each coalition seeks to influence policy making in order to achieve their policy goals and objectives. This can be achieved by using various policy strategies and instruments. Since the idea of multifunctional agriculture refers to both policy beliefs and to policy strategies and instruments, the ACF provides a most appropriate theoretical framework for this analysis.

The belief system is organised into a hierarchical structure, implying the assumption that resistance to change decreases from deep-core beliefs to policy core beliefs and to secondary aspects. Deep-core beliefs refer to basic ontological and normative beliefs which operate across all policy subsystems and, therefore, are outside of the focus of this research. Policy core beliefs are more specific and represent a coalition's basic normative commitments and causal perceptions. An agreement over the policy core beliefs is the principal glue holding an advocacy coalition together (Jenkins-Smith & Sabatier 1994). While the policy core beliefs are resistant to change and keep the coalitions stable, they can also be subject to change over periods of a decade or more. Secondary aspects comprise instrumental decisions and information searches that relate to the way in which policies are implemented. Beliefs in the secondary aspects are assumed to be easily adjusted in the light of new data, experience or changing strategic considerations.

18 Since the ACF was first introduced in 1986, Sabatier and other scholars have continued to refine the framework by applying it to a variety of policy domains around the world (see the list of applications in Sabatier 1998). The ACF was originally developed for the US system, but it has been applied in the European context by several scholars, who have found it useful (e.g. Elliott & Schlaepfer 2001; Weber & Christophersen 2002). Sabatier suggests that the policy learning approach is particularly suitable in the policy domains such as agri-environmental policy which are dominated by professionals, where natural systems are involved and where quantitative data is available.

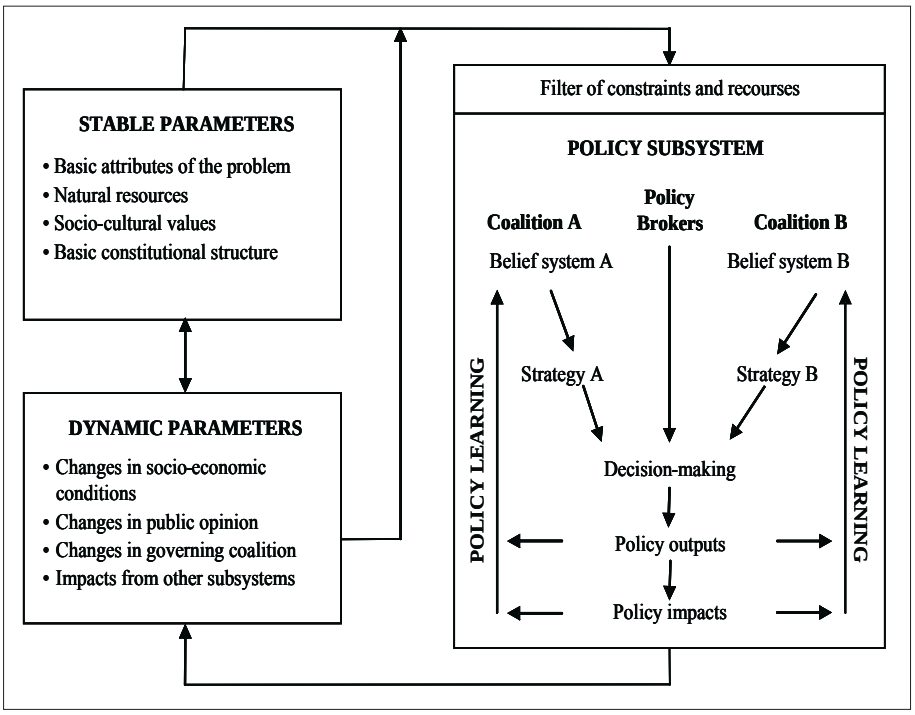

Figure 1. The Advocacy Coalition Framework
Source: Sabatier & Jenkins-Smith 1993

In the Advocacy Coalition Framework (see Figure 1), the policy change is viewed partly as a result of policy learning and partly as a result of external factors. Sabatier identifies two sets of external variables. The first set includes relatively stable exogenous variables, which are the basic attributes of the problem area, natural resources, socio-cultural values and constitutional structures. The stability indicates that these variables are difficult to change and, therefore, are very seldom the subject of coalition strategies. The second set includes more dynamic variables, which are the impacts from other subsystems, changes in socio-economic conditions, in public opinion and in systemic governing coalition. These variables are, in turn, more likely to change over a decade or so. The combination of the external variables affects the constraints and opportunities of subsystem actors. In addition to the external variables, the ACF sees policy learning as an important factor which is causing policy change to occur. The concept of policy learning refers to relatively enduring alterations of thought or behavioural intentions that result from experience and new information, and that are concerned with the attainment of policy objectives (Hall 1993). While policy-makers learn in response to the changes in the external policy environment, the most important influence often is the previous policy itself. Learning does not always have to draw from one's own past experience; it can also be comparative in focus (Rose 1991). The ACF assumes that policy learning is instrumental, yet the members of various coalitions seek to better understand the policy issue in order to achieve their policy objectives.

External variables in Finnish agri-environmental policy

During the past decade the operational environment of the Finnish agri-environmental subsystem has changed and many of the changes are linked to joining the EU in 1995. In terms of the ACF these are described as external variables to the subsystem. We discuss here only the variables of most relevance for the development of Finnish agri-environmental policy. These are structural change of Finnish agriculture, changes in the policy making, and impacts from other subsystems.

Structural change of Finnish agriculture

The main objective of the post-war Finnish agricultural policy was self-sufficiency achieved through promoting growth in efficiency of production. The policy was successful and by the beginning of the 1970s, overproduction had become the major problem in the agricultural sector. The overproduction continued through the 1970s and 1980s and at the same time the economic significance of agriculture decreased rapidly. In 1960 almost 30% of the labour force was employed in agriculture whereas in 1990 the share was 7%. In terms of gross national product, the share of agriculture was about 10% in 1960, but in 1990 it had fallen to 3%. In the same time period, the number of farms decreased from 300,000 to 120,000. The EU's Common Agricultural Policy has accelerated structural changes, and by the end of 2007 the number of farms had declined to 67,000 (Niemi & Ahlstedt 2008).

The main characteristic of the structural change in agriculture, besides the decreasing number and increasing size of farms, is the polarisation of production. At the farm level, this means that intensive differentiated production is replacing mixed production. At the national level, production is concentrated in the southern and western parts of the country. The northern and eastern parts are becoming less intensive production areas. The decrease in agricultural intensity or even ceasing of production in peripheral areas of the country has significant impacts on the socio-economic vitality of the whole area.

Changes in the policy making

The Finnish political system, often described as an open multi-party political system, has enabled strong interest groups, such as the Farmers' Union, to exert strong influence upon the decision making processes through both formal and informal channels. The application of the policy community approach to agri-environmental policy has emphasised the mutual interests of the agricultural state agencies and the farmers' unions. The agricultural policy community has been seen as an institutional structure explaining the key features of agri-environmental policy, characteristically agri-technical and defensive solutions, which primarily support income and production goals (e.g. Marsh &

Smith 2000). Also a Finnish case study has reported that in recent decades the agricultural policy community had been successful in presenting agri-environmental problems as non-political issues, which it is able to control (Jokinen 2000). The link between the Farmers' Union (MTK) and the Ministry of Agriculture and Forestry (MAF) has always been very close and unlike in many other European countries MTK is still the only national interest organisation of farmers covering practically all farmers in Finland. Thus, MTK together with agricultural administration has been able to formulate agricultural policy, and agri-environmental issues were also handled by this policy community.

When Finland joined the EU, the era of the national agricultural policy ended. The membership in the EU is a remarkable external change also for the Finnish agri-environmental policy: a part of the agricultural power was passed to EU institutions which, again, resulted in novel administrative procedures and practices at the national policy-making (Kröger 2005). As a result, the negotiations between the state and MTK were abolished. The role of the farmers' union then changed from being an institutionalised decision maker to that of an interest organisation (Jokinen 2002) as new actors entered the decision making arena. Since the Agri-environmental Programme requires co-operation between the agricultural and environmental administration, it has institutionalised the role of the Ministry of Environment as a decision making body in agri-environmental policy. However, the most remarkable change from the previous national policies has been that decision making has become supranational and policies are based on the principles and political objectives of the EU.

Impacts from other subsystems

In addition to agri-environmental policy, there are environmental regulations concerning agriculture. The most important regulations have been related to water protection (Jokinen 2000; Kaljonen 2006). The national programmes of goals for water pollution, for example, have set targets for the agricultural sector to reduce its water pollution. Since joining the EU, several environmental EU directives have had a considerable impact on agriculture. For example, the Nitrates Directive 91/676/EEC (CEC 1991) concerning the protection of waters against pollution caused by nitrates from agricultural sources contains strict requirements and mandatory measures for farmers. Another environmental directive concerning agriculture is the recent Water Framework Directive 2000/60/EC (CEC 2000). Given the past improvements in reducing point source pollution, the emphasis of the WFD will be on minimising non-point source pollution. This will cause additional challenges for agriculture. The Natura 2000 network under the Habitats Directive 92/43/EEC (CEC 1992b) affects sites of special interest for biodiversity by measures such as restricting the use of pesticides and fertilizers. The implementation of the Natura 2000 has been widely regarded as a failure. The first Natura proposal attracted over 14,000 complaints in Finland (Sairinen 2000). This has also made implementation of other environmental regulations more difficult by further turning the attitudes of farmers against environmental regulation.

The "agrarian" agri-environmental discourse, held by the agricultural policy community actors, dominated the problem definition arena since the rise of Finnish agri-environmental issues from the early 1970s (Jokinen 2002). The core of this discourse is that agri-environmental problems and their solutions must be adjusted to a broad context. This context has been the concern for the social and economic position of farmers and the vitality of rural areas.

Actual ideas of pro-environmental agriculture were conceptualised, for the first time, in the Finnish agricultural policy debate in the late 1980s. Pro-environmental farming was used to refer to those agricultural practices that aimed to develop the rural environment towards a pluralistic environmental commodity. It embodied the role of agriculture as a provider of public good typed environmental commodities (Aakkula 1999). Yet the concept of pro-environmental agriculture was not realized in terms of practical policy-making. It was mainly used as a rhetorical means to justify the practicing of domestic agriculture (Jokinen 2000). Nevertheless, from the beginning of the 1990s, along with the increasing environmental concern, the idea that agriculture is also a provider of environmental benefits was gradually adopted into the agricultural policy agenda. The first Environmental Programme for Rural Areas was approved in 1992. Since the programme was based on voluntary instruments and regulations were neglected, it did not change the main principles of agri-environmental policy, but it changed the policy making style. For the first time agri-environmental problems were taken into account at the central government level by the co-operation between the Ministry of Agriculture and Forestry and the Ministry of the Environment.

When Finland joined the EU in 1995, it had to adapt its national agricultural policies to the principles and objectives of the Common Agricultural Policy and its accompanying measures. Adaptation of the CAP and its Agri-environmental Regulation 2078/92 changed Finnish agri-environmental policy significantly. The Finnish Agri-environmental Programme 1995-1999 (MAF 1994) was a direct response to the EU Regulation. This programme introduced new kinds of economic policy instruments and its implementation relied on the co-operation between agricultural and environmental sectors. Since there was hardly any tradition of co-operation, it was a challenging task for both sectors. At the time the programme was prepared, the agri-environmental policy subsystem consisted of two distinct advocacy coalitions, namely agricultural and environmental coalitions. The agricultural coalition had the definitive decision-making power, while the environmental coalition was rather weak. There were continuous disagreements between the coalitions due to different interests, policy beliefs and administrative traditions (Jokinen 2000).

Agricultural coalition

As in many other Western countries, agricultural administration and the farmers' union have traditionally been able to formulate agricultural policy in

Finland. There has not been significant public, political or parliamentary dispute over agricultural policy principles. Equal with the ideal type of a policy community, the agricultural coalition can be characterised by a limited number of participants, the dominance of economic interests, frequent interaction between members, high degree of consistency in membership, and by broad consensus on policy beliefs and preferences. Policy making is made to look like a technical non-political process. From the perspective of the ACF, there has been only one powerful actor in agricultural policy making in Finland which is the agricultural coalition. It has held the dominant position in the agricultural policy subsystem over several decades. The coalition consists of actors from the Ministry of Agriculture and Forestry (MAF), the Farmers Union (MTK), the Association of Rural Advisory Centres and from the research, business and media connected to agriculture.

The agricultural coalition was strongly against joining the EU. Its members are still critical about the EU as particularly the CAP is seen to cause distortions, high costs, complexity and bureaucracy (Niemi & Kola 2003). They maintain, therefore, that the influence of the EU should be reduced and the decision making power should be, at least to some extent, transferred back to the Members States. With regard to agri-environmental policy, the agricultural coalition claims that policy formation should be carried out by MAF and implementation should be decentralised to the regional level under the authority of MAF. As an interviewee from MTK puts it, 'all agricultural issues, including agri-environmental policy, should be handled by the agricultural administration'.

When the first Agri-environmental Programme 1995-99 was prepared, the agricultural coalition, while stressing the importance of farm-level profitability through actual physical production, also admitted that 'production has some negative impacts on the environment' as an interviewee from environmental administration put it. However, they argued that agri-environmental problems can be solved with technological solutions and that the best way to protect the environment is to leave it in the hands of farmers. The agricultural coalition emphasised that the environmental impacts from agriculture are overstated and that other sectors are polluting more than agriculture. They also suggested more research which is, according to Jenkins-Smith and Sabatier (1994), one of the means through which the dominant coalition will seek to diminish the reasons for change.

Environmental coalition

The development of the Finnish agri-environmental subsystem corresponds to Sabatier's (1998) idea on subsystems that emerge out of a relatively new issue: actors tend to coalesce into distinct coalitions when information on the seriousness and causes of the problems and on the costs of solutions increases. The recognition of agri-environmental problems in the mid-1980s led to the gradual formation of an environmental coalition. It consisted of

the representatives from the environmental administration, the Finnish Environment Institute (SYKE), the Finnish Association of Nature Conversation (SLL) and from the research connected to environmental issues. This coalition can be characterised by the dominance of ecological interests, irregular interaction between members, open access, and by shared policy beliefs and preferences.

The members of the environmental coalition argued that agricultural systems are apart from natural ecosystems and that agriculture is the most significant water polluter. An unsolved confrontation between economic and environmental interests then led to conflicts between environmental and agricultural actors. The environmental coalition was oriented towards environmental protection (Jokinen 2000) and their general goal was 'to protect the environment from the damage caused by modern agriculture' as an interviewee from ENGO put it. According to the interviews there was a wide agreement that agri-environmental policy should comply with the polluter pays principle as also other environmental policies do. The environmental coalition emphasised that the Agri-environmental Programme is not a genuine environmental programme but mainly a support system for farmers. Therefore they demanded for more regulative environmental policy instruments, which should be designed and implemented in collaboration between environmental and agricultural sectors.

Institutionalisation of the agri-environmental policy subsystem

The Ministry of Agriculture and Forestry was given the formal power in agri-environmental policy when the EU Regulation 2078/92 (CEC 1992) was applied in Finland. However, the ministry was compelled to co-operate with environmental administration. This, in turn, required the establishment of new agri-environmental policy making and implementation procedures. The first Agri-environmental Programme 1995 99 (MAF 1994) was prepared by a committee consisting mostly of agricultural and environmental government officials. The MAF started a follow-up working group in 1995 in order to assess the impacts of the programme and to make proposals for improvements. A broad representation of stakeholders was invited as members of this group. The next Agri-environmental Programme 2000-06 (MAF 1999) was prepared by a committee also with a broad representation of stakeholders.

Over the years, the accumulation of information, policy experience and stakeholder participation have enhanced policy learning, and thus brought agricultural and environmental actors towards each other. The actors have developed a shared understanding of agri-environmental issues and found common practices (Kröger 2005). Instead of two distinct coalitions, the agri-environmental policy subsystem is now dominated by a new-born agri-environmental coalition (Kröger 2008). This, in turn, has contributed to the changes in actor's belief systems towards a more multifunctionality oriented agricultural thinking.

Agri-environmental coalition

The agri-environmental coalition initiated from the preparation of the Environmental Programme for Rural Areas (MoE 1992) in the early 1990s which started co-operation between MAF and MoE. As a consequence of the adaptation of the EU agri-environmental Regulation 2078/92, the environmental administration was given a legal status in agri-environmental policy and some power for decision making was moved from the agricultural coalition to the environmental coalition. Yet, decision making power mostly remained in the hands of the agricultural coalition. A new agri-environmental unit was established in the MAF and it was given the overall responsibility of the Agri-environmental Programme. This unit forms the core of the new coalition which includes also most of the members from the former environmental coalition (Kröger 2008). In addition to agricultural and environmental authorities, the agri-environmental coalition includes the representatives of the Finnish Environment Institute, the Finnish Association of Nature Conversation, the Association of Rural Advisory Centres and researchers and other experts from both sectors.

The agri-environmental coalition regards the increased influence of the EU as positive development. An interviewee from the environmental administration argued that 'the development of agri-environmental policy, as it has been during the past decade, would not have been possible without the membership of the EU'. This is an interesting stand, in particular, when taking into account that the position of the Ministry of the Environment is quite weak compared with the other ministries such as MAF (Lindholm 2002). The agri-environmental coalition speaks for a more cross-sectoral collaboration in policy formation and implementation. It has grown significantly and become the largest coalition in terms of the number of members. It can also be characterised by a relatively open access, the aim of a consensus between environmental and economic interests, formal and informal interaction between members, and by the agreement on the policy objectives.

When the Agri-environmental Programme 1995-99 (MAF 1994) was prepared, the agri-environmental coalition argued that intensive agriculture is harmful to the environment and that the objectives of the agricultural sector are based on economic interests at the expense of the environment (Kröger 2008). They thought that voluntary and economic policy instruments are suitable to the agricultural sector but the command-and-control types of regulations are also needed. Even if stricter environmental requirements were demanded, it was also expressed that 'too tight regulations will decrease the economic profitability of production' (an interviewee from ENGO). The programme was identified as a support system to farmers but the agri-environmental coalition was able to turn the environmental requirements of the programme to support its own policy interests. With regard to the Agri-environmental Programme 2000-06 (MAF 1999), a shared view amongst the coalition is that 'there is not only one optimal solution, but the optimum depends on the actor's point of view'. They also agree that the heterogeneity of farms requires different policy measures. Further, they suggested that the programme should be somewhat regionally differentiated.

Instead of two distinct coalitions, the Finnish agri-environmental policy subsystem is nowadays dominated by the agri-environmental coalition. All the three coalitions roughly agree on the basic idea of multifunctionality. However, each uses the concept for its own policy purposes. The core question is how the members of these three coalitions in the agri-environmental policy subsystem have adopted and applied the concept of multifunctional agriculture.

Agricultural coalition

The Agri-environmental Programme is a policy instrument representing the idea of multifunctional agriculture. Therefore, it fits into the policy belief system of the agricultural coalition. While the programme is intended to ensure that agriculture is practised in an environmentally sustainable way, it aims to compensate the farmers for the costs and loss of income arising from environmental protection. The support also compensates income losses due to the lower producer prices in the European market. The weak competitiveness of Finnish agriculture is used as argument for the high level of agricultural support. Yet the agricultural coalition has identified the concept of multifunctional agriculture as a useful rhetorical tool for legitimising the support. Certain elements of multifunctionality can be used, when convenient, to support their policy objectives.

The agricultural coalition claims that agriculture's main function is to produce food and that the promotion of multifunctional agriculture should not curtail farmers' rights to produce what they want and how they want. This attitude is derived from the strong belief in private property rights. Thus, environmental policy shall respect the economic interests of farmers and their businesses. The agricultural coalition thinks that economically profitable agriculture is the prerequisite for the viability of rural areas. It is argued that the best way to promote rural viability is to give support directly to farmers and to the businesses closely connected to agricultural production (e.g. food processing industries). Thus, the members of the agricultural coalition are prone to use the concept of multifunctional agriculture as a strategic policy tool when they attempt to justify the support to production.

Environmental coalition

The environmental coalition labels the concept of multifunctional agriculture primarily as a notion used to justify the existence of agricultural support. From their perspective, multifunctionality represents a rhetorical project that hardly encompasses real environmental concerns. It is argued that its promotion will hinder the application of regulative measures which are considered the most effective agri-environmental policy instruments. Much attention is not paid to other dimensions of multifunctional agriculture: they either are regarded as irrelevant from the environmental view point or as being outside the competence of environmental actors. In sum, the environmental coalition uses the concept of multifunctional agriculture only when it criticises the use of environmental objectives as justification for agricultural subsidies.

Agri-environmental coalition

Essentially, the Finnish Agri-environmental Programme represents the policy thinking of the agri-environmental coalition: its members strongly and genuinely support the idea that besides producing food and fibre, agriculture has a fundamental function to provide environmental benefits, sustain rural landscapes and biodiversity and to contribute to the viability of rural areas. However, it is not seen that the concept of multifunctionality has much to contribute to agricultural or agri-environmental policy. Instead of a novel idea, it is rather considered a useful instrument for renaming the core policy idea which emphasises public goods as a source of social benefits derived from agriculture. In fact, the concept of multifunctionality fits extremely well with the coalition's policy belief system. The coalition represents a consensus in the agri-environmental policy subsystem. Therefore, its members are prone to use the concept of multifunctional agriculture as a strategic policy tool when they attempt to justify their political objectives.

Conclusions

The multifunctionality scheme has appeared a characterisation which recognises the continued importance of commodity production in rural areas. It also aims to be sensitive to spatial and social differentiation and, therefore, it might provide a new foundation for public policies and a genuine paradigm change for farming. As described, the basic idea of multifunctionality has been a part of agricultural policy already for a long time. Yet, the broad-scale policy implications of multifunctional agriculture will depend, above all, on the design of policy measures meant to promote multifunctional outputs of agriculture. As Potter and Burney (2002) have noted, it is not necessarily the concept of multifunctionality as such which is most controversial but rather its implications for the design of domestic subsidies and their real or alleged features linked to trade distortions.

This paper has analysed how various policy actors in the Finnish agri-environmental policy subsystem have adopted and used the concept of multifunctional agriculture. We have identified the EU agri-environmental policy as a dynamic external variable with a very strong effect on the Finnish agricultural policy system. While the implementation of policy has required the establishment of new decision making structures, administrative procedures and monitoring systems, agricultural and environmental actors have been compelled to co-operate. The policy process has initiated an interactive learning process bringing the policy belief systems of agricultural and environmental actors closer to each other faster than it had ever appeared in the national context (cf. Kaljonen 2008). This has led to the restructuring of the agri-environmental policy subsystem. At the national level the traditional pro-agriculture and pro-environment coalitions have become challenged by a new agri-environmental policy coalition. The main finding is that the concept of multifunctionality is closely related to the formation of this new advocacy coalition. This, in turn, indicates that policy learning across the policy subsystem has occurred.

However, it appeared that at the national level policy learning has not focused on fundamental policy principles or institutional structures but rather on details of single policy measures. This is verified by the examination of the use of the idea of multifunctionality: the recent adaptation of the concept has not had much influence on the prevailing policy ideas of the agricultural coalition. The agri-environmental coalition has supported the idea that besides producing food and fibre, agriculture has also other fundamental functions. However, it is not seen that the concept of multifunctionality has much to contribute to policies. It seemingly acts for consensus in the policy field but it has not really been used as a conceptual tool for creating new space for integrative policy framing.

Agriculture is a very important issue in EU politics, since the reforms of the CAP have been followed by the changes in agricultural support systems that have had a significant impact on the economic conditions of farms and thus accelerated the structural change of agriculture. The most recent reforms, the Fischler CAP reform in June 2003 (CEU 2003) and its follow-up, the Health Check CAP reform in November 2008 (CEC 2008), have significantly changed the CAP and have also introduced elements which can be seen to support multifunctionality and address agri-environmental issues. The Fischler reform initiated decoupling of the EU payments for arable crops and livestock from production by introducing a Single Payment Scheme (SPS) and brought in effect modulation of agricultural support, i.e. the reduction of spending on Pillar 1 measures (direct aids to farmers and market measures) in favour of Pillar 2 measures (rural development including agri-environmental measures). However, it should be noted that the idea of modulation has its roots in the Agenda 2000 CAP reform in 1999, when the Member States were given an option to apply modulation on a voluntary basis (CEU 1999).

The to-be-implemented Health Check CAP reform will take further both decoupling and modulation. Still existing coupled payments will be decoupled and incorporated into the SPS, with the exception of suckler cow, goat and sheep premia, where Member States may maintain current levels of coupled support. In addition, the modulation rate is to be amplified. Currently, all farmers receiving more than € 5,000 in direct aid have their payments reduced by 5 percent. This rate will be increased to 10 percent by 2012 and the funds will be transferred into Pillar 2 measures (CEC 2008).

There are differing views whether the Fischler and Health Check reforms truly represent a paradigm shift of the CAP towards a more multifunctional agricultural thinking. Garzon (2006), for instance, asserts that the CAP is increasingly addressing issues central to the multifunctionality paradigm such as the provision of agri-environmental public goods. Daugbjerg and Swinbank (2008), in turn, claim that recent reforms of the CAP may seem to back the multifunctionality paradigm, but when a closer look is taken, this evidence appears to be far from convincing. They argue that the primary goal of the Health Check reform has been to make European agriculture more competitive, more compatible with any likely outcome of the WTO negotia-

tions of the Doha round. Furthermore, they claim that the ostensibility of development towards the multifunctionality paradigm is reflected by the Health Check decrees abolishing both set-aside and milk quotas, which clearly promote the production of increasing amounts of food stuffs, not agriculture-related public goods.

We agree with Kaljonen and Rikkonen (2004) who have concluded that in Finland the uncertain character of the EU agricultural policy has strengthened the shared consensus, from local to national level, on the importance of domestic production. In this respect, the notion of multifunctional agriculture can be used as a rhetorical means for safeguarding the continuity of Finnish agriculture and recognising agriculture's societal value. Undoubtedly, this will strengthen the agri-environmental coalition in the future. Whether it offers paths for true reorientation remains yet open. Wilson (2008) suggests that only through a multidisciplinary approach we will be able to fully understand multifunctional agriculture and drive forward constructive agendas for the future.

References

Aakkula J., 1999, *Economic Value of Pro-Environmental Farming - A Critical and Decision-Making Oriented Application of the Contingent Valuation Method,* Agricultural Economics Research Institute (MTTL), Publications 92, Helsinki.

Berger G., Flynn A., Hines F., Johns R., 2001, *Ecological modernization as a basis for environmental policy: current environmental dis ourse and policy and the implications on environmental supply chain management,* Innovation 14(1), 55-72.

Bjørkhaug H., Richards C., 2008, *Multifunctional agriculture in policy and practice?* A comparative analysis of Norway and Australia, Journal of Rural Studies 24(1), 98–111.

Buller H., Morris C., 2004, *Growing goods: the market, the state, and sustainable food production,* Environment and Planning A 36(6), 1065-1084.

CEC (Commission of European Communities), 1991, *Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates form agricultural sources,* Official Journal L375/1.

CEC (Commission of the European Communities), 1992a, *Council Regulation No 2078/92 on the Introduction and Maintenance of Agricultural Production Methods Compatible with the Requirements of the Protection of the Environment and the Management of the Countryside,* Official Journal L215.

CEC (Commission of the European Communities), 1992b, *Directive 92/43/EEC concerning the conservation of natural habitats and of wild fauna and flora,* Official Journal L115.

CEC (Commission of the European Communities), 2000, *Directive 2000/60/EC establishing a framework for community action in the field of water policy,* Official Journal L327/1.

CEC (Commission of the European Communities), 2008, *Agriculture: CAP Health Check will help farmers meet new challenges,* IP/08/1749, Brussels, 20 November 2008, Available in the internet: http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/1749&format=HTML&aged=0&language=EN&guiLanguage=en Referenced: 2008-12-06.

CEU (Council of the European Union), 1999, *Council Regulation (EC) No 1257/1999,* Official Journal of the European Union L 160, 80-102.

CEU (Council of the European Union), 2003, *Council Regulation (EC) No 1782/2003,* Official Journal of the European Union L 270, 1-69.

Daugbjerg C., Swinbank A., 2008, *Explaining the Health Check: the Budget, WTO, and Multifunctional Policy Paradigm Revisited,* A paper presented in the 109th EAAE Seminar „The CAP after the Fischler reform: national implementations, impact assessment and the agenda for future reforms", Viterbo, Italy, November 20-21, 2008. Available in the internet: http://www.europedirect.lazio.it/eaae/index.php?option=com_docman&task=cat_view&gid=29&Itemid=39 Referenced: 2008-12-06.

Elliott C., Schlaepfer R., 2001, *Understanding forest certification using the Advocacy Coalition Framework,* Forest Policy and Economics 2, 257-266.

Evans N., Morris C., Winter M., 2002, *Conceptualizing agriculture: a critique of post-productivism as the new orthodoxy,* Progress in Human Geography 26(3), 313-332.

Fisher D., Freudenburg W., 2001, *Ecological modernization and its critics: Assessing the past and looking toward the future,* Society and Natural Resources 14(4), 701-709.

Fouilleux E., 2004, *CAP reforms and multilateral trade negotiation: Another view on discourse efficiency,* West European Politics 27(2), 235-255.

Garzon I., 2005, *Multifunctionality of agriculture in the European Union: Is there substance behind the discourse's smoke?* UC Berkeley, Center on Institutions and Governance Presentation paper No. 20.

Garzon I., 2006, *Reforming the Common Agricultural Policy: History of a Paradigm Change,* Palgrave Studies in European Union Politics, Palgrave Macmillan, Houndmills.

Hall P., 1993, *Policy Paradigms, Social Learning, and the State,* Comparative Politics 25(3), 275-296.

Holm J., Stauning I., 2002, *Ecological modernization and "Our daily bread",* The Journal of Transdisciplinary Environmental Studies 1(1), 1-13.

Jenkins-Smith H., Sabatier P., 1994, *Evaluating the Advocacy Coalition Framework,* Journal of Public Policy 14, 175-203.

Jokinen P., Järvelä M., Huttunen S., Puupponen A., 2008, *Experiments of Sustainable Rural Livelihood in Finland,* International Journal of Agricultural Resources, Governance and Ecology 8(3), 211-228.

Jokinen P., 2000, *Europeanisation and Ecological Modernisation: Agri-Environmental Policy and Practices in Finland,* Environmental Politics 9(1), 138-167.

Jokinen P., 2002, *The European Union as a Suprastate in Agri-environmental Issues: The Finnish Perspective,* Research in Social Problems and Public Policy 10, 105-120.

Kaljonen M., 2006, *Co-construction of agency and environmental management. The case of agri-environmental policy implementation at Finnish farms,* Journal of Rural Studies 22, 205-216.

Kaljonen M., 2008 *Bringing Back the Lost Biotopes. The Practice of Regional Biodiversity Management Planning in Finland,* Journal of Environmental Policy and Planning 10(2), 113-132.

Kaljonen M., Rikkonen P., 2004, *Divergent images of Multifunctional Agriculture. A comparative study of the futures images between farmers and agrifood experts in Finland,* International Journal of Sustainable Agriculture 3(2), 190–204.

Kröger L., 2005, *Development of the Finnish agri-environmental policy as a learning process,* European Environment 15(1), 13-26.

Kröger L., 2008, *Institutional change of the agri-environmental governance in Finland,* International Journal of Organization Theory and Behavior 11(1), 62-84.

Lindholm A., 2002, *Finland in EU Environmental Policy,* The Finnish Environment 551, Ministry of the Environment, Helsinki.

Losch B., 2004, *Debating the multifunctionality of agriculture: From trade negotiations to development policies by the South,* Journal of Agrarian Change 4(3), 336-360.

MAF (Ministry of Agriculture and Forestry), 1994, *Ehdotus maatalouden ympäristötukiohjelmaksi;* (The proposal for Finnish agri-environmental Programme), Ministry of Agriculture and Forestry 19/1994, Helsinki.

MAF (Ministry of Agriculture and Forestry), 1999, *Ehdotus maatalouden ympäristöohjelmaksi 2000–2006,* (The proposal for Finnish agri-environmental Programme 2000–2006), Ministry of Agriculture and Forestry 13/1999, Helsinki.

Marsden T., 2003, The *Condition of Rural Sustainability,* Van Gorcum, Wageningen.

Marsden T., Banks J., Bristow G., 2002, *The social management of rural nature: understanding agrarian-based rural development,* Environment and Planning A 34(5), 809-825.

Marsh D., Smith M., 2000, *Understanding policy networks: towards a dialectical approach,* Political Studies 48, 4-21.

Mather A.S., Hill G., Nijnik M., 2006, *Post-Productivism and Rural Land Use: Cul De Sac or Challenge for Theorization?* Journal of Rural Studies 22(4), 441-455.

McCarthy J., 2005, *Multifunctional rural geographies: reactionary or radical?* Progress in Human Geography 29(6), 1-10.

MoE (Ministry of Agriculture and Forestry and Ministry of the Environment), 1992, *Environmental Programme for Rural Areas,* Helsinki, VAPK, (in Finnish).

Mol A., Sonnenfeld D., 2000, *Ecological modernization around the world: an introduction,* In: Mol A., Sonnenfeld D.A. (eds.), *Ecological Modernisation Around the World: Perspectives and Critical Debates,* Frank Cass, London, 3-14.

Mol A., Spaargaren G., 2000, *Ecological modernisation theory in debate: a review,* In: Mol A., Sonnenfeld D.A. (eds.), *Ecological Modernisation Around the World: Perspectives and Critical Debates, Frank Cass,* London, 17-49.

Niemi J., Ahlstedt J. (eds.), 2008, *Finnish Agriculture and Rural Industries 2008, Helsinki,* Agrifood Research Finland.

Niemi J., Kola J., 2003, *Renationalisation of the CAP: Permitting better targeting of aid on regional or local needs and priorities?* EAAE Seminar 24.-26.9.2003, Ghent, Belgium.

Noe E., Alrøe H., Langvad A., 2008, *A polyocular framework for research on multifunctional farming and rural development,* Sociologia Ruralis 48(1), 1-15.

OECD, 2001, *Multifunctionality: towards an analytical framework,* Organisation for Economic Co-operation and Development, Paris.

Ploeg J., Renting H., Brunori G., Knickel K., Mannion J., Marsden T., Roest K., Sevilla-Guzmán E., Ventura F., 2000, *Rural development: from practices and policies towards theory,* Sociologia Ruralis 40(4), 391-408.

Potter C., Tilzey M., 2005, *Agricultural policy discourses in the European post-Fordist transition: neoliberalism, neomercantilism and multifunctionality,* Progress in Human Geography 29(5), 581-600.

Potter C., Burney J., 2002, *Agricultural multifunctionality in the WTO – legitimate non-trade concern or disguised protectionism?* Journal of Rural Studies 18, 35-47.

Pretty J., 2002, *Agri-Culture. Reconnecting people, Land and Nature,* London, Earthscan.

Rose R., 1991, *What is Lesson-Drawing?* Journal of Public Policy 2(1), 3-33.

Sabatier P., 1998, *The advocacy coalition framework: revisions and relevance for Europe,* Journal of European Public Policy 5(1), 98-130.

Sabatier P., Jenkins-Smith H. (eds.), 1993, *Policy Change and Learning. An Advocacy Coalition Approach,* Westview Press.

Sairinen R., 2000, *Regulatory Reform of Finnish Environmental Policy,* Helsinki University of Technology, Espoo.

Schmidt V., Radaelli C., 2004, *Policy change and discourse in Europe: Conceptual and methodological issues,* West European Politics 27(2), 183-210.

Thatcher M., 1998, *The development of policy network analyses. From modest origins to overarching frameworks,* Journal of Theoretical Politics 10(4), 389-416.

Tilzey M., 2003, *A framework for conceptualising agricultural multifunctionality,* Working Papers, Imperial College, London.

Weber N., Christophersen T., 2002, *The influence of non-governmental organisations on the creation of Natura 2000 during the European policy process,* Forest Policy and Economics 4, 1-12.

Wilson G., 2008, *From 'weak' to 'strong' multifunctionality: Conceptualising farm-level multifunctional transitional pathways,* Journal of Rural Studies 24(3), 367-383.

Wilson G., Rigg J., 2003, *"Post-productivist" agricultural regimes and the South: discordant concepts?* Progress in Human Geography 27(6), 681-707.

Zafonte M., Sabatier P., 2004, *Short-Term Versus Long-Term Coalitions in the Policy Process: Automotive Pollution Control 1963-1989,* The Policy Studies Journal 32(1), 75 107.

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Assessment of the demographic effect on future rural development in Bulgaria

Abstract: *This paper investigates the current demographic crisis in Bulgarian rural areas and potential solutions for overcoming it. The future development of rural areas in Bulgaria will depend on the practical implementation of the National Plan for Rural Development – NPRD (2007-2013). Ultimately, the purpose of the present study is to analyse the consequences of demographic trends in Bulgarian rural areas and to explore several good practices which could be suitable for improving the demographic situation.*

Keywords: *rural population, demographic development, rural development, Bulgaria*

Introduction

The enormous political, economic and social changes which have taken place in Central and Eastern Europe since the end of the 1980s have had a significant demographic impact. Some of the demographic trends noted in the region's countries in the course of the last two decades are cause for deep concern: namely, falling populations in absolute figures, a decline in life expectancies, a drop in fertility rates, higher mortality rates, population ageing and a general deterioration of the health situation (Council of Europe 1999).

Bulgaria is mentioned in all recent reports of the United Nations Development Programme (UNDP 2004) as the Eastern European nation with the highest negative population growth rate (a negative rate of natural growth means that the death rate is higher than the birth rate). The country has been mired in a severe demographic crisis ever since the total absolute population began to fall in the late 1980s. Due to the negative natural growth rate of minus 5.1 per 1,000 population, Bulgaria is now undergoing one of the most severe peacetime po-

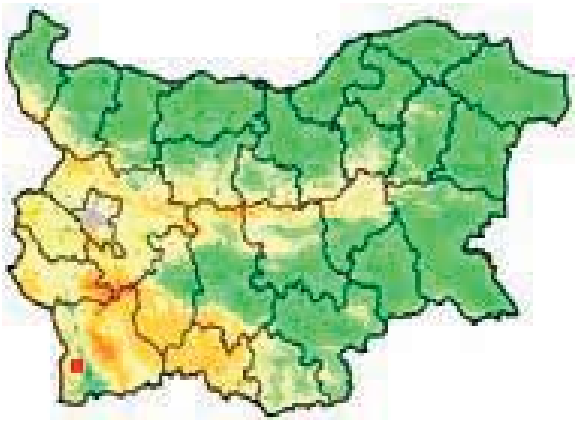
pulation declines in history. Since the beginning of transition the disparities between urban and rural areas, but also between different rural regions, have increased. Felt strongest in the border regions, the depopulation process in villages is also creating serious problems for Bulgaria's economic development, particularly in rural areas.

Objectives

The main objective of the present paper is to assess the demographic situation in Bulgarian rural areas and to make recommendations for its improvement. To achieve this objective, two main issues were formulated and an investigation was undertaken in two stages as follows:

- Analysing and forecasting the demographic development processes taking place in rural settlements
- Studying, analysing and applying the positive experiences of several villages in solving demographic problems and attempting to avoid further aggravation

The scope of the analysis in the first stage concentrated on all villages of the country, whether they belonged to a rural region or not, and thus comprised 5,079 villages with a total population of 2,253,958 in 2006 (NSI 2006). For the second phase we analysed all villages in Strumyani Municipality, to include studying the results of several projects already conducted in the same community as part of the Improving the Social Environment Programme (supported by the Charles Stewart Mott Foundation) – a programme which has been active since the year 2000 (FLGR 2002-2004). The Municipality of Strumyani is situated in southwest Bulgaria, in the district of Blagoevgrad, and includes 21 settlements with 6,596 total inhabitants in a territory measuring 362 km². Strumyani Municipality extends across the eastern slopes of Maleshevska Mountain, along the Struma River Valley and over a small stretch of western Pirin Mountain. Located only 140 km south of the Bulgarian capital of Sofia, as well as 50 km from the district centre of Blagoevgrad and 14 km from the town of Sandanski, the municipality has an important geopolitical location.



Map 1. Map of Bulgaria
Source: www.guide-bulgaria.com

Methodology and Data

In the study's first stage we applied a comparative analytical method, a mathematical population forecasting model as well as a graphical method. The mathematical model is expressed by the equation:

$$P_{t2} = P_{t1} + B_{t1-t2} - D_{t1-t2} + M_{t1-t2}$$

where Pt_1 and Pt_2 are the population at time t_1 and t_2, respectively,
B_{t1-t2} is the number of live births during the period $t_1 - t_2$,
M_{t1-t2} is the migration increase expressed as the difference between the number of immigrants and emigrants during period $t_1 - t_2$,
D_{t1-t2} is the number of deaths during the period $t_1 - t_2$,
and time t_1 is the base year and t_2 the forecast year, which for the purposes of our study were 2006 and 2011, respectively.

The theoretical basis of the mathematical model used to forecast the rural population was a method of population components. The model takes into account the following main factors influencing the population variation: the rural population in 2006, the expected levels of deaths and births until 2011, and migration flow levels for the period 2006- 2011 [NSI 2006]. Applying the method of rural population components, we decomposed the population into age-gender groups at age intervals of 5 years and calculated the main characteristics for each group. Thus, we were able to evaluate the expected levels of mortality, birth rates and migration fluxes for each group separately.

During accomplishment of the second stage in 2007, a scientific team from the Institute of Agricultural Economics (IAE) led a dedicated research project which investigated the potential territorial population mobility in Strumyani

Municipality (Yanakieva et. al., 2008). As part of the project, a questionnaire survey was conducted with village mayors. The oral interviews of 11 mayors included 12 questions seeking their opinions regarding possibilities for improving the demographic situation. The main emphasis was to determine the mayors' views about current rural migration and the key factors causing it. Of the 21 settlements in Strumyani Municipality, 10 have a population of less than 100 persons. Therefore only 11 villages have their own mayor whilst the 10 smaller villages fall under the jurisdiction of one of the former. As a result, the interviews were representative for all of Strumyani Municipality.

Information from the National Institute of Statistics was used in the first-stage analysis. For the second, we applied the results of other projects conducted in the same villages of Strumyani Municipality as part of the Improving the Social Environment Programme (FLGR 2002-2004) supported by the Charles Stewart Mott Foundation.

Analysis

Analysis of the demographic situation in villages and forecasting of the rural population

The continuous decrease in the population of Bulgarian villages is one of the key issues affecting rural area development, and this negative population trend is still ongoing. In absolute figures the rural population fell by 164,000 between 2001 and 2006, which equates to an average rate of decline of 1.1% annually for the period. During this time, the rate for the urban population stood at 0.2% (see Figure 1). In the single year from 2005-2006, Bulgarian villages lost nearly 50,000 inhabitants. The fundamental reason for this development is natural migration of the rural population as reflected in the worsening demographic indices.

Until the early 1970s, the main reason for the drastic decline in rural population, and even the complete depopulation of entire regions (especially those in mountainous and semi-mountainous areas), had been the intense outflow of human resources from villages towards larger urban settlements. Today, these unfavourable rural population dynamics are exacerbated by natural demographic processes: a low fertility rate, a higher mortality rate and the ageing of the rural population. Since 1975, a negative rate of natural growth can be observed, increasing from -1 to -12.4 per 1000 inhabitants in 2006. As for the urban population, natural growth was negative in 1994 (-0.7 per 1,000) and increased to -2.1 per 1000 population in 2006. These figures confirm the huge difference between urban settlements and rural villages in terms of both population reduction and natural reproduction rates.

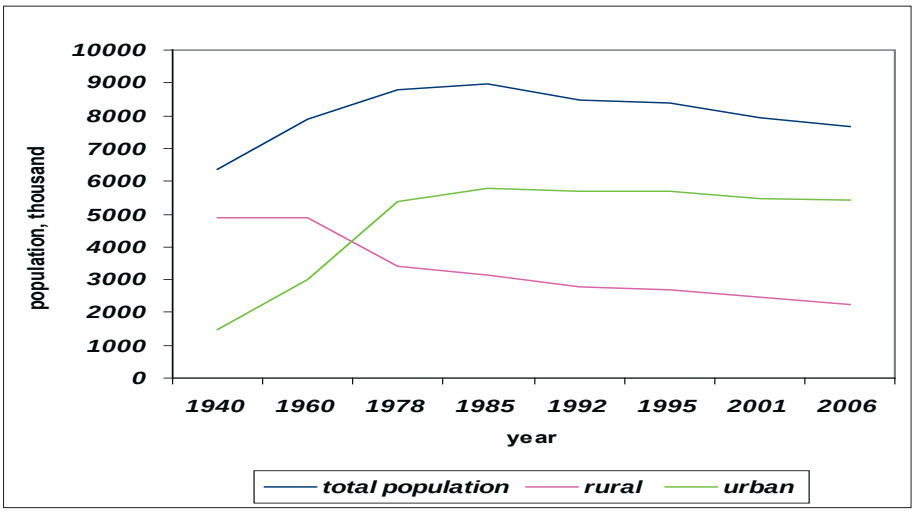


Figure 1: Population Dynamics in Bulgaria
Source: Own calculation based on data from the National Statistical Institute (NSI), Population in Bulgaria (NSI 2006)

The highly negative demographic trend in rural areas as compared to developments in urban regions is a consequence of two key factors: the lower birth rate in rural villages, which measured 8.3 per 1,000 inhabitants in 2006 vs. 10.1 in urban areas, and also the higher death rate, which reached as high as 20.7 per 1000 inhabitants in some villages vs. 12.2 in rural towns. Especially alarming is the infant mortality rate of 13.1 per 1,000 live births in villages as it is significantly higher than the Bulgarian average of 9.7. Although a comparison of more recent years with 2001 shows a slight drop in these indices, it should be noted that among all EU member states only Romania has a higher infant mortality rate (15.0 per 1,000) than Bulgaria, which is followed by several other newly joined EU members: Latvia at 7.8, Slovakia at 7.2 and Lithuania at 6.8. The lowest infant mortality rates are in Iceland, Sweden and Luxemburg, where rates range between 2 and 3 infants per 1,000 live births (NSI 2007).

Bulgaria's rural population decline is accompanied by a significantly worsening age structure: More than one third of the rural population is older than 60 years as compared to only 19.3% of the urban population. According to all age-related demographic indices (age dependence rate, rate of demographic aging, rate of progression of the age structure, etc.) the situation of the rural population is worse than that of its urban counterpart (NSI 2007). However, the demographic trend in villages located near larger district centres is slightly better, as the decline in rural populations near towns and cities is lower than in other rural areas. For example, the number of inhabitants in villages near the capital of Sofia actually increased by 5.8% in absolute terms between 2001 and 2006, whilst the rural population in the district of Burgas decreased by only 2.9% during this same period (NSI 2007). This circumstance can be explained by the daily migration of people who live in adjacent rural areas but

work in a nearby town or city. Though settlements in such areas are able to maintain their populations, they are not typical of most villages in rural regions, as agriculture and connected activities are generally developed only on a small scale. Indeed, the prognosis for future demographic development in Bulgaria's rural areas (through 2011) indicates a 7.5% decrease in population as compared to the 2006 level according to an estimate prepared by the Institute of Agricultural Economics (NSI 2007).

Our analysis identified variances in the reduction intensity of the rural population among different age groups, which implies more unfavourable changes in terms of age distribution. Specifically, a reduction of human potential in rural areas is expected for all of the three major age groups (below 20, 20 to 60 and over 60) but at a different rate of decline for each. The forecast for the period 2006-2011 estimates a significant drop in the youngest villagers (below 20 years of age), who are projected to decrease by 13.6% prior to 2011. At the same time, the 20-60 age group is forecast to decline by 5.6%. This trend can be explained by higher net migration rates among younger rural inhabitants (especially those aged 20-29), which in turn is due to the higher level of social and territorial mobility for these groups. Indeed, the highest rate of migration is among rural inhabitants aged 20-24, followed by the 25-29 group (which has equal values for males and females alike) and then the 15-19 group.

We observed that the intensity of rural migration stagnated between 2004 and 2006, with the overall rate decreasing from 22 to 18 migrants per 1,000 as compared to 1999. However, it is only logical that the noted differences between age groups which are currently fuelling the general intensity of the population decrease in rural villages will result in even more unfavourable changes to the rural age structure in the future (see Table 1).

Table 1. Change in the rural population by age group, 2006-2011

Age group	2006		2011	
	Rural population, thousands	Share of rural population, %	Rural population, thousands	Share of rural population, %
Under 20	432.7	19.2	373.8	17.9
20-60	1,078.8	47.9	1018.7	48.9
Over 60	742.4	32.9	692.2	33.2
Total	2254	100.0	2,084.7	100.0

Source: Own calculation based on the model and data in Population in Bulgaria (NSI 2006)

Table 1 shows that the population of villagers aged below 20 will continue to decrease. At the same time, the share of rural inhabitants aged between 20 and 60 is prognosticated to increase by approximately 1% whilst the oldest age group (over 60) is estimated to remain at roughly the same level as it was in 2006.

The further worsening of the rural population's age structure will drastically reduce the reproductive potential and lead to an even bigger demographic crisis for Bulgarian villages. With respect to the future reproductive population in rural villages, the decrease in younger inhabitants will have a significantly disadvantageous impact, since the birth rate is highest among the 15 to 29 population. Of the total number of infants born in rural villages during the period 2001-2006, 37.8% were born to mothers aged between 20 and 24, 24.8% to mothers aged 25 to 29 and 23% to mothers aged 15 to 19.

Analysis of the positive experiences of selected municipalities

The 2007 IAE study (Yanakieva I. at al. 2008) focused on the potential territorial mobility of the rural population in Strumyani Municipality. The results of the already mentioned interviews with village mayors indicate that all were optimistic about the future. In their collective assessment of the current situation, the mayors were in agreement that the local inhabitants felt the gradual process of bringing the villages back to life and reviving the former spirit and traditions had already begun, even if only slowly. One reason for optimism is the fact that no villagers had abandoned their residences or emigrated since Bulgaria's accession to the EU. Bearing this out, for example, are statistics on the village of Mikrevo (in Strumyani Municipality) where the total number of inhabitants in 2005 remained virtually unchanged as compared to 1992. One explanation could be the implementation of four projects for improving the local social environment and that these have helped positively influence the local population to stay. To overcome the demographic crisis in Bulgarian villages, the experiences of smaller municipalities like Strumyani will certainly play a valuable role in designing bottom-up initiatives with the active involvement of locals, as this may ultimately help other mayors retain the population of their villages. In the case at hand, the four mentioned projects have the following objectives:

- overcoming social isolation among pensioners and the aged within the community
- providing social care to needy senior citizens
- greater inclusion of children and youth in village social life

One of the projects targeted the establishment of a day centre for the older citizens of Mikrevo. The centre was inaugurated for the purpose of integrating elderly inhabitants more fully in the social and cultural life of the community and to occupy them with various activities of interest (e.g. clubs) in their free time. Thus, the lonely among the older generations, such as pensioners or other village inhabitants experiencing social, cultural and/or public isolation, are the main target group, although the project also caters to older members of the population who are still in their working years but display difficulty in communicating with others or actively participating in the social life of the community. Importantly, a third target group consists of pensioners who are still very vital and active in the local social life, as this group has been trained within the scope of the project to deal with problems related to social and

health dysfunctions. Senior citizens from the latter group are thus able to act as volunteer "mentors" for assisting the less fortunate groups mentioned above. A second project has been launched with the goal of improving social care for the older inhabitants of Strumyani Municipality. Its objective is to elaborate and implement model programmes which can improve the life circumstances of the isolated and helpless among the older generations; and furthermore to facilitate overcoming administrative and institutional obstacles and to garner the full acknowledgement of society – and of the applicable institutions – with respect to the target group's specific needs.

The third project has focused on establishing a day care nursery for children in the village of Ilinden (also in Strumyani Municipality) as a means of providing the young with facilities for meaningful free-time activities. And, finally, the fourth project to be realised with financial support from the Charles Stewart Mott Foundation was the "Youth Initiative for Strumyani."

Results

The expected continuation of negative demographic processes in Bulgaria's rural villages during the coming years will cause a further worsening of the population age structure. Thus, the projects which we examined can be viewed as a notable achievement in terms of partnership and mutual co-operation by all sides concerned. For their successful implementation, they used local staffs who were trained expressly for carrying out the specific projects. Not only does such a model provide added motivation for rural inhabitants to actively participate in improving the quality of life and social environment within their own communities, but it also offers the added benefit of helping to reduce rural unemployment. The evaluated projects thus provide examples of good practices for bettering the social environment, improving the quality of life of villagers and preserving the population in rural areas. Although financial support for undertaking similar future projects is still quite modest, the accomplishments thus far should not be ignored when seeking potential solutions to Bulgaria's demographic crisis.

Conclusion

Overcoming the demographic crisis in Bulgaria's rural areas will certainly be a long and complicated process. Beyond efforts like those of the few villages which are already attempting to solve the resulting problems, changes in demographic, migration, integration and other national policies appear to be needed. Importantly, these policies should be oriented not only towards overcoming the problems in rural villages, but also towards addressing the demographic problem nationwide. For, it is well known that negative demographic trends are equally affecting Bulgaria's larger urban settlements and causing a considerable outflow of human resources abroad, primarily from towns. In this context, the solution for the demographic crisis in rural areas should be considered as an inseparable part of the general national strategy. To

assist in further stabilising the demographic situation, Bulgaria has developed and is already implementing the National Plan for Rural Development, which is scheduled to last until 2013. A more rapid and purposeful assimilation of the European financial means granted for this programme as well as the granting of subsidies and technical aid to local authorities and other local organisations – for preparing and implementing plans to improve and build up social and technical infrastructure – will all be very important factors for creating a positive change in the demographic situation affecting rural areas.

References

Council of Europe, 1999, *Demographic trends and human potential in the countries of Central and Eastern Europe,* report of the EU Parliamentary Assembly Committee on Migration, Refugees and Demography, http://assembly.coe.int/Mainf.asp?link=/Documents/WorkingDocs/Doc99/EDOC8463.htm.

Foundation for Local Government Reform – FLGR, 2004, *Improving Social Environment II - Project Results*, completed project funded by the Charles Steward Mott Foundation, Sofia, http://www.flgr.bg/en/cms/Results+2002+-+2004/1416/o/687/o/o/1.

Murdock S., Ellis D., 1991, *Applied Demography: An Introduction to Basic Concepts, Methods and Data,* West View Press, San Francisco-Oxford.

Republic of Bulgaria National Statistical Institute, 2006, *Population in Bulgaria,* NSI publication, Sofia.

Republic of Bulgaria National Statistical Institute, 2007, *Statistical Yearbook 2006,* NSI publication, Sofia.

Petkov A., Kolev N., 2005, *Analytic methods of regional planning,* University Of Rousse, Rousse, Bulgaria.

United Nations Development Programme, 2004b, *Human Development Report 2003,* UNDP publication, New York.

Yanakieva I. et al., 2008, *Social-economical measures of the CAP on the rural development,* scientific report of the Institute of Agricultural Economics (IAI), Sofia, http://iae-bg.com/index.php?pg=actual-projects&pid=13.

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Analysis of alternative rural support policy for a lagging region in Latvia

Abstract*: The paper uses a bi-regional CGE model to assess the potential impacts of an alternative rural development policy design, which is more targeted to public sector investments on the economic activity of a lagging region of Latvia. The results show the distribution of effects between the rural and urban areas within the lagging region as well as differences in the impacts between the two policy scenarios that are explored. A specially constructed bi-regional SAM (Social Accounting Matrix), that reflects the specific characteristics of Latgale region, was used to calibrate the bi-regional CGE model; and two policy scenarios are explored. The two scenarios, "Enhanced Financial Envelope" and "Investment in Public Sector" are defined in terms of allocation volume and reallocation of funding among RDP measures and area payments. This represents the most radical kind of reallocation that is possible within the CAP, between Pillar 1 and 2 and within the Axes and Measures of RDP; and it completely removes the sectoral aspect of the support. The first scenario is based on current implementation plans but with enhanced funding for the lagging region of Latgale, and the second on the complete shift of these funds to public goods financing. Results show that both scenarios generate positive effects in terms of macroeconomic indicators (GDP and employment levels) and sectoral effects (factor income and household income expenditure). However, the effects from the "Investment in Public Sector" are stronger showing that the allocation of funds towards the public sector, which has the stronger links in the regional economy, has the highest positive effects for both rural and urban parts of region Latgale. Also, both scenarios have the ability to increase more the economic activity of the rural area while positive effects are diffused towards the urban area.*

Keywords: *lagging rural areas, bi-regional CGE model, rural development policy, CAP*

Introduction

The practice of competitive programming of EU resources within Latvia has put lagging regions such as Latgale, the poorest in Latvia, at a disadvantage for financial flows outside of income payments through the CAP. Future reforms in CAP are likely to result in more funding available for rural development rather than farm support. The question is whether the transfer of resources from individuals to more broad-based development will have the desired multiplier effect. In other words, to find the most effective approach that will have the best economic performance in terms of macroeconomic indicators and sectoral effects for Latgale region.

The findings of different previous studies (Saktiņa and Meyers 2005) on regional development, inequality and government expenditure patterns have shown that RDP implementation did not reduce the polarization between the rich central and western regions and the poor eastern rural areas in Latvia. Further research (Saktiņa et al. 2006) provided practical recommendations on the development of the support policy to reach the goals defined for national development policy in Latvia. Also this study developed a methodology for regionalizing financial support, developing a support management system and a more professional approach in prioritizing support to regions with different development needs and potentials.

The main objective of this study is to evaluate impact of rural development policy alternatives within a single region by applying quantitative modelling. In particular, to evaluate the impacts of different development scenarios for the Latvian 2007-2013 RDP on urban and rural multi-sectoral economies and households in Latgale region. This region is the most disadvantaged one in terms of social and economic characteristics and due to this fact it was chosen for this study in order to assess the effects of alternative policy strategies on its economic activity.

The main approach of this study is to adapt a bi-regional CGE model to assess the impact of alternative policy scenarios on the regional development of Latgale region (Latvia). Although the model is essentially neoclassical, it is sufficiently flexible to accommodate a fairly wide range of views on how the regional economy adjusts to the specified policy scenarios. The model has also been adapted to include the differentiation of rural and urban production sectors, factors and households (disaggregated into seven household types) plus skilled and unskilled rural and urban labour and several specific characteristics of the regional economy under analysis. The disaggregation of factors and households provides a depth of results not often seen in such analysis.

A specially constructed bi-regional SAM (Social Accounting Matrix) table was used to calibrate the CGE model and two policy scenarios are explored in the paper. The scenarios that have been selected for this analysis are of direct relevance to the Rural Development Programme of 2007-2013 for the rural

region of Latgale. A combination of the RDP measures of 2007-2013 has been defined in two scenarios. The first scenario is based on current implementation plans but with enhanced funding for the lagging region of Latgale and the second on the complete shift of these funds from area payments and investment measures to public sector investment financing. The analysis of impacts of scenarios can guide the design of more appropriate regional policies that could more suitably address the balanced development of the regional economy.

The rest of the paper is structured as follows. Section 2 describes the nature and specific characteristics of the CGE modelling framework used in the analysis and its application in this case. Section 3 provides background information on the design of the two policy scenarios that are explored in this study, while Section 4 presents the results from the analysis. The paper ends with relevant conclusions and recommendations.

Choice of Region

The region covers about 22.5% of the Latvian territory with a population of about 369,000 (15.9% of the Latvian population). About 40% of the population resides in the two largest cities, where also 60% of the total number of region's enterprises is located. Latgale, especially its rural area, belongs to economically poor regions category in the country and also in EU NUTS 3 level. Contribution of region's economy to the total national GDP is only 7.6 percent, of which more than half (60 percent) was provided by the economies in two republic cities. Regional part of industrial Gross value added in national total is even less 6.6%, of which almost all is provided by two cities. The average GDP in 2005 averaged 3938 LVL/capita in Latvia, and in Latgale region it was 1910 LVL/capita, which is 48.5 percent of the country average. The density of population in the territory is 22.5 persons/ km^2, but in the rural part of the territory it is as low as 15.3 persons/ km^2. The demography in the rural territories is negative -a smaller share of population of working age and a higher share of population out of working age. Because less employment possibilities, there is continuing tendency to emigrate abroad, creating further pressures on the already bad demographic situation in Latvia.

The territory is located in the eastern part of the country and, because of bordering with Russia and Belarus, the region is the main transport corridor to these countries. The main economic sectors in Latgale are transport and storage, manufacture in the urban part, but in rural area -agriculture and public administration and social service rural tourism. The tertiary sectors in urban and rural areas are the most important employers, because of financing by national budget to provide social service availability. Tourism has big potential in the region, because it can influence income stabilization for farms, management of landscape and involve visitors to spend money for region goods. Since farms in Latgale region mainly are small ones with a mixed type specialization, mainly dairy farming, beef-cattle farming, and sheep-farming are developing due to the fact that agro-climatic conditions are more suitable for these industries.

Table 1. Main indicators on level of Latvian NUTS 3 regions

Region	GDP per capita, 2005	Industrial GVA, % of national total, 2005	Number of enterprises per 1000 working age inhabitants, 2005	Average wage, LVL at Jan. 2007	Tax Revenue per 1 household member, 2005	Total allocation for projects under SF	Allocation for projects under EAGGF
Latvia	3938	100	34,9	398	122,36	100	100
Rīga region	7114	50,4	62,9	452	175,45	43,4	24,5
Pierīga region	2743	13,8	26,0	382	110,63		
Vidzeme region	2309	8,3	21,0	309	92,45	11,3	20,0
Kurzeme region	3118	13,8	24,0	334	106,32	14,6	19,6
Zemgale region	2192	7,1	19,3	325	99,35	9,7	20,0
Latgale region:	1910	6,6	16,7	277	79,93	13,1	13,0
of which in rural area	1289	2,3	11,4	-	-	-	-

Source: LR Statistic office, 2005, 2007; LR Finance Ministry, 2008

Generally, production conditions in Latgale region are comparably worse than in other areas and also a small market for self-consumption is predominant there. This reflects also on support policy for agricultural and rural development in Latvia. The evaluation of rural development program implementation shows that the investments projects are smaller in this region, and the greatest part of active farmers and rural entrepreneurs have limited ability to attract financial investment from banks and Structural Funds (SF) for improvement of competiveness. The most actively used support is area payment type measures like LFA, SAP and agri-environment payments, which are income support and are paid directly to budget of agricultural households in rural region. (Saktiņa and Miķelsone 2006)

Territorially based financial envelopes

What is the rationale for regional financial allocations, or so called envelopes? The Latvian rural and agricultural development policy is implemented horizontally on the basis of national competition, resulting in support concentration in developed regions and limited access to financial support in less developed regions and to less skilful entrepreneurs. There are no regional rural development programs with specific targeted measures or finances for each region, which could provide for more stable access to support and internal competition within different sectors internally in regional economies.

Methods to calculate financial envelopes for regions at NUTS 3 level were designed in three variations. The financial envelope is calculated based on three options: 1) weighted factors such as shares of population, agricultural land, per capita Gross Domestic Product (GDP) and share of finances absorbed in regions under SPD 2004-2006 rural development measures; 2) based on a synthetic indicator called the territorial Development Index; and 3) based on one indicator, the share of finances under SPD 2004-2006 rural development measures absorbed in each region. Table 2 illustrates the potential share of financial support distribution to be calculated for each region, applying all variations.

Table 2. Calculated percentage of financial envelope division – three approaches for support of regionalisation

Region /Scenarios	Weighted factor formula, region share for financial envelope	Development index, region share for financial envelop	No envelope (SPD 2004-2006 experience) region share for financial envelope
Latvian rural total	100	100	100
Pierīga rural region	17,4	9,3	32,2
Vidzeme rural region	22,8	22,1	18,4
Kurzeme rural region	18,8	17	20,9
Zemgale rural region	18,7	19	19,6
Latgale rural region	22,3	32,6	8,9

Source: Saktina & Meyers 2006

The Modelling Framework

Over the last few decades CGE models have become a common tool of empirical economic and policy analysis in both developed and developing countries, and a standard methodology has been developed in particular to formulate, calibrate and solve such models. The CGE model implemented for this study draws especially on one of the standard frameworks made available by IFPRI (Lofgren et al. 2002). Starting with this basic structure, a number of necessary modifications have been made so that the adapted model reflects the specific characteristics of the study region and the key rural-urban interactions.

The bi-regional SAM

All CGE models use a SAM to provide the base year values which, in conjunction with other data (e.g. physical quantities, elasticities), are used to calibrate the CGE model. The basic regional SAM structure used for the purposes of this analysis consists of the productive activities of firms, the factors of production (labour and capital) and the household accounts which have been spatially disaggregated into urban and rural regions. Furthermore, households in the SAM table are also distinguished according to a) whether they derive income from agriculture and b) whether they commute, work locally or have some other status (e.g. retiree household or extra-regional commuter). Only commodities accounts have been kept identical across the whole study region due to extremely demanding requirements in terms of disaggregating the data. Also important in terms of interpreting the figures in the SAM and associated CGE model, is the Rest of the World (RoW) account that covers transactions with both the rest of the national economy and foreign imports/exports.

The bi-regional CGE Model

The CGE model used in the analysis is based upon a standard framework as given by IFPRI (Lofgren et al. 2002) but was modified so as to capture the key rural-urban interdependencies at the regional level. The model is comprised of a set of linear and nonlinear simultaneous equations. Production and consumption behaviour is captured by a number of nonlinear profit and utility maximization optimality conditions. The equations also include a set of constraints that have to be satisfied by the system as a whole, covering markets (for factors and commodities) and macroeconomic aggregates (balances for Savings-Investment, the current government account and the external balance (the current account of the balance of payments, which includes the trade balance). The description which follows presents key features of the model [19].

Production Behaviour

Production is based around activities, where each activity is based in either the rural or urban part of the region and produces one or more commodities in fixed proportions per unit of activity those allowing for a multiple output structure.

19 The model equations, along with the full GAMS code and elasticities used to calibrate the base year SAM data are available from the authors on request.

Each producer is assumed to maximize profits which are defined as the difference between revenue earned and the cost of factors and intermediate inputs. Profits are maximized subject to a production technology (Figure 1). At the top level, the technology is specified by a constant elasticity of substitution (CES) function of the quantities of value-added and aggregate intermediate input. The CES function suggests that available techniques permit the aggregate mix between value-added and intermediate inputs to vary. Value added is itself a CES function of primary factors whereas the aggregate intermediate input is a Leontief function of disaggregated intermediate inputs. At the bottom level each activity uses composite commodities as intermediate inputs, where intermediate demand is determined using fixed Input-Output (I-O) coefficients. Value added is a CES function defined over factors of production which are spatially specific.

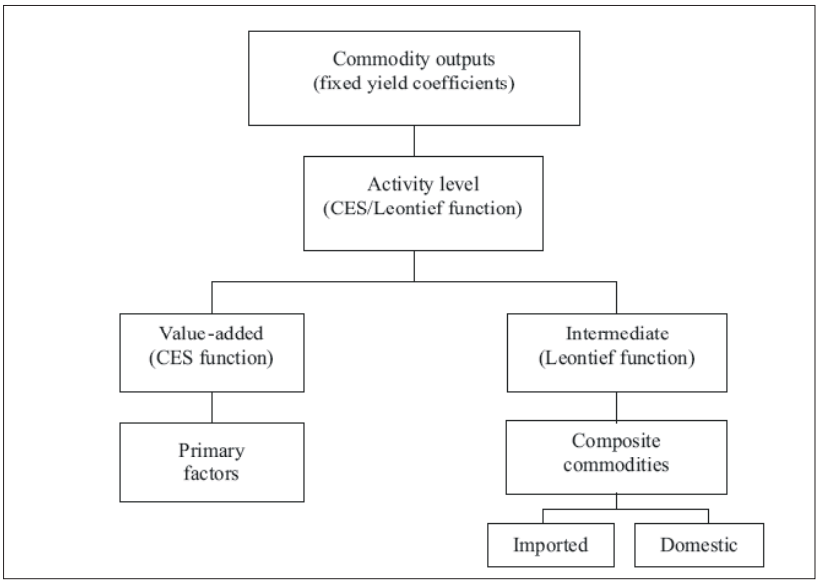

Figure 1. Production technology
Source: Lofgren et al. 2002

As part of its profit-maximizing decision, each activity uses a set of factors up to the point where the marginal revenue product of each factor is equal to its wage. Factor wages may differ across activities, not only when the market is segmented but also for mobile factors.

Factor payments accrue to the owners of the factors (households) as reflected in the base SAM. The CGE model requires certain assumptions in relation to the way in which supply and demand in factor markets come about. In relation to labour markets, these range from assuming the wage rate to be perfectly flexible (Neoclassical adjustment), to allowing for unemployment (Keynesian adjustment) or segmented factor markets. Analogous assumptions exist for the capital factor in the model.

All commodities (either produced within the region or imported), with the exception of home-consumed output, enter markets and activity-specific commodity prices serve to clear the implicit market for each disaggregated commodity. As shown in Figure 2, at the first stage regional (domestic) output is produced from the aggregation of output of different activities within the region of a given commodity. At the next stage, the aggregated regional output is split into the quantity of regional output sold domestically and of that exported via a constant elasticity of transformation (CET) function.

As is widely practiced in the CGE literature, a so-called "Armington" function is used to prevent "over-specialization" and to better reflect the empirical realities of most regions. This approach assumes imperfect substitutability between imports, exports and commodities produced within the region. Regional market demands are thus assumed to be for a composite commodity made up of imports and regional output, as captured by a CES aggregation function. Also, the model assumes that export and import demands are infinitely elastic at given world prices. Flexible prices are also assumed to equilibrate demands and supplies of domestically marketed domestic output.

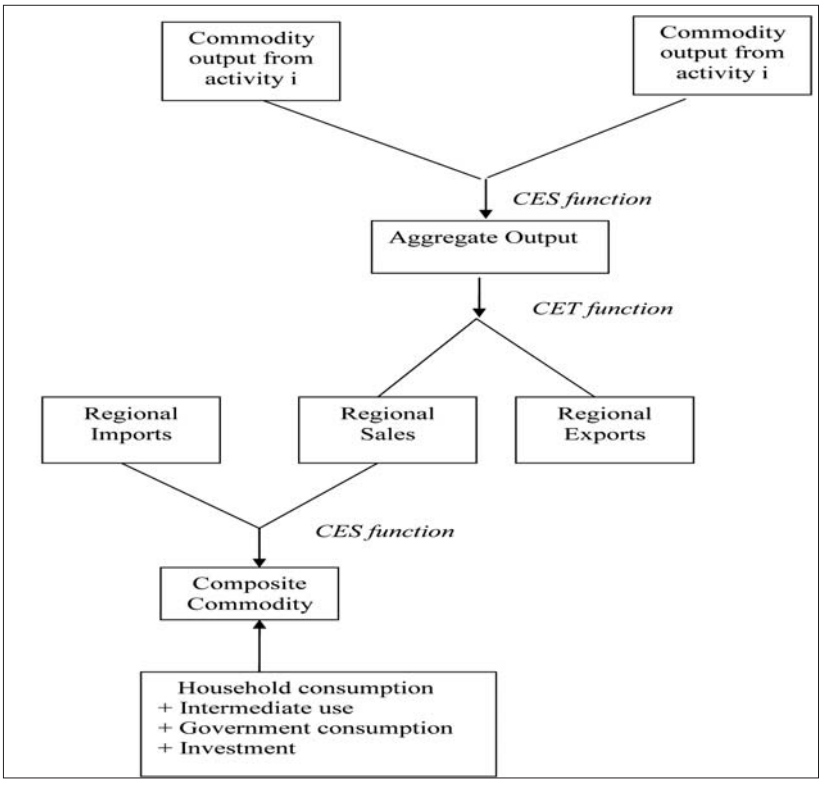

Figure 2. Commodity Flows
Source: Lofgren et al., 2002

Institutions

Institutions in the CGE model are represented by households, government and the rest of the world account. Households (disaggregate according to the SAM table) receive income from the factors of production (in proportions fixed at the base year level), and transfers from other households, the government and the Rest of the World. This income is spent to pay direct income taxes, to consume, save and make transfers to other institutions. Direct taxes and transfers to other domestic institutions are defined as fixed shares of household income whereas the savings share is flexible. The treatment of direct income tax and savings shares is related to the choice of closure rule for the government and savings-investment balances. Household consumption covers marketed commodities, purchased at market prices that include commodity taxes and transaction costs, and home commodities, which are valued at activity-specific producer prices. Household consumption is allocated to market and home commodities based on a linear expenditure system (LES) demand function that is derived from the maximization of a Stone-Geary utility function (Dervis et al. 1982, Blonigen et al. 1997).

The second institution is the combined government account (representing both local and central government). Government collects taxes (all taxes are at fixed ad valorem rates) and receives transfers from other institutions. The government uses this income to purchase commodities for its consumption and to make transfers to other institutions (e.g. Households). Its consumption is fixed in real terms whereas government transfers to domestic institutions are CPI-indexed. Government savings (the difference between government income and spending) is a flexible residual.

The final institution is the Rest of the World account. Transfer payments between the rest of the world and domestic institutions and factors are all fixed in foreign currency. Foreign savings is the difference between foreign currency spending and receipts.

The model also includes three macroeconomic balances, the government, the external balance and the Savings-Investment balance. The government balance was achieved by allowing government savings to adjust endogenously within the model while direct tax rates were fixed. The external balance was achieved through flexible foreign savings while the real exchange rate was assumed fixed. Finally, for achieving the Savings-Investment balance we used the 'balance' Keynesian closure rule that assumes that adjustments in absorption are spread across all of its components (household consumption, investment, and government consumption) and the nominal absorption shares of investment and government consumption are fixed in real terms. Also, the savings rates of selected institutions are scaled so as to generate enough savings to finance investment.

In the case of the labour market we choose to use the Keynesian closure rule which assumes that a factor (and more specifically labour) can be unemployed and the real wage is fixed. This assumption is appropriate in settings where there is considerable unemployment for a given labour category in the regional economy. In this setting the economy-wide wage variable is fixed (or exogenized) while the labour supply variable is flexible (endogenous to the model). The supply variable is superfluous; it merely records the total quantity demanded.

Policy Scenarios

The scenarios that have been selected for this analysis are of direct relevance to area payment schemes (Pillar 1) and the Rural Development Programme (RDP) of 2007-2013 (Pillar 2) for the rural region of Latgale. There have been defined three policy scenarios in order to guide the design of more appropriate regional policies that could more suitably address the balanced development of the regional economy. The scenarios analyzed in this paper include:

1. Base: **No Latgale Financial Envelope**, in which a total funding available is the share of funding that actually occurred in RDP and SF measures during 2004-06;
2. Scenario 2: **Enhanced Financial Envelope** (based on the Development Index) for regional RDP measures of 2007-2013 in Latgale and area payments support flows under Pillars 1 and 2 of the CAP;
3. Scenario 3: **Investment in Public Sector only:** area payments and funds for RDP investment measures for business development are transferred to public social and economic infrastructure measures with none going to private investment.

Presentation of Results

In this section, main results from the policy scenarios are presented in terms of impacts on macroeconomic indicators (real GDP and employment levels) and sectoral effects (factor income and distribution of household income and consumption expenditure between different household categories). The effects of the two policy scenarios are measured as deviations from the "No Latgale Financial Envelope" which represents the share of total funding that actually occurred in RDP and SF measures during 2004-2006.

Real GDP at Factor Cost

The scenario-specific impact on sectoral and total real GDP at factor cost is shown in Table 3. Results indicate that both scenarios will have positive impacts on total real GDP of both regions, with effects in the rural region being higher. Comparing the two scenarios it seems that "Investment in Public Sector" scenario has the ability to increase more the total and regional (rural/urban) GDP and in particular the generated impacts are twice compared to the "Enhance Financial Envelope" scenario. However, the positive effects in both cases are quite small compared to changes in the sectors of the regional economy.

Turning to rural and urban GDP effects, results show that the model predicts higher positive effects in the case of the rural sectoral GDP. In the case of the rural region, sectoral GDP effects have different sectoral distribution and they are always positive, with the exception of the negative effects in the primary sectors from the "Investment in Public Sector" scenario. Specifically, the "Enhanced Financial Envelope" scenario raises more the GDP of the primary sector while "Investment in Public Sector" affects more the GDP of the tertiary sector. Also, the GDP of the secondary sector is increased from the implementation of the two scenarios. This reflects increases in allocative efficiency from the removal of coupled support and the transfer of funds from area payments to different sectors of the rural region.

In the urban region there is a different picture of impacts concerning the distribution of sectoral effects. The "Enhance Financial Envelope" scenario continues to increase more the GDP of the primary and the secondary sectors as in the rural region. However, the "Investment in Public Sector" scenario increases more the GDP of the urban secondary sector while the effects in the tertiary sector are the lowest.

The most important finding from the implementation of the two scenarios is that the impacts in rural sectoral GDP from the "Investment in Public Sector" scenario are different compared to the "Enhanced Financial Envelope" due to the fact that all funds are allocated towards public sector investment. Also, the reason that rural total GDP increases more from this scenario can be explained by the fact that funds are allocated to sectors that are labour and capital intensive, which means that they are important in the formation of the rural GDP.

Table 3. Aggregate Impacts on Real GDP at Factor Cost (% changes from the "No Latgale Financial Envelope" scenario)

	No Latgale Envelope (1000 LVL)	Enhanced Financial Envelope (%)	Investment in Public Sector (%)
Rural Area	**207756**	**0.82**	**1.64**
Primary	34688	1.46	-5.74
Secondary	50663	1.12	2.00
Tertiary	122405	0.51	3.57
Urban Area	**318155**	**0.15**	**0.36**
Primary	714	0.29	0.14
Secondary	109710	0.20	0.91
Tertiary	207731	0.13	0.07
Total	**525911**	**0.42**	**0.86**

Employment Effects

The effects of the two alternative scenarios on skilled and unskilled employment levels are shown in Table 4. Both scenarios have positive skilled employment effects. The "Enhanced Financial Envelope" scenario has the ability to

increase more the employment skilled levels of the rural and urban primary sector. Also, due to high linkages of the primary sector with the secondary sector, a considerable increase in the skilled employment levels of the rural secondary sector is recorded. In contrast, the "Investment in Public Sector" scenario has clearly the best total skilled employment impacts but it is negative for the rural primary sector due to the shift of area payments to investment. The higher impacts in total employment are due to the high positive impacts in the employment of the rural tertiary and secondary sectors which result from the focus on public infrastructure investment. These sectors are also labour intensive and, consequently, in order to produce more they demand more workers.

Table 4. Skilled and Unskilled Employment Effects (% changes from the "No Latgale Financial Envelope" scenario)

	No Latgale Envelope (FTEs)		Enhanced Financial Envelope (%)		Investment in Public Sector (%)	
	Skilled	**Unskilled**	**Skilled**	**Unskilled**	**Skilled**	**Unskilled**
Rural Area	30963	9898	1.32	1.28	4.94	4.45
Primary	2042	544	4.24	4.24	-2.25	-2.25
Secondary	6487	2846	1.97	1.67	4.34	1.02
Tertiary	22439	6509	0.83	0.84	5.76	6.71
Urban Area	42006	12915	0.30	0.18	0.70	0.52
Primary	128	0	0.73	0	0.34	0
Secondary	12245	5347	0.40	0.21	1.72	1.11
Tertiary	29636	7568	0.25	0.16	0.15	0.10
Total	72996	22791	0.94	0.59	3.38	1.99

In the case of unskilled employment levels, the sectoral distribution of effects has the same direction as skilled employment effects. However, percentage changes are a little bit lower for unskilled employment levels. The only difference is observed in the rural tertiary sector where unskilled employment effects increase more from the implementation of the two policy scenarios compare to skilled employment levels.

In conclusion, it can be said that the "Investment in Public Sector" scenario has the largest increases in total, rural and urban skilled and unskilled employment levels, but this is due to the labour intensive sectors to which funds are allocated. Only the employment levels of the primary sector record the highest increase due to the "Enhanced Financial Envelope" scenario.

Factor Income

Factor income changes provide the most general indicator of labour and capital incomes (Table 5). Both scenarios give positive effects in the income of both rural and urban labour and rural and urban capital factors with the "Investment in Public Sector" scenario resulting in impacts that are more than

two times higher except in the case of urban capital. Also, both scenarios seem to affect more the income of rural labour factors that is rural unskilled, skilled labour and rural capital.

Household Income

The impacts of the two policy scenarios on the distribution of income of different household categories are presented in Table 6. In the case of agricultural households, the "Enhanced Financial Envelope" scenario has the highest incomes, which is due to the direct transfer of area payments to their budget. In contrast, the "Investment in Public Sector" scenario results in a very big decrease in the income of agricultural households because area payments are transferred to investment support for public infrastructure. However, the increase investment support has the ability to result in highest positive impacts on the incomes of the rest of rural and urban household categories. Rural local households and those urban households working in rural areas benefit from the largest income increases. An important finding is that the two scenarios result in positive diffusion of impacts towards the income of urban households.

Table 5. Impacts on Factor Income (% changes from the "No Latgale Financial Envelope" scenario)

Factors	No Latgale Envelope (1000 LVL)	Enhanced Financial Envelope (%)	Investment in Public Sector (%)
R-Unskilled Labour	249386	1.28	4.45
R-Skilled Labour	862786	1.32	4.94
U-Unskilled Labour	415860	0.18	0.52
U-Skilled Labour	1367259	0.30	0.70
Urban Capital	1380206	0.34	0.66
Rural Capital	788159	2.20	4.74

Table 6. Impacts on Household Income (% changes from the "No Latgale Financial Envelope" scenario)

Households	No Latgale Envelope (1000 LVL)	Enhanced Financial Envelope (%)	Investment in Public Sector (%)
Rural HHS	249761	1.12	-12.56
Rural Local	30153	1.40	4.15
Rural Commuter to the Urban area	32841	0.80	2.25
Rural Commuter to the RoW	14160	0.75	2.05
Agricultural HHS	172608	1.15	-19.29
Urban HHS	318846	0.42	1.00
Urban Local	282806	0.38	0.83
Urban Commuter to the Rural area	26077	0.89	3.01
Urban Commuter to the RoW	9963	0.22	0.49
Total HHS Income	568607	0.72	-4.96

Household Expenditure

In terms of household expenditure (Table 7) the "Enhanced Financial Envelope" scenario results in the best outcomes for agricultural households, but expenditures for other rural and all urban households are lower compared to the "Investment in Public Sector" scenario. This shows that the trade off between agricultural households and all others is seen in the results. The reduced spending of agricultural households in the "Investment in Public Sector" scenario is due to the big loss in their household income when area payments are removed. The interesting fact that emerges is the big increase in the expenditures of urban households that occurs from the direct effect of shifting area payments to investment support. Investment support leads to an increase in the production of urban sectors and consequently more labour is demanded in order to produce more. Since households are the owners of the labour factor this would result into an increase in their income and consequently to their expenditure levels.

Furthermore, the "Investment in public Sector" scenario has the largest positive impact on rural non-farm households and on all households in aggregate. Expenditures of all non-farm and especially urban households are significantly higher compared to the "Enhanced Financial Envelope" scenario, which is attributable to the direct effect of investments linked to production in the case of rural non-farm households and due to investment in commodities in the case of urban households. Also, the "Enhanced Financial Envelope" scenario decreases, even slightly, the expenditure levels of urban local and urban commuters to RoW even though their income increases.

Table 7. Impacts on Household Expenditure (% changes from the "No Latgale Financial Envelope" scenario)

Households	No Latgale Envelope (1000 LVL)	Enhanced Financial Envelope (%)	Investment in Public Sector (%)
Rural HHS	184609	1.01	-10.11
Rural Local	22904	1.30	6.89
Rural Commuter to the Urban area	26016	0.71	4.25
Rural Commuter to the RoW	11781	0.69	3.57
Agricultural HHS	123908	1.05	-17.56
Urban HHS	160939	-0.21	14.52
Urban Local	145546	-0.24	14.47
Urban Commuter to the Rural area	10424	0.25	17.44
Urban Commuter to the RoW	4969	-0.21	9.79
Total HHS Expenditure	345548	0.44	1.36

Conclusions

This analysis has focused on the description of the magnitude and the distribution of effects that result from the implementation of two alternative policy scenarios for the Latgale region. The results show that each scenario is predicting different qualitative and quantitative impacts in total and also in sectoral effects as well as differences in the distribution of effects between its rural and urban parts.

Comparison of the "No Latgale Envelope" scenario to the "Enhanced Financial Envelope" reveals the positive impacts of the increased financial allocation to Latgale Region. The addition of this extra funding resource has the effect of increasing all the indicators related to employment, GDP, and factor income even though area payments remain the same as in the "No Latgale Envelope" scenario. Also, this scenario seems to affect more positively the primary and secondary sectors and that is due to increased investments in the agriculture and agribusiness sector.

The comparative analysis of the scenario results show that in terms of GDP, the "Investment in Public Sector" scenario is the one that leads to the largest increase in the total and regional (rural-urban) GDP. Focusing on the aggregate sectoral effects it seems that this scenario increases the GDP of the rural tertiary and urban secondary sectors more, while the "Enhanced Financial Envelope" scenario has the ability to increase the GDP of the rural primary sector more. In the "Investment in Public Sector" scenario, rural GDP has a net increase despite the fact that removal of area payments reduced agricultural GDP. This means that non-agricultural employment and economic activity increases enough to more than offset the loss of jobs and economic activity in the primary and related secondary sectors. The strongest growth is in the rural tertiary sector, since that encompasses all the public sector activity that is emphasized in the investment priorities. Factor incomes for rural skilled and unskilled labour and for rural capital are the highest in this scenario.

Overall, the results suggest that in order for an economy to have a good economic performance it's not only about enhanced funding but is about the targeting of these funds to the more productive sectors of the economy. These would be the sectors that have the highest linkages within the economy and have the potential to create strong direct and indirect effects spread to the regional economy. In particular, the "Investment in Public Sector" scenario is the one that leads to the strongest positive effects both in the rural and also in the urban part of the region. These effects are mainly attributable to the positive effects that are recorded in the tertiary sector and also in the positive effects that are recorded in the tertiary and secondary commodities. As for the "Enhanced Financial Envelope" scenario, it is the one that affects more the primary sector in both areas.

Sensitivity analysis was carried out to test for the robustness of the findings. In particular the policy simulations were repeated assuming double levels for

the Armington elasticities. In this case, as anticipated, the results were affected but by small amounts and there were no qualitative changes in terms of direction of impacts or distribution of effects across rural-urban space.

Recommendations

This analysis would be more valuable if it could be extended to all regions of Latvia. The CGE modelling framework used for this impact assessment has proved to be an effective analytical tool for the evaluation of alternative rural development policies. However, the analysis is limited due to the fact that it was possible to be done only for Latgale region and not for all the regions of Latvia. In particular, when the financial envelope for Latgale was increased, the positive effects in the economic activity of Latgale was shown in the results but the impacts in the performance and well being of other regions cannot be adequately measured. A national analysis of the same or other policy alternatives requires a replication of this modelling and assessment in all regions together.

Regional modelling and analysis covering all regions of Latvia is recommended both for planning of strategy and projecting likely results of alternative policy implementation and for evaluation of results at the Mid-term review and the conclusion of the programming period. Having such an assessment tool would make it possible to conduct a much more quantitative evaluation before, during and after the RDP implementation.

References

Blonigen B.A., Joseph E.F., Reinert K.A., 1997, *Sector-focused General Equilibrium Modelling,* In: Francois J.F., Reinert K.A. (eds.), *Applied Methods for Trade Policy Analysis: A Handbook,* New York, Cambridge University Press.

Dervis K., de Melo J., Robinson S., 1982, *General Equilibrium Models for Development Policy, Cambridge,* Cambridge University Press.

LR Finance Ministry, 2008, *SF ieviešana un rezultāti* (Results and implementation of SF), http://www.esfondi.lv/page.php?id=306.

Lofgren H., Harris R.L., Robinson, S., 2002, *A Standard Computable General Equilibrium Model (CGE) in GAMS,* Microcomputers in Policy Research 5, IFPRI, Washington, http://www.ifpri.org/pubs/micocom/mico5.htm.

Saktiņa D, Meyers W.H., 2005, *EU and National rural support programs in Latvia: targeting the disadvantaged,* Riga, 2005, 232 pp.

Saktiņa, D., Meyers W.H., Rabinowicz E., 2006, *Development Policies for Lagging Rural Areas: Case Study of Latvia,* Draft manuscript, Riga, 204pp.

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New challenges for rural development in Vaslui County (North-Eastern Romania)

Abstract: *The aim of this article is to present the results of a project implemented in Romania between December 2006 and March 2008. The project entitled "Study Regarding the Prospective Valuation of the Socio-Economic Development of the Rural Space in Vaslui County" was driven by the Vaslui County Directorate of the Ministry of Agriculture and Rural Development in order to establish the local policy for promoting and approaching the European Agricultural Fund for Rural Development (EAFRD).*
There were elaborated 84 studies for 81 communes, 1 city and 2 towns with rural areas. The studies highlighted the particularities of each community and the trends for their rural development.

Keywords: *rural development, prospective valuation, local economic development, Vaslui County, Romania*

Introduction

Vaslui County is located towards the eastern – north-eastern extremity of Romania, at the border with the Republic of Moldova (E), between Iasi County (N), Neamt County (NW), Bacau (W), Vrancea (SW), Galati (S) and has a surface area of 5,318 km^2. The county has a total population of 456,686 inhabitants – data refers to 1 July 2006 (INS 2007) – with 59.4% of the population living in rural areas. The population density is 86 inhabitants per sq km (close to the national average which is 90 inhabitants per sq km – INS 2007). Vaslui city is the county residence (70,884 inhabitants – INS 2007). There are two cities Barlad (70,499 inhabitants) and Husi (29,371 inhabitants), two towns, Negresti (10,271 inhabitants) and Murgeni (7,808 inhabitants) and 81 communes with 460 villages

The relief is characterised by strong fragmentation and a general slant from north to south, being made up of hills and large valleys ensembles that belong to the central-eastern area of the Moldavian Plateau. The water network has an average density of 0.37 km/sq km and is represented by two large rivers, Prut and Barlad, whose springs and discharge mouth are outside the county. The natural resources are very low, being represented only by some building stone, small forested areas and some mineral water springs.

Vaslui County has a total agricultural surface of 401,236 ha (75% of the county surface). The structure of the agricultural surface is presented in Table 1.

Table 1. Agricultural land distribution in Vaslui County

Agricultural land, by use	Surface (ha)
Arable land	291,290
Grazing lands and meadows	95,180
Vineyards	12,243
Orchards	2,906

Source: VCC 2004 – updated in 2007 with data for 2006

The most important crops are: grain cereals; cash crops – sunflower, sugar beet, soy, tobacco and medicinal herbs. Vineyards and wine production is an old tradition in Vaslui County. The Vaslui vineyards are part of the "Moldova Hills" wine growing area, with renowned vineyards such as Husi, Averesti, Vutcani, Murgeni and Tutova Hills. The orchards, growing on 2,806 ha, produce annually 20 thousand tons of fruit (apples, plums, cherries, sweet cherries, apricots) (VCC 2004 – updated in 2007 with data for 2006).

Animal breeding represents about 35% of the county's economy. The livestock in 2006 amount to 76,300 cows, 71,000 pigs, 235,500 sheep.

In Vaslui County, there are 450 food production and processing companies, five companies active in fish breeding (VCC 2004 – updated in 2007 with data for 2006).

The number of households is quite large, amounting to 218,517 in 2006. The average size of a household is about 1.8 ha. Only 209 companies from a total of 182,000 agricultural companies (commercial farms) are larger than 50 ha. Most of them (84 representing 40%) are between 100 and 300 ha; 33% of them are between 50 and 100 ha; 15% are larger than 500 ha (VCC 2004 – up dated in 2007 with data for 2006).

Vaslui County has economic and social problems (traditionally underdeveloped – GV, MAA, 1998) due to the combination of high rates of structural unemployment (11.3% in Vaslui County and 5.2% country average in December 2006; see INS 2007) and high percentage of labour force employed in agriculture. More than 5% from the total number of employed persons in the

economy of Vaslui County are employed in agriculture, hunting and forestry – the country average is 2.8% for 2006 (calculations based on INS 2007). These two factors are correlated significantly with a rate of infant mortality (25 cases from 1000 – Adevarul 2006) higher than the national average (14 cases from 1000) and with a tendency of population migration to other regions, in the country and abroad, in search of jobs. The underdevelopment of the area is highlighted by other indicators with regard to basic infrastructure and level of direct investments per inhabitant (indicator which approximates the impact of the market forces on local economy).

Vaslui County suffers from a lack of foreign investment, due to its geographical position but also to the low level of investment in the promotion of economic potential. The total amount of foreign investment was in 2005 over 32 million € (i.e. around 70 €/inhabitant - VCC 2004 – up dated in 2007 with data for 2005). The most significant investments were made in mechanical engineering, textiles and the food industry. The industry is concentrated in towns and cities, while the rural area has an agricultural profile.

Vaslui County being one of the poorest counties in Romania, could become more attractive if it can increase its absorption capacity for the funds that are channelled to Romania and take advantage of the opportunities that exist.

In 2006, Vaslui County Directorate of the Ministry of Agriculture and Rural Development (DADR Vaslui), in order to improve the efficiency of its activity in promoting the funding opportunities for the rural areas, contracted the project, entitled "Study Regarding the Prospective Valuation of the Socio-Economic Development of the Rural Space in Vaslui County" with the Romanian Academy, Iasi Branch, Economic and Social Research Institute "Gh. Zane", the Rural Economy Department. The same research staff implemented a similar project between 1997 and 1998 for the rural area of Iasi County, contracted and funded by Iasi County Council, entitled "Studies regarding the economic and social development of the communes in Iasi County – Horizon 2004". The aim was to make a diagnosis of each community and to establish the development directions according to their strengths and weaknesses (Bohateret, Dobay and Gherasim 1999).

The purpose of the current project implemented in Vaslui County was to diagnose the rural space and to outline the development trends for each community.

Methodology

The diagnosis comprised a three level approach:

1. The vision of the County level organisations and public institutions regarding the development of the rural areas
2. The vision of the local public administration for each administrative unit
3. The rural people's vision about actual needs and their future

The main undertaken steps were:
- designing the tools for collecting information and data for the diagnosis;
- testing the questionnaire;
- preparing the field data collection and instructing the operators;
- collecting and analysing the data;
- elaborating the diagnosis and establishing the development areas;
- forecasting the development trends;
- estimating the funds' absorption capacity of the communities.

The data collection started by gathering available information about Vaslui County from all the organisations and public administration bodies. In order to get thoroughly into the analysis at community level, a document called "The Documentary File of the Commune" (Appendix 1) was elaborated which was distributed to the local public administration. The document contained 78 questions/topics and its main role was to obtain local level data about the community and to see the development perspectives of the localities from the local public administration's point of view.

The greatest challenge, from the point of view of processing the information, was the questionnaire used for perceiving the peoples vision about their real needs and their opinion about the development perspectives of the communities. The questionnaire comprised 47 questions, out of which 37 were open-ended. 2,530 questionnaires were validated representing 1.73% from the total number of households. The coverage was at each village level and the respondents were selected by the operators (DADR Vaslui staff – County Directorate for Agriculture and Rural Development - and OJCA Vaslui – county public extension service), on the basis of a statistical step of about 1 from 180. The targeted respondents were teachers, priests, business men, farmers, recognised informal leaders, housewives, young farmers etc..
84 studies for the 81 communes, one city and two towns with rural areas has been elaborated.

Each study had the following content:

I Synthesis
- *1.1 The rural development zones*
- *1.2 The development level of the commune*
- *1.3 Rural development directions*

II The analytical study on the commune
- *2.1 General presentation*
  - *2.1.1 Chapter I Introduction (history, geography)*
  - *2.1.2 Chapter II Natural resources*
  - *2.1.3 Chapter III Human resources*
  - *2.1.4 Chapter IV Material resources*
- *2.2 The county institutions' vision about the development perspectives of the commune*
- *2.3 The local public administration's vision about the development perspectives of the commune*
- *2.4 The people's vision about the development perspectives of the commune*

III Types of eligible projects for rural development (2007-2013)
IV The identified projects classified by programmes, measures and axis
V The research results – next steps for the community development
- *5.1 Guiding principles for elaborating the Local Economic Development Strategy*
- *5.2 Establishing partnerships*
- *5.3 The LEADER approach*
- *5.4 Writing and implementing projects*

References

Results

The studies highlighted the particularities of each community and the trends for the rural development. The major development directions identified were:
- rural infrastructure modernisation (roads, water supply)
- development of non-agricultural activities
- farm modernisation
- improving life quality
- specialising agricultural activities
- improving the quality of the environment
- developing forestry
- lifelong learning
- developing tourism

In each commune, based on the questionnaires and the commune documentary file, we identified several project ideas in different domains. There were 11,263 project ideas, out of which:
- 42% - related to village modernisation
- 26% - for developing agriculture
- 21% - diversification of economic activities
- 9% - on environmental topics
- 2% - for addressing social problems

From the total number of identified project ideas, 10,537 might be funded through the EAFRD. 55% of these project ideas were identified on axis III, 28.4% on axis I, 11.7% on axis IV and 4.9% on axis II (Table 2).

Table 2. The distribution of the identified project ideas on the EAFRD axis

EAFRD axis	Number of identified projects	% from total programme
Axis I development of the competitiveness of the agricultural and forestry sector	2989	28.4
Axis II improvement of the environment and the rural areas through the sustainable use of agricultural and forestry land	517	4.9
Axis III developing quality of life in rural areas and rural economy diversification	5800	55.0
Axis IV LEADER	1231	11.7
TOTAL	10537	100

Source: CER 2008, Final Report (vol. I-V)

The rural space of Vaslui County was classified in 11 rural development areas (zones) based on the polarisation structures, communication flows and the local development potential. The mapping in 11 zones was made by considering the following elements:
- Subtype zone
- Localisation

- Composition
- Physic and geographical potential
- Demographic potential
- Economic potential
- Accessibility
- Agricultural production potential (soil mapping)
- Development possibilities
- Development perspectives of the zone
- Indicators and indexes for economic and social valuation (i.e. population, households, active population, land fund by use, utilised agricultural surfaces, livestock, number of tractors, soil category, infrastructure quality, water quality etc.)

Each of the 11 zones has different development potential as presented in Table 3.

Table 3. Main features of the 11 rural development areas

Zone	Localities within the area	Features
1	Negresti town and 7 communes: Bacesti, Dumesti, Todiresti, Rafaila, Osesti, Vulturesti, Rebricea	- is an agricultural area; - the population is generally decreasing with the exception of the villages with Roma population; - the area is underdeveloped; - the development might be generated by the diversification of economic activities in Negresti town;
2	4 communes: Codaesti, Dudesti, Tacuta, Miclesti	- is situated relatively far from the main cities; - the development potential is related to the development of Codaesti commune as polarization centre (traditionally farmers' market place);
3	6 communes: Botesti, Bunesti-Averesti, Tatarani, Cretesti, Oltenesti, Albesti	- orchards and vineyards with development potential; - middle polarization degree from the cities;
4	6 communes close to Husi city: Dranceni, Arsura, Duda Epureni, Padureni, Stanilesti, Lunca Banului	- high potential for agriculture (grains, technical plants) and forestry; - tradition in wine production;
5	Vaslui city and 15 communes: Solesti, Tanacu, Muntenii de Sus, Muntenii de Jos, Deleni, Lipovat, Puscasi, Laza, Balteni, Cozmesti, Delesti, Stefan cel Mare, Zapodeni, Feresti, Valeni	- it is the periurban area of Vaslui city; - good soils; - high potential for diversification;
6	8 communes: Voinesti, Gherghesti, Puiesti, Iana, Dragomiresti, Garceni, Ivanesti, Pungesti	- isolated area; - low agricultural potential; - decreasing population;
7	7 communes: Alexandru Vlahuta, Bogdana, Bogdanesti, Bogdanita, Costesti, Ibanesti, Poienesti	- available labour force; - bad infrastructure; - low polarisation degree;

Zone	Localities within the area	Features
8	7 communes: Dimitrie Cantemir, Gagesti, Hoceni, Vutcani, Dodesti, Rosiesti, Viisoara	- high agricultural potential; - lack of infrastructure;
9	3 communes: Berezeni, Falciu, Vetrisoaia	- potential for processing agricultural products; - is medium developed area with potential for diversification;
10	Murgeni town and 4 communes: Blagesti, Epureni, Malusteni, Suletea	- agricultural area with potential for diversification; - the development pillar is Murgeni town, but slowly developing due to the high percentage of Roma population;
11	14 communes close to Barlad city: Ciocani, Coroiesti, Ivesti, Pochidia, Pogonesti, Tutova, Banca, Bacani, Fruntiseni, Grivita, Perieni, Vinderei, Zorleni	- high potential for agriculture; - tradition in vegetable growing; - favourability for sunflower, oilseed rape.

Figure 1. Rural Development Areas
Source: CER (2008)

We noticed that (CER 2008, Final Report Synthesis):
- The highest development potential is in zones 5 and 11 (located around the biggest cities from the county);
- Zones 4 and 9 have high potential for agriculture;
- Zones 1 and 10 have as development engines small towns with diversified activities;
- Zone 2 is developing as an isolated area but with real development potential due to its location on the national road;
- Zones 3, 6, 7 and 8 are underdeveloped.

Regarding the coverage of the projects identified, we observed that 22% of the projects identified were in zone 5; 18% in zone 9; 13% in zone 4; 11% in zone 11 – those are the areas already identified with the highest development potential due to the polarity of the cities and towns and due to the communication flows and infrastructure.
In order to rank the localities for trying to identify the "active communities" and to separate the "dreamers" from those who are really committed and want to develop, we used the following criteria:
1. How seriously and detailed was filled in the Commune Documentary File by the local public administration - LPA (marked with 1 for many lacking information and without strategic/clear vision about the community's future development; marked with 5 the complete and detailed answers with clear understanding);
2. Number of NGO's in the locality (with headquarters and/or with activities in the area);
3. Number of projects implemented by public bodies/in public sector;
4. Number of projects implemented by private entities (mainly on SAPARD);
5. Provisions constituted in the local budget for co-funding future projects (if yes – mark 1; if no – mark 0);
6. Number of informal leaders (identified based on the way how they filled in the questionnaires – strategic thinking; community development ideas).

The average mark for a community is 10.7. We could state that the communities with higher marks than the average have real potential for development.

In the individual ranking, the communities with the highest development potential, in our opinion, are Berezeni, Zorleni, Stanilesti, Banca, Falciu, Voinesti, Rebricea, Ivesti, Tutova, Pungesti, Padureni, Pogonesti, Hoceni and Muntenii de Jos. Those communities already implemented projects, have informal leaders and reliable local public administration staff.

Table 4. Ranking zones

Zone number	Mark for the LPA	NGO's (number)	Public projects (number)	Private projects (number)	Provisions (number)	Informal leaders (number)	Total mark	Average mark per community*	Rank
1	25	1	35	5	2	3	71	8.8	VIII
2	10	0	5	5	1	7	29	7.8	XI
3	14	0	21	4	0	11	50	8.3	X
4	20	2	25	10	4	19	80	13.3	II
5	49	2	45	27	8	39	171	10.7	V
6	22	0	27	4	2	20	76	9.5	VII
7	26	1	20	5	1	8	61	8.7	IX
8	29	0	28	4	5	19	85	12.1	III
9	13	2	18	10	0	11	54	18.0	I
10	17	0	13	5	0	13	48	9.6	VI
11	37	1	54	32	4	29	157	11.2	IV

* the average mark for the communities was calculated by dividing the mark for zone to the number of localities from that area

Conclusions

We may state that this project is unique in Romania due to its complexity. The results are interesting and, as generally speaking about rural development, hard to be measured, at least not in such a short time since the projects implementation (March 2008). But here are some facts:

- DADR Vaslui – The County Directorate for Agriculture and Rural Development - promoted the EAFRD measures focusing on the communities with higher potential for development;
- The targeted persons were first of all the informal leaders identified in the communities;
- There are two LAG's in the legal establishment process and their identification, structuring was done accordingly to the findings from the commune studies and the criteria used in zoning Vaslui County's rural area;
- After the value of the eligible projects funded under the EAFRD measures launched so far, Vaslui County was ranked on the fourth position on measure 121 in March on total country, on the 6th position on the same measure in April 2008 and on the second position on measure 322 (April 2008).

Table 5. Approved projects on EAFRD in 2008 for Vaslui County (March, April and May 2008)

Measure	Beneficiary (location)	Zone	Eligible value of the project in Ron*	Mark from the ranking system
121 – farm modernisation	Banca (1)	11	4,663,376	18
	Lunca Banului	4	45,330	12
	Pochidia	11	1,727,834	7
	Albesti	3	269,245	10
	Murgeni	10	1,243,601	12
	Vaslui	5	3,745,616	18
	Falciu (1)	9	7,494,721	18
	Berezeni	9	5,521,200	24
	Bacani (1)	11	234,860	7
	Costesti (1)	7	1,782,305	11
	Balteni	5	759,300	14
	Falciu (2)	9	880,335	18
	Costesti (2)	7	1,769,743	11
	Tutova (1)	11	4,973,438	16
	Stefan cel Mare	5	701,044	10
	Muntenii de Jos (1)	5	11,017,440	14
	Falciu (3)	9	941,735	18

Measure	Beneficiary (location)	Zone	Eligible value of the project in Ron*	Mark from the ranking system
123 – increasing added value for agricultural and forestry products	Banca (2)	11	14,141,120	18
322 – rehabilitating and developing villages	Laza	5	8,744,815	9
	Perieni	11	8,659,425	6
	Muntenii de Jos (2)	5	7,431,905	14
	Padureni	4	9,181,251	16
	Bacani (2)	11	8,226,290	7
	Tutova (2)	11	4,917,249	16

* exchange rate 3,6262 Ron/€ – National Bank of Romania, www.bnr.ro (October 30th 2008)
Source: DADR Data base (as of October 2008)

From the 17 communities who managed to have so far eligible projects on EAFRD, 12 were identified from the ranking system used in the study as localities with high development potential.
Rural development is facing new challenges and the answers are more and more complex. Sharing experience is the solution for overcoming common problems.

The aim of this paper was to present a Romanian case study of approaching rural development in one of the poorest rural regions from Europe. In the globalisation context, when the labour force is migrating across Europe it is important to find solutions for sustainable rural development, for our common future.

References

Adevarul, 2006, *Mortalitatea infantila a depasit rata-record la Vaslui* (The Infantile Mortality Higher than the Record Data in Vaslui County), available at http://www.adevarul.ro/articole/2006/mortalitatea-infantila-a-depasit-rata-record-la-vaslui.html.

Bohateret V.M., Dobay K.M, Gherasim O., 1999, *Studii de dezvoltare economico-sociala a comunelor judetului Iasi* (Studies regarding the economic and social development of the communes in Iasi County), Analele Institutului National de Cercetari Economice, Anul XIX, vol. 36-37, 3-4,1999, CIDE, 13-27.

CER, 2008, *Studiu privind evaluarea prospectiva a dezvoltarii economico-sociale a spatiului rural din judetul Vaslui* (Study Regarding the Prospective Valuation of the Socio-Economic Development of the Rural Space in Vaslui County), Academia Romana, Filiala Iasi, Institutul de Cercetari Economice si Sociale "Gh. Zane", Colectivul de Economie Rurala – CER, project no. 7038/3394/24.11.2006.

GV, MAA, 1998, *Carta Verde. Dezvoltarea rurala in Romania* (The Green Carta. Rural Development in Romania), Guvernul Romaniei, Ministerul Agriculturii si Alimentatiei (Romanian Government, Ministry of Agriculture), Project funded by the EU, PHARE program, Bucharest.

INS, 2007, *Anuarul statistic al Romaniei 2007* (Romanian Statistical Yearbook 2007), Institutul National de Statistica (National Institute of Statistics), ISSN 1220-3246.

INS, DJSV, 2008, *Buletin statistic lunar, judetul Vaslui* (Monthly Statistical Bulletin), Institutul National de Statistica (National Institute of Statistics), Directia Judeteana de Statistica Vaslui (Vaslui County Statistical Department), available at http://www.insse.ro/cms/rw/pages/buletinStatJud.ro.do.

VCC, 2004, *Introducing Vaslui County: Cultural, Tourist and Religious Routes; Business Environment; Agriculture and Rural Development; Towns and Cities; Greatest Names,* brochures published by Vaslui County Council with the support of DFID (some brochures were up dated lately).

Appendix 1. Documentary file - commune

1. Commune structure

Locality (commune/ village)	Total surface	Distance to the commune centre	Total inhabitants	Active population nr.		Households
	ha	km	No.	Total	out of which in agriculture	no.

2. Number of registered unemployed persons
3. Legal entities with the headquarters in the commune or with working points in the commune
4. NGOs with activity in the commune
5. Main Romanian investors and investments in the last 5 years in the commune
6. Main foreign investors and investments in the last 5 years in the commune
7. Number of wells and the water quality
8. Social function places (communal baths, parks, sports grounds, play grounds etc.) in the commune
9. Children under 18 years abandoned (no.)
10. Social assistance for children under 2 years (no.)
11. Socially assisted persons
12. Personal assistants
13. Causes of death from the main diseases
14. Chronic sick people from the main diseases
15. Delinquency level in the commune
16. Waste management
17. Public transport modes crossing the commune (frequency and the villages crossed)
18. The closest railway station

19. The closest railway station with commodity transport facilities:
20. The closest city – distance
21. Main problems to be solved in the commune:
22. Investments made in the last 5 years by fields and funding sources
23. Projects implemented in the last 5 years: (PHARE, SAPARD, RSDF, ISPA etc.)
24. Financial contribution of the public local administration to the projects/studies done in the last 3 years25. Balance/result of the local budget in the last 3 years
26. Total incomes in 2006 at the local budget
27. Percentage of the local taxes in the local incomes
28. Percentage of the income tax from physical entities in the local incomes
29. Percentage of the income tax from legal entities in the local incomes
30. Priorities for investments in the commune
31. Projects/studies elaborated by the local public administration waiting for funding
32. Reserves constituted, from budget source for projects in 2007
33. Land surfaces of the commune:

- ha -

	Type of land	To-tal	Households from the com-mune	People living in other loca-lities	Legal enti-ties
1	Arable land				
2	Natural pasture				
3	Hey				
4	Vineyard				
5	Producing vineyards				
6	Orchards				
7	Producing fruits				
8	Total agricultural land (1+2+3+4+6)				
9	Forest				
10	Buildings and courts				
11	Other lands				
12	Total surface (8+9+10+11)				

34. Fruit trees:

- nr. -

	Species	2001	2002	2003	2004	2005
1	Total (2+…+11)					
2	Apple					
3	Pear					
4	Quince					
5	Plum					
6	Apricot					

	Species	2001	2002	2003	2004	2005
7	Peach					
8	Sweet cherry					
9	Sour cherry					
10	Nut					
11	Other trees					
12	Nursery (young trees)					
13	Mulberry					

35. Irrigated land
36. Land exploitation forms:

Village	Individual		Association		Rented		Other forms	
	ha	%	ha	%	ha	%	ha	%

37. Land in the village (for construction):
38. Property titles issued (no.)
39. Average price of the land outside the village (agricultural land)
40. Average price of the land inside the village
41. Number of selling contracts established in 2006
42. Land sold
43. Main land buyers outside from the village
44. Degradation of the land:

Village	Name of the degradation process	Phase (incipient, medium, high)	Surface	Location

45. Necessary investments in land improvement and irrigation
46. Agricultural activities with high development potential
47. Processing, storing, transport activities necessary to be established or reactivated in the commune
48. Main farmer markets organised in the commune and the type of products transactioned
49. Localities outside the commune where there are farmer markets (where the inhabitants are going to) – location and distance
50. Natural resources from the commune exploited in the past
51. Investments needed for the exploitation of the local resources
52. Investments to be done in forestry and wild habitat (animal) preservation
53. Investments to be done for the water management
54. Tourist attractions (historic monuments, art, natural reservations)
55. Possibilities for developing tourism
56. Production, trade or services activities initiated in the last 5 years
57. Non agricultural activities which could be developed in the locality
58. Services needed by the inhabitants

59. Necessary infrastructure works in the commune
60. Investments in social activities needed
61. Environmental projects necessary to be promoted in the commune
62. Common projects and activities done with the inhabitants from neighbour villages and communes
63. Common projects that could be done with the neighbour villages/communes
64. Religions in the commune
    Churches (no.)
    Chapels (no.).
    Cemeteries (no.)
65. Ethnic minorities in the commune, by village
66. Problems that the ethnic communities are facing
67. Strengths of the commune
68. Weaknesses of the commune
69. Opportunities
70. Threats
71. How could the County Council and Prefecture help more the development of the commune?
72. Subsidies received from the upper levels of public administration in 2006
73. Do you think that this commune is rich in local resources at the public administration disposal that could attract funding?
74. Fixed assets which could be used with economic purpose
    Land, buildings in the property of public administration
    Assets leased/rented
75. Labour force migration abroad
    Persons working outside the country (left in the last 3 years)
    Destination countries
    Activities/jobs abroad
    Number of persons returned from abroad
76. How do you think that the population in the commune will
□ decrease □ stay constant □ increase □ don't know Why?
77. Urban plans/ development strategies/ decisions of the Local Council regarding the commune development issued in the last 3 years
78. Please mention, according to their importance, the main development directions of the commune

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New paradigm of rural development – new challenges for extension services

Abstract: *The multifunctional concept became one of the most important directions of EU agriculture development. The success of multifunctional agriculture is based on growing demand for non-commodity outputs. The endogenous values of rural areas that used to be explored mainly by agriculture are turning to be a base for other economic activities. The new paradigm of rural development expands the multifunctional concept and equalises agriculture with other activities. Further it stressed that successful development of rural areas must depend on investment rather than income support and integrated cooperation of all stakeholders.*
In the article endogenous and exogenous stimulants of multifunctional rural development are discussed. The different channels of knowledge transfer to rural areas are pointed out with the special attention to advisory services. Based on field study conducted in Poland the opinion of farmers that decided to undertake non-agricultural businesses are to be analysed. Authors argue that one of the most important obstacles in broad utilisation of rural resources for non-agricultural activities is inadequate skills of farmers. That is partially an outcome of traditional agriculture orientation of extension services.

Keywords: *new paradigm of rural development, knowledge transfer, extension services*

Endogenous and exogenous factors of rural development

Development of rural areas is an outcome of wide spectrum of different factors. These factors could be divided into two major groups regarding their sensitivity on local community actions. The exogenous factors are undependable

of local community activities and characterizes it's geographical and economic position, natural and political environment. On the other side are endogenous factors of development that are relatively dependent on local community activity and connected with it' cumulated local population characteristics. This group of factors includes technical and social infrastructure, accessibility and quality of communication and education systems, activity and effectiveness of local governance and administration, level of development of local enterprises and socio-demographic structure of local community (Grochowski Kowalczyk 1999; Rosner 2007).

The exogenous development model stresses the power of external factors in stimulating local development. In opposite the endogenous development bases on internal socio-economic and natural resources that are mainly utilized to supply local community demands (Garofoli 1992). Along with economic aspects it takes into account broadly understand living standards of local population and alternative development models of individuals. Finally it makes preferences for investments that aim in development of knowledge and skills of local community (Keane 1990).

The existence of broad range of internal factors stimulating rural areas development was presented by different researchers in *Endogenous factors stimulating rural development* (Floriańczyk & Czapiewski 2006). Among most important the regulation and activities of local administration was stressed (Gramzow & Petrick 2006). This to create legal base for individual's activities that finally stimulate development of whole community. Similarly educational and human capital level with special attention to local leaders was closely associated with understanding the development opportunities (Czapiewski & Janc 2006). Strong relation between non-government organizations and level of human capital appeared to be critical for economic activation of local communities (Muilu & Onkalo 2006; Kovács Katona et al. 2006). On other hand correlation between level of development and local government Internet technologies utilization proves importance of efficiency in communication and information spreading (Székely & Michniak 2006). Combination of internal endowments like natural resources and cultural heritage could also be perceived as a value that stimulate regional development (Těšitel et al. 2006). Generally together with individuals related factors development level of local institutions were stressed as critical for rural areas. These ones are of great influence on administration, enterprises and economic activity of local community. Namely stimulate process of creation and implementation of strategies that increases local development capacity with the efficient utilization of external resources. Therefore optimal development strategy could be characterized as adequate to internal community assets with supportive role of external resources.

Multifunctional and endogenous factors aspects in new paradigm of rural development

The paradigm of agricultural development evaluates over time reflecting changes in role of agriculture and rural areas in socio-economic development on local communities, regional and global level. The recent most influential direction of rural development paradigm stresses the multifunctional character of rural areas and need to insure sustainability of it' development. The concept of sustainability in this respect follows the general rule of recent development not to be harmful for the future one. From the point of agriculture commodity production sustainability implies more careful utilization of farm resources and more environmental friendly techniques of production (Floriańczyk 2008). Less intensive production in case of conventional agriculture negatively affects farmer's incomes. One of the solutions to reduce this negative effect is connected with the concept of multifunctional rural development (Multifunctionality and rural development…, 2001).

Table 1. Multifunctional agriculture output

Multifunctional agriculture:		
Deepening of output	**Broadening of output**	**Regrounding of resources**
Organic farming	Rural tourism	Cost production reduction
High value added production	New on-farm activities	Off-farm incomes
Regional products	Nature and landscape management	
Short supply of chain		

Based on: Jan Douwe van der Ploeg, Dirk Roep, Multifunctional and rural development: the actual situation in Europe in Multifunctional Agriculture. A new Paradigm for European Agriculture and rural Development, Ashgate, England, 2003, Figure 3.3 p. 45

The multiple outputs of farm and expansion of non-agricultural functions of rural areas allows for more efficient exploitation of the rural areas potentialities. Combination on-farm and off-farm activities improve incomes of farms and support their expansion development. Success of the farm is therefore associated with reallocation of it' resources in innovative view to other economic activities (Huylenbroeck 2003).

The idea of innovative application of farm resources is in accordance with recommended by OECD "bottom-up" approach to increase competitiveness of local communities and regions (Table 2). This approach differs from former "top-down" with strengthening the role of investment and diminishing role of direct support to stimulate development. Similarly to multifunctional this new paradigm of rural development bases on exploitation of endogenous potentialities with expert knowledge. New paradigm directly recommends equal treatments of rural activities and therefore the equal access to support them.

Former dominative role of central administration and farmers in directing regional development are to be distributed among all rural development stakeholders (Ray, 1997 OECD 2006).

Table 2. New paradigm of Rural Development

	Old approach	New approach
Objectives	Equalisation, farm income, farm competitiveness	Competitiveness of rural areas, valorisation of local assets, exploitation of unused resources
Policy orientation	Sector	Territorial
Key target sector	Agriculture	Various sectors of rural economies
Main tools	Subsidies	Investments
Key actors	National governments, farmers	All levels of government (supranational, national, regional and local), various local stakeholders (public, private, NGOs)

Source: OECD 2006

In this light successful process of rural development requires shifting from sector orientated to integrated economies branches strategies. This implies involvement of different groups of local communities to coordinate sectors, social, environment and administration related development actions (Seibert 2006). This process is among most difficult ones while integrates wide range of economic and social issues that are conditioned by local and regional environment. Therefore rural development can be recognised as combination of different – community, business and administration – level sub actions (Strahl 2006). In this process balance between public - private and different level of governance actions is critical one. Other words level of accomplice with these rules measures harmony between desired development direction with the local special environment and community preferences (OECD 2006). Complex nature of new paradigm rural development necessitates combination of different types of knowledge. It includes management knowledge that is supported by local government authorities, local knowledge formed by community and expert's knowledge that is mainly provided by NGO's and external experts.

Rural knowledge transfer models and advisory services in Poland

Traditionally understand knowledge transfer to rural areas is concerned with modern agricultural technologies. Particularly induced innovation model of agriculture development links technical changes with agriculture progress (Hayami & Ruttan 2006). In this model progress is in need to overcome constrains on production expansion connected with scare supply of land and labour. Induced innovation model underlines role of scientist and public institutions in supporting agriculture development. Following the new paradigm of rural

development the induced innovation development model can be extended to cover multi sector concept of rural areas. Therefore in the article knowledge transfer refers to knowledge of technology to agricultural and non agricultural activities.

Authors propose three knowledge transfer models that are to be distinguished regarding the path of information flow: peer to peer, global information and direct from supplier. In peer to peer model farmer possess the amount of knowledge directly from the adviser or another farmer that is sufficient to implement new technology on its own. Model of global information bases on general information of new technology supplied by public access media (Floriańczyk Czapiewski & Stawicka 2007). In the second step detailed information are to be collected from the adviser or another farmer. Similarly to the peer to peer model the last stage is implementation of changes. The model direct from supplier omits the stage of gathering the information from advisor or other farmers. General information from public sources stimulates farmers to contact directly with supplier of technology in order to implement it. In this model the majority of farms is already technologically advanced and operates in relatively big scale to become a direct partner for technology supplier. From the above listed extension services are directly involved in the of knowledge transfer in peer to peer and global information models. Contrary the transfer in direct from supplier model these ones are common for small and medium size farms.

The economy transformation process created new challenges on agricultural and extension services in Central and Eastern European countries (Turski 2008). The new phenomena as fall of private farms incomes accompanied and employment opportunities outside of agriculture indicated weaknesses of rural areas to operate under market economies system (Zegar & Floriańczyk 2004). Extension services officially responsible for training, advisory and agricultural consultancy were enforced to restructure their organisation structures and scope of operation. In the two levels structure Agricultural Advisory Centre (AAC) operates on national level and reports to the Ministry of Agriculture and Rural Development. The second level covers regional advisory centres that are part of voivodship administration. The AAC plays the leading role in extension services system while elaborating and providing knowledge to be transferred to rural areas together with unified operational schemes for regional centres (Fadecka-Galicz & Witosław 2007). The knowledge transferred by AAC aims at improvement of agricultural performance (competitiveness and incomes of farms) and at supporting broadly understood rural sustainable development. In this light the extension services system in Poland is potentially in accordance with new paradigm of rural development while covering activities beyond agricultural production. However the preferences for "from up to down" information could negatively affect the balance between the desired by rural population actions. Similarly it may be an obstacle in utilisation of endogenous development factors that are locally specific.

Rural areas knowledge demand and up taking of non-agri-

The number of persons working on farms in Poland represents 15% of total working population. That relatively high number as compare with the other developed countries suggests inefficiency in labour utilization. Among main constraints for rapid changes in employment structures are low educational level of farming population. From the 2.2 millions of farming population only 1% is of tertiary education or post-secondary with agriculture specialization. Other 15% has secondary education while 26% is of vocational training. Summing up, more than half have non agricultural education. The generally low educational potential of farming populations indicates that the "direct from suppliers" model of knowledge transfer is limited to narrow population. On the other hand the models with advisory participation are of greater importance.

Field research indicates the strong correlation of farmer's educational level and utilization of advisory services[20]. From the total number of responders 30% of them declared that used assistance of extension services in farm management. In that group most frequently users of extension services are farmers between 40 – 50 years olds. Following them is group of younger farmers of 30 – 40 years old. Farmers of other ages are seldom looking for support from extension services.

Concerning the level of education the differences between higher and secondary educated farmers are insignificant. However in these two groups farmers were twice as much often declared their contacts with extension services than farmers with primary education (Table 3).

Table 3. Farmer collaboration with extension services

Educational level	Collaboration with extension services		Population
	YES	NO	
High	38%	62%	29
Post-secondary	36%	64%	290
vocational training	30%	70%	443
Primary	18%	82%	169
TOTAL	30%	70%	93

Source: own calculations based on Bański (2005)

Correlation between frequency of extension services utilisation and level of education is to be observed regarding the level of farmer household's standards and perceiving the positive outcomes of accession to the EU (Bański 2005). Within the investigated group about 30% of farmers declare frequent collaboration with extension services. On the other hand the share of non-farmer rural population that contacts with extension services does not exceed 10%. That reflects either the rural population opinion of agricultural speciality of extension services or improper use of knowledge transfer models.

20 IGSO PAS survey on 1000 group of farmers realized in 2002.

Results of investigation conducted on micro businesses support these hypotheses [21]. Research on 3200 non-agricultural on farm activities in Poland among others was concerned the motives and the role of extension services in establishing micro businesses. Prevailing number of responders pointed out their willingness to improve living standard as a main driver of starting non-agricultural activity on farm. The lack or low profitability of traditional farming activity was the reason for exploring other then agriculture production opportunities for one quarter of responders. Among other, however of lower significance was intention to provide work places for family members, insufficient utilisation of farm resources and family tradition to provide services for local community (Przykłady przedsięwzięć…, 2001; Przedsiebiorczość wiejska 2006).

The knowledge necessary for starting new activities in most cases was gathered through the "direct from supplier" model. The initiative was inspired by other farmers or information taken from mass media and developed by contacting with suppliers or by its own. Only less than 1% of investigated farms declared consultancy with the extension services to gather information concerned with intended non-agricultural activity.

From the total group of investigated farmers 32% stated that has not received any outside information to start new business. This supports the hypothesis of high endogenous potential of rural population to broad the rural activities. Parallel it calls for intensification of extension services activities toward multifunctional rural areas concept of development.

Non satisfactory performance of extension services in the light of new paradigm of rural development is common opinion of farming population. They complained about knowledge gap and lack of information sources concerned with possibilities to obtain capital support – 79% and marketing skills – 56%. One thirty of responders directly pointed demand for information whether half of them for no and agricultural activities.

The extensions services structure of employment indicates graduate changes toward supporting broadly understand development of rural areas. In the beginning of 1990's most of the extension services advisors were experts on agricultural production. Departments of agricultural technology together with business economics accumulated nearly ¾ of total 4000 advisors (Table 4).

In 2007 these two departments accounted for 60% of total advisors. This change was made in favour to establishing rural development department directly responsible for supporting non-farming rural initiatives. Similarly ecological production and nature protection gained greater attention of extension services. These changes could be summarised as being in accordance with supporting endogenous factors of rural development.

21 Data taken from Agrinpol Project database for years 1999-2002 and 2004-2006.

Table 4. Structure of extension services employment in Poland

Department:	1994	2007
Agriculture technology production	61%	46%
Business economics	13%	15%
Rural household	15%	10%
Advisory and educational methods	5%	7%
Rural development	—	7%
Ecology and natural environment	2%	8%
Information and communication	4%	7%

Source: Drygas & Wieteska 1996, Pabich 2007

Conclusions

Among most important and so far under explored factors of rural areas are social and natural values. Rural society development potential reflects individual's knowledge and skills as well as system values. The last ones are forming added values while cumulating individual's values with the use of place specific networks. Such networks facilitate information and support flow including originated from external resources.

The new paradigm that is taken into account variety of rural areas endowments should be recognised as a step forward in sustainable rural development. From the economic point of view advocates for more efficient allocation of resources traditionally devoted to agriculture activities. This is of great importance in case of rural areas in Central and Eastern European Countries. In some of them central planned economy wasn't able to provide optimal environment for rural areas development while focusing on agricultural productions. This resulted in non-optimal social capital utilisation revealed during transformation process.

New possibilities created by implementing market economy and accession to the EU allows for better exploration of rural values. However the transfer of external knowledge and resources are of critical role in stimulating development processes.

Extension services are traditionally recognised as a knowledge provider in rural areas and could play an important part in stimulation rural development. This however requires reorientation of their activities toward multifunctional character of rural areas. Investigation of extension services development in Poland suggests ongoing positive changes. These ones however are relatively slow and of not innovative character. From the knowledge transformation models perspective advisors are important source of general information while the expert knowledge is provided directly to farmers. Therefore most promising development of extension services should be based on further widening instead of deepening rural population knowledge.

References

Bański J., 2005, *Przestrzenny wymiar współczesnych procesów na wsi* (Spatial dimension of the contemporary processes in the rural areas), Studia Obszarów Wiejskich, 9, IGiPZ PAN, PTG, Warszawa.

Czapiewski K.Ł., Janc K., 2006, *On human capital and agrarisation in Polan,* In: Floriańczyk Z., Czapiewski K. (ed.), *Endogenous factors stimulating rural development, Rural areas and development,* 4, European Rural Development Network, Warszawa, 53-68.

Drygas M., Wieteska E., 1996, *Organizacja i zadania doradztwa rolniczego w Polsce i w wybranych krajach zachodnich* (Organization and tasks of extension services in Poland and in selected countries of Western Europe), In: Fereniec J. (ed.), *Stan i rozmieszczenie infrastruktury ekonomicznej na obszarach wiejskich Polski*, IRWiR PAN, Warszawa, 181-193.

Fadecka-Galicz H., Witosław K., 2007, *Rola centrum doradztwa rolniczego w rozwoju rolnictwa i obszarów wiejskich* (The role of extension services in development of agriculture and rural areas), Wieś Jutra nr 1(102).

Floriańczyk Z., 2008, *Conventional agriculture versus European paradigm for rural development,* In: The village in transition, Vlasina Encounters nr 14, Belgrade.

Floriańczyk Z., Czapiewski K. (ed.), 2006, *Endogenous factors stimulating rural development,* Rural areas and development, 4, European Rural Development Network, Warszawa.

Floriańczyk Z., Czapiewski K., Stawicka E., 2007, *Rural technology transfer in transition economies in Poland,* report for CEEC AGRI POLICY project, AgriPolicy.net.

Garofoli G., 1992, *Endogenous development and Southern Europe: an introduction,* In: G. Garofoli (ed.), *Endogenous development and Southern Europe,* Avebury, Aldershot, 9-17.

Gramzow A., Petrick M., 2006, *Public goods and rural development in Poland,* In: Floriańczyk Z., Czapiewski K. (ed.), *Endogenous factors stimulating rural development,* Rural areas and development, 4, European Rural Development Network, Warszawa, 7-31.

Grochowski M., Kowalczyk A., 1999, *Rozwój lokalny i jego współczesne uwarunkowania* (Local development and it's contemporary requirements), In: Domański B., Widacki W. (ed.), *Geografia polska u progu trzeciego tysiąclecia*, UJ, Kraków, 183-201.

Hayami Y., Ruttan V., 2006, *Theories and strategies for agricultural development,* In: The economics of agricultural development, Routledge, Great Britain.

Huylenbroeck van G., 2003, *Multifunctional Agriculture. A new Paradigm for Europan Agriculture and rural Development,* Ashgate, Great Britain.

Keane J.M., 1990, *Economic Development Capacity Amongst Small Rural Communities,* Journal of Rural Studies, 6, 3, 291-301.

Kovács Katona J., Fieldsend A.F., Alderson M., Szabó G., 2006, *Human and social factors as endogenous factors stimulating the LEADER Programme in Hungary,* In: Floriańczyk Z., Czapiewski K. (ed.), Endogenous factors stimulating rural development, Rural areas and development, 4, European Rural Development Network, Warszawa, 127-142.

Muilu T., Onkalo P., 2006, *Challenges in preparation of regional rural policy programme for 2007-2013 – the case of Raahe sub-region, Finland,* In: Floriańczyk Z., Czapiewski K. (ed.), Endogenous factors stimulating rural development, Rural areas and development, 4, European Rural Development Network, Warszawa, 99-114.

OECD, 2001, *Multifunctionality. Towards an analytical framework*, Box 1.1 Multifunctionality and sustainability.

OECD, 2006, *The New Rural Paradigm: Policies and Governance.*

Pabich A., 2007, *Stan zatrudnienia w jednostkach doradztwa rolniczego w 2007 roku* (Employment in extension services in 2007), Zagadnienia Doradztwa Rolniczego, 2 (50), 98-105.

Przedsiębiorczość wiejska (Rural entrepreneurship), 2006, Fundacja Fundusz Współpracy, Warszawa.

Przykłady przedsięwzięć pozarolniczych na obszarach wiejskich (Examples of non-agricultural activities on rural areas), 2001, Fundacja Fundusz Współpracy, Poznań.

Ray C., 1997, *Towards a theory of the dialectic of rural development,* Sociologia Ruralis, 27 (3), 345-362.

Rosner A. (ed.), 2007, *Zróżnicowanie poziomu rozwoju społeczno-gospodarczego obszarów wiejskich a zróżnicowanie dynamiki przemian* (Diversification of level of socio-economic development on rural areas and its dynamics of changes), Problemy Rozwoju Wsi i Rolnictwa, IRWiR PAN, Warszawa.

Seibert O., 2006, *Czynniki sukcesu zintegrowanego rozwoju regionalnego* (Factors of integrated regional development success), Fundacja im. Heinricha Bölla, Warszawa.

Strahl D. (ed.), 2006, *Metody oceny rozwoju regionalnego* (Methods of regional development evaluation), Wydawnictwa Akademii Ekonomicznej, Wrocław.

Székely V., Michniak D., 2006, *Existence and quality of Slovak rural municipalities' websites – the differentiating factor of rural competitiveness, I*n: Floriańczyk Z., Czapiewski K. (ed.), *Endogenous factors stimulating rural development,* Rural areas and development, 4, European Rural Development Network, Warszawa, 69-86.

Těšitel J., Kušová D., Bartoš M., 2006, *Rural areas development – local needs and external forces,* In: Floriańczyk Z., Czapiewski K. (ed.), *Endogenous factors stimulating rural development,* Rural areas and development, 4, European Rural Development Network, Warszawa, 87-97.

Turski J., *Overview of the Agricultural Advisory Systems in the new EU-MS,* presentation on the XXII EURAGRI Conference, Aarhus, 19-21 September 2008.

Zegar J., Floriańczyk Z., 2004, *Structure of the Rural population incomes in Poland before and after the accession to the European Union,* In: Bański J. (ed.) *Changing functions of rural areas in the Baltic Sea Region,* Rural areas and development, 2, European Rural Development Network, Warszawa, 79-93.

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Evaluation of support for farms in less-favoured areas in the Czech Republic and Slovakia[22]

Abstract: *The background, criteria and scope of the spatial definition of LFA are very similar in both countries. Farm eligibility criteria are entirely different. In Slovakia the whole agricultural area of a holding is eligible for payment. In the Czech Republic it is only the area of grassland. Only the holdings breading cattle, sheep or goats at a given density per hectare are eligible in the Czech Republic. The aim of the paper is to compare the situation of LFAs in both countries and to particularly evaluate the impact of the different eligibility criteria at the farm level in the Czech Republic and Slovakia. The impact of LFA payments on land use, production structure, and agricultural employment and on the economic results of farms is analysed on the basis of chosen indicators. The research comes to the conclusion that farmers are significantly dependent on subsidies in both countries. The contribution of EU funds to LFA payment financial resources has resulted positively in the decrease of unused agricultural land and it delayed the labour input decline in both countries. The differences of farm eligibility criteria have led to differing trends of grassland acreage and livestock number.*

Keywords: *less-favoured areas, agricultural land use, production structure, agricultural employment, economic results and the economic situation of agricultural holdings*

Introduction

Since 1970s, measures concerning less-favoured areas (LFA) have been significantly changed. In compliance with the intention of Axis 2 of the Rural Development Program and according to Council Regulation No 1698/2005

22 The result of the project QF 3082 of The National Agency for Agricultural Research was used in this article.

natural handicap payments are not aimed at the maintenance of population in the countryside but primarily they should prevent the abandonment of agricultural land.

This trend is in compliance with the results of the scientific discussion about objectives concerning the support for rural development and it reflects the changed position of agriculture as a component of the countryside. Pursuant to the comparison of rural development policy in the European Union and United States of America, Blandford and Berkeley [1] emphasize that the economic role of agriculture in the countryside has been decreasing and that agricultural support in the future will not be an effective way to stimulate rural economic activities.

Whereas agriculture plays an important role in the formation of the rural countryside, in the rural areas of the EU-25 only 13% of the workers are employed in agriculture. In accordance with the European Model of Agriculture the LFA measures aim to maintain agriculture because it creates public goods (for example high nature value countryside) and it preserves biodiversity and agricultural land.

In 2003, the support scheme for Less-favoured areas in EU countries was criticized by the European Court of Auditors [5]. The Court of Auditors recommended a review of the current LFA classification and to undertake a comprehensive evaluation of the support scheme. The study elaborated by IEEP London for DG Agri [6] found that the broad scale of criteria which is used presently for the areas classified as LFA induces a disparity between individual receivers. The authors of the submitted paper dealt with the comparison of the LFA system of measures in the context of the other EU countries in their previous publications also [2, 3, and 4]. The outcome of this research was identical.

The European Commission with experts from the Joint Research Centre proposed a series of common bio-physical criterions that should specify less-favoured areas identically in all EU countries. The eligibility criteria at the individual farm level should remain in the competence of individual countries. However the authors believe efficient and effective targeting of the LFA measure scheme is better achieved at the farm level. A better unification of the farm level criteria is also desirable.

The aim of the paper was to compare the situation in LFA in both countries and to evaluate the impact of different eligibility criteria on the farm level in the Czech Republic and Slovakia in the previous programming period.

Methodology

The situation concerning LFA measure was compared in both countries. For evaluation of the impact of LFA measures in the Czech and Slovakia the following indicators were used:

- the share of applicants (that received subsidies) in the total number of holdings farming on the land [7,8, the Land Parcel Identification System (LPIS)],
- the share of land which received subsidies from the agricultural land fund in LFA [7,8, the agricultural land fund according to the real estate cadastre],
- the development of the share of unused agricultural land [9] and weighted average by districts that represent individual LFA types (more than 50% of agricultural land of a district is integrated into the LFA type); in Slovakia the mentioned indicator was calculated on the basis of individual data of holdings from the Land Parcel Identification System,
- the share of grasslands in agricultural land according to LPIS was compared in the Czech Republic and Slovakia.
- changes of livestock numbers, average animal density per hectare of agricultural land, share of dairy cows and suckler cows (the average of districts that represent individual LFA types) in the Czech Republic according to the results of The Farm Structure Survey of the Czech Statistical Office in 2000 and 2005, in Slovakia from Information Sheets 2000 and 2005 of The Central Database of the Ministry of Agriculture of the Slovak Republic (CD MA SR) and the Research Institute of Agricultural and Food Economics (RIAFE).
- the level of employment in agriculture in both countries is expressed by the number of annual work units (AWU) calculated per 100 hectares of agricultural land from records of the standardized output of the Farm Accountancy Data Network (FADN) CR and CD MA SR, RIAFE in the period 2003-2006,
- the contribution of LFA payments to the economic viability of agricultural holdings in LFA as expressed by the share of LFA payments in gross value added and total operating subsidies; data of the standardized FADN output was used according to the DG Agri database; the level of gross value added calculated per hectare of agricultural land and per annual work unit in both countries and selected EU countries with a substantial share of LFA on its territory.

Results and Discussion

The current situation in the Slovak Republic

After the SR joined the European Union, the approach determining the eligibility of land for less-favoured area payments changed. Before accession, less-favoured areas were determined pursuant to an official land price, after accession the criteria were adapted to European standards. The total acreage of LFA reached 1 225 thousand hectares of land, i.e. 50% of the agricultural land of Slovakia. The following municipalities were integrated into mountain areas: municipalities with an altitude above 600 meters, municipalities with average slope greater than 20% and municipalities with both altitude above 500 meters and slope greater than 15%. Their acreage was 487 thousand hectares, i.e. 20 % of the agricultural land fund.

"other" less-favoured areas were determined by yield as below 80 % of the national average and by two demographic criteria: population density of less than 72 inhabitants per square kilometre and the share of agricultural workers in the economically active population of above 12%. The acreage of agricultural land of municipalities integrated into "other" less-favoured areas was 391 thousand hectares; which means 16% of the agricultural land fund.

348 thousand hectares of agricultural land were integrated into areas with specific handicaps (14% of the agricultural land fund) meeting criteria such as water-logged soils, extreme dry soils, skeletal soil areas, flysh soil areas, low productive soil areas and intermediary soil areas.

LFA Payments ranged from 25 € to 127 € per hectare of agricultural land. The basic criteria at the farm level are: to farm at least 1 hectare of agricultural land in LFA, to perform agricultural activities for a minimum of 5 years from the first payment and to respect conditions of good farming practises on the whole acreage of the holding. In contrast to the Czech Republic, payments are provided for every hectare of agricultural land of LFA holdings. Degresivity of payments by farm size is not applied.

Compensatory payments are defined for 18 LFA types (Table 1).

Table 1. LFA payments according to the type of handicap in Slovakia (€/ha of agricultural land)

LFA type	Payment rate	LFA type	Payment rate	LFA type	Payment rate
H1[1]	127	O1/1[2]	88	S1[3]	38
H2	115	O1/2	68	S2	25
H3	104	O1/3	57	S3	53
H4	86	O2	40	S4	36
		O3	31	S5	55
		O4/1	68	S6	40
		O4/2[4]	74		
		O4/3[4]	54		

Source: RDP SR, MA SR,2007
[1] Mountain areas, [2] Other less-favoured areas, [3] Areas with specific handicaps

The current situation in the Czech Republic

After the CR joint the European Union LFA delimitation was adapted to EU rules. The total LFA share amounted to 50.1% of the agricultural land in the period of 2004-2006. 14.6 % of the agricultural land was integrated into mountain areas. Mountain areas were qualified as areas with an altitude higher or equal to 600 meters or as combination of altitude between 500 and 600 meters and slope of above 7° on more than 50% of the agricultural land. The share of "other" less-favoured areas amounted to 28.5% of the agricultural land and

they were qualified as the areas with yields of less than 80 % of the national average and also with a population density of below 75 inhabitants per square kilometre and share of agricultural workers in the economically active population of 8% (double the national average). 7% of the land agricultural fund was integrated into areas with specific handicaps. This means submontane areas and boundary areas of Sudeten not fulfilling the demographic criteria but with low quality of land (yields of less than 80% of the national average).

Since 2007 the size of LFA has been adjusted but the methodology of determination has remained the same except that the criterion concerning the slope of area was adjusted - slope above 15 % on an area greater than 50% of the zone acreage. Currently 50.8% of the agricultural land is in LFA, of which 15.4% is in mountainous areas 28.5% in „other" less-favoured areas and 6.6% in areas with specific handicaps.

A farmer must commit to farm in LFA for at least five years. A minimum of 5 hectares of agricultural land has to be established for farm eligibility to LFA payments. Since 2007 it has been 1 hectare of grassland in LFA. Only holdings raising beef cattle, sheep, goats or horses (with a density of 0.2 livestock units per hectare of grassland to 1.5 livestock unit per hectare of managed agricultural land) are eligible for payments. Administration of payments was conditioned by the maintenance of "Good Agricultural and Environmental Conditions". An applicant is obliged to keep: a deadline for grassland mowing, rules of farming on slopes and storage of fertilizers and fertilization, of animal management. He is not allowed to plough up grassland and remove landscape elements (borders, terraces, alleys etc.). The degresivity of payments by farm size is not applied.

Payments are disbursed for hectare of grassland in LFA. Six various rates were established in € and converted into CZK using the exchange rate of a particular year (Table 2).

Table 2. LFA payments according to type of handicap in Czech (€/ha of grassland)

LFA type	Payment rate	LFA type	Payment rate	LFA type	Payment rate
H^{A1}	157	O^{A2}	117	S^{3}	114
H^{B}	134	O^{B}	94	S^{X}	91

Source: HRDP CR, MA CR, 2007
[1]Mountain areas [2]Other less-favoured areas [3]Areas with specific handicaps

Exploitation of the LFA measure in the Slovak Republic

The growing numbers of applicants for LFA payments indicate the successful utilisation of the measure. Out of the total LFA acreage (1 226 thousand hectares) payments were given to: 1 106 thousand hectares (90%) in 2004, 1 137 thousand hectares (91%) in 2005 and 1 153 thousand hectares (94%) in 2006. Utilization of the land integrated in LFA was accelerated by the financial resour-

ces from the European Agricultural Guidance and Guarantee Fund (EAGGF) in districts with the highest unemployment rate. Ownership arrangements and the integration of the mentioned land into the Land Parcel Identification System (LPIS) contributed to the measure of exploitation very significantly.

In the programming period 2004-2006 more than 236.2 mil. € LFA support was granted. The share of the LFA measure was 47% in the total budget of the Rural Development Plan of the SR 2004-2006. Grants were given to 3 192 applicants in 2004, 3 595 applicants in 2005 and 3 921 applicants in 2006.

Exploitation of the LFA measure in the Czech Republic

304.7 mil. € was allocated for the LFA measure in the programming period 2004-2006. The share in total sources of the Horizontal Rural Development Program of the Czech Republic was 45%. Before EU accession (in 2003), CZK 1.5 billion per annum was allocated for LFA payments, after EU accession the sum was increased to CZK 2.87 billion (in 2006)[23].

8 571 applicants requested LFA support in 2004 and 9 055 applicants (+6%) in 2006 (this represented 79% of all holdings farming on land with more than 5 hectares of agricultural land integrated into LFA). 721.3 thousand hectares were supported in 2004 and 721.8 thousand hectares were supported in 2006 (but this represented only 34% of the agricultural land in LFA).

Impact on environment - land use in the Slovak Republic

According to LPIS data in comparison to the pre- accession period the unmanaged (un-farmed) land decreased by 28% in mountainous areas, 39% in „other“ less-favoured areas, 40% in areas with specific handicaps and 58% in productive areas.

It is very notable that in LFA the share of permanent grasslands has decreased approximately by 2%. The permanent grasslands share in utilised agricultural area (UAA) is now 69% in mountain areas, 28% in „other“ less-favoured areas, 20% in specific handicap areas and only 1% in areas outside LFA. This means that some areas of permanent grassland are not able to compete with arable land plant production. One of reasons is the ongoing decline of the number of livestock (mainly of beef cattle).

Impact on environment - land use in the Czech Republic

According to the Farm Structure Survey of the Czech Statistical Office, in 2005 the acreage of unused agricultural land in districts with a dominance of areas with specific handicaps decreased by 71% compared to 2000 in mountainous areas; by 10%, in districts without LFA by 42%; but in districts with a dominance of „other“ LFA it increased by 2% in the same period.

23 Ministry of Agriculture of the Czech Republic: Annual evaluation reports on the Horizontal Rural Development Program in the Czech Republic.

The share of grassland in the utilised agricultural land increased significantly in LFA and in areas outside LFA it dropped. This development is not only due to LFA payments that have been provided (since 2001) exclusively for grassland but also due to the other instruments of the Horizontal Rural Development Program (support of grazing, sowing and maintenance of grassland). In mountainous areas the share of grassland in UAA was 70%, in „other" LFA 30%, in areas with specific handicaps 60% and out of LFA 7% at the end of the programming period 2004-2006.

Changes of production structure in the Slovak Republic

In 2005 the acreage of cereals decreased in mountainous areas by 12% and in areas with specific handicaps by 5% compared to 2000. Vice-versa, the acreage of cereals outside LFA increased (Table 3).

Table 3. The change of selected crop acreage 2005/2000 in Slovakia (2000=100%)

LFA type	Cereals	Oilseeds	Potatoes	Forage crops on arable land
Mountainous areas	78	154	37	92
Other less-favoured areas	107	131	65	77
Areas with specific handicaps	95	120	38	92
Out of LFA	102	107	103	81
SR total	101	118	53	86

Source: Information Sheets CD MA SR, RIAFE Bratislava

The importance of favourable oilseeds producer prices was revealed in all types of LFA. The acreage of oilseeds increased in particular in mountainous areas (by 54%). In the period under consideration production of potatoes moved to productive areas. However it is worth noting that the current potato area is the lowest in the last 100 years. The area of forage crops decreased in all types of LFA, mostly in „other" less favoured areas following a decrease in livestock numbers.

A decline in the number of animals was found generally in Slovakia and also in LFA. The highest drop was in the number of beef cattle was observed in „other" less-favoured areas. Only the number of suckler cows developed positively. In mountainous areas it increased by 25%. The number of sheep increased reasonably - in mountain areas by 16% and in „other"less-favoured areas by 11%. We can evaluate the increasing number of sheep and suckler cows as positive for countryside conservation. The number of sheep and suckler cows increased in Slovakia by 7% and 3% respectively (Table 4).

Table 4. The change in livestock numbers in Slovakia 2005/2000 (2000=100%)

LFA type	Cattle total	Diary cows	Suckler cows	Sheep
Mountainous areas	84	79	125	116
Other less-favoured areas	78	72	93	111
Areas with specific handicaps	88	80	98	86
Out of LFA	82	78	64	86
SR total	82	80	103	107

Source: Information Sheets CD MA SR, RIAFE Bratislava

As to the intensity of animal production, the Slovak Republic recorded very low indicators independently of whether LFA or non LFA areas. Among indicators expressing density of beef cattle there are minimal differences. The dairy cow breading values in LFAs more significantly copy those in the productive areas that are oriented on milk production. The numbers for suckler cows show the opposite. Suckler cow breading is concentrated in mountainous and „Other" LFA. As to sheep breading, the highest density (33 head per hectare) was recorded in the mountainous areas (Table 5).

Table 5. Indicators of animal production intensity in 2005 in Slovakia

LFA type	Density of cattle total in head per hectare of UAA	Head of cows in cattle total (%)		Density of sheep in head per hectare of UAA
		Diary cows	Suckler cows	
Mountainous areas	0.29	37	9	0.33
Other less-favoured areas	0.23	35	9	0.13
Areas with specific handicaps	0.25	36	7	0.08
Out of LFA	0.26	40	1	0.01
SR total	0.26	37	6	0.13

Source: Information Sheets CD MA SR, RIAFE Bratislava

Changes of the production structure in the Czech Republic

Comparison of the acreage of selected crops in 2005 as opposed to 2000 is presented in Table 6.

Table 6. The change of acreage of selected crops 2005/2000 in the CR (2000=100%)

LFA type	Cereals	Oilseeds	Potatoes	Forage crops on arable land
Mountainous areas	98	91	62	64
Other less-favoured areas	99	94	84	82
Areas with specific handicaps	101	95	55	59
Outside LFA	103	96	92	81
CR total	101	96	85	79

Source: Farm Structure Survey, CZSO 2005 and 2000

In mountainous areas a decrease of the cereals acreage was recorded, in the rest of CR there were no changes in practice. In 2005 as compared to 2000, oilseeds acreage reasonably decreased in contrast to Slovakia. However, it is worth noting that in years 2006 and 2007 it increased above the 2000 level again. The potato acreage decreased in the Czech Republic as well as in the Slovak Republic and its production moved away from LFAs. In mountainous areas and in the areas with specific handicaps the acreage of forage crops on arable land decreased very significantly. Only a moderate decrease was recorded outside LFA and in „other" LFA due to the higher density of dairy cows in these areas.

In the first half of 1990s livestock number (in particular beef cattle) decreased by approximately 20% per year. Since 2000 the decrease of livestock numbers has slowed down (Table 7).

Table 7. The change of livestock numbers in the Czech Republic 2005/2000 (2000=100%)

LFA type	Cattle total	Diary cows	Suckler cows	Sheep
Mountainous areas	100	82	139	165
Other less-favoured areas	93	90	154	204
Areas with specific handicaps	102	88	162	237
Outside LFA	85	85	145	198
CR total	91	88	152	196

Source: Farm Structure Survey, CZSO 2005 and 2000

From 2000 to 2005, the number of cattle decreased particular outside LFA. A considerable decrease in dairy cows was monitored in mountainous areas. The number of suckler cows increased in the Czech Republic by 52%, in areas with specific handicaps and „other" less-favoured areas particularly. The sheep number almost doubled, but the density of sheep remain still low (Table 8).

Table 8. Indicators of animal production intensity in 2005 in the Czech Republic

LFA type	Cattle total: in head per hectare of agriculture land	Head of cows in cattle total (%)		Sheep: in head per hectare of agriculture land
		Diary cows	Suckler cows	
Mountainous areas	0.46	18	27	0.11
Other less-favoured areas	0.52	31	8	0.04
Areas with specific handicaps	0.44	24	22	0.15
Outside LFA	0.27	34	6	0.02
CR total	0.40	31	10	0.04

Source: Farm Structure Survey, CZSO 2005 and 2000

Mountainous areas and areas with specific handicaps in the Czech Republic are characterized by the low intensity of animal production but the figures are better than in Slovakia. In the districts outside LFA the density of cattle is low and a third of this number consists of dairy cows. We can assume that as in Slovakia, in these areas animal production is specialized in milk production. The high share of suckler cows and higher sheep density in mountainous areas and areas with specific handicaps has had a positive environmental impact. In districts with prevailing „other" less-favoured areas, animal production has responded to the prevailing conditions in these areas, i.e. they respond to the relatively large role of labour in agriculture in the mentioned areas. In the Czech Republic as a whole labour demanding milk production is crucial in these conditions while sheep breading is of only low importance.

The impact on agricultural employment

In comparison with 1989 the number of workers in agriculture has decreased very dramatically in both countries due to the transformation of socialist holdings at the beginning of 1990s. However, the decrease continued over the next years due to the structural changes in crop production (towards less labour intensive plants) and the significant reduction of animal production. The decrease of agricultural workers has also continued after accession into the European Union. The trends in agricultural employment are presented in Figure 1.

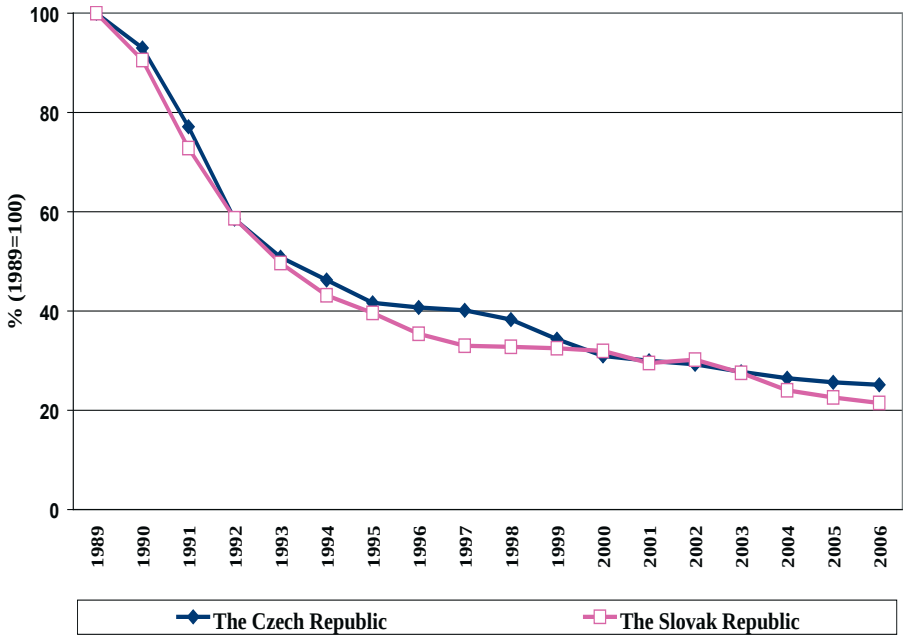

Figure 1. Trends in agricultural employment in the Czech and Slovak Republics
Source: Statistical office CR, SR

Employment according to LFA in the Slovak Republic

The research was carried out using the sample of holdings that returned Information Sheets during the period 2003-2006. The average change of utilised agricultural land and number of annual working units (AWU) and number of workers per 100 hectares of agricultural land were evaluated for all holdings classified according to LFA types. The results are presented in table 9.

Table 9. Agriculture employment in Slovakia in 2003-2006 according to LFA type

LFA type	Coefficient of growth 2003/06		Share 2006/2003		AWU per 100 ha UAA		
	AWU	UAA	AWU	UAA	2003	2006	2006/2003
Mountainous areas	0.903	0.931	73.0%	80.3%	2.93	2.66	90.9%
Other less-favoured areas	0.928	0.961	79.3%	88.5%	2.72	2.43	89.6%
Areas with specific handicaps	0.919	0.964	77.4%	89.5%	3.38	2.92	86.6%
Outside LFA	0.943	0.996	83.0%	98.8%	4.50	3.78	84.1%

Source: Information Sheets CD MA SR 2003-2006, RIAFE Bratislava

The biggest decrease of workers was monitored in holdings farming in mountainous areas (subjects farming in LFA), in holdings farming in areas with specific handicaps saw a moderate decrease of workers and in holdings situated in „other“ LFA areas and outside LFA saw the smallest decline in workers.

In comparison with 2003 the average number of workers per 100 hectares of UAA decreased the most significantly outside LFA and in „other“ less-favoured areas. The smallest decline of workers (calculated per 100 hectares of agricultural land) was found in mountainous areas. This might be a consequence of the decrease of the average acreage of UAA holdings mentioned (changes in leased land, better specification of the UAA acreage according to LPIS or the ongoing transformation of holdings).

Employment according to LFA in the Czech Republic

The research was carried out using a sample of holdings on the list of holdings held by the Farm Accountancy Data Network CR during the period 2003-2006. Holdings have been classified and aggregated in conformity with LFA classification from 2004. The results are presented in Table 10.

Table 10. Agriculture employment in the Czech Republic according to LFA type

LFA type	Coefficient of growth 2003/06		Share 2006/2003		AWU per 100 ha UAA		
	AWU	UAA	AWU	UAA	2003	2006	2006/2003
Mountainous areas	0.972	0.984	91.7%	95.4%	3.33	3.20	96.1%
Other less-favoured areas	0.957	0.995	87.8%	98.6%	4.00	3.56	89.0%
Areas with specific handicaps	0.985	0.980	95.7%	94.0%	2.75	2.80	101.8%
Outside LFA	0.961	0.997	88.6%	99.0%	3.97	3.55	89.4%

Source: FADN CR 2003-06

The number of workers mostly decreased in holdings in „other" LFA and outside LFA. The average number of AWU per 100 hectares of UAA also decreased in these holdings. Above all this was caused by the permanent decrease of the number of farm animals and high labour demanding dairy cow breading. The number of workers in holdings situated in areas with specific handicaps decreased slowly and as in Slovakia in the same period the average acreage of UAA decreased. In the Czech Republic areas with specific handicaps are characterized by the very small share of farmers in the rural working population (this can be seen also by a recalculation of AWU per hectare of UAA). The fact that the AWU per 100 hectares of UAA moderately increased (in farming holdings in areas with specific handicaps) signifies that due to agricultural support policy agricultural workers remain in this area. This is a positive effect of LFA payment targeting the objective - the sustainability of minimal agricultural activities required for the maintenance of countryside as an interesting tourist place.

The Impact on the economic results of farms

Data from the Farm Accountancy Data Network (FADN) was used. FADN is a survey, which is annually carried out by all Member States of the European Union. It is used as the basic source of comparable economic information on economic results and the economic situation of agricultural holdings. Selected indicators were used on the average of groups of holdings that had been aggregated according to LFA types. The contribution of LFA payments to the economic results of Czech and Slovak holdings was compared with neighbouring and other selected EU countries with a significant share of LFA in their country. The following indicators were compared: gross value added (GVA) per hectare of utilised agricultural land (UAA) and per AWU, the share of subsidies in this and the share of LFA payments in subsidies (Table 11 and Figure 2).

The Czech Republic and Slovakia also showed the same low level of gross value added per hectare of agricultural land and also per AWU. Low GVA

is created also by holdings in the areas that are not integrated into LFA. A significantly high level of GVA per hectare in LFA regions was registered in Germany, Austria, France and Spain but also in Poland and Slovenia. The same results were obtained also by the comparison of GVA per AWU except for Poland and Slovenia where a high number of workers per hectare of agricultural land prevails.

The low economic results for holdings in the Czech Republic and Slovakia (and e.g. in Lithuania – as a representative of the Baltic countries) mean they are more dependent upon subsidies. In the mountainous areas of the Czech Republic and Slovakia 70% of GVA per hectare is made up by current subsidies i.e. the biggest share among compared countries. The share of subsidies in GVA is high also in other than mountainous LFA. As to the structure of current subsidies, the high share of LFA payments in the total occurred in the examined EU-10 countries (except of Poland). It is biggest in the mountainous areas of Slovakia, also in mountainous areas of the CR, LFA of Lithuania, mountainous areas of Portugal, Slovenia and other than mountain areas of Slovakia. The figures above showed the substantial role of LFA payments in both countries (economic liability of LFA holdings depends on it). Tab.11 Gross value added according to LFA and contribution of LFA payments in the total in selected EU counties (€/ha).

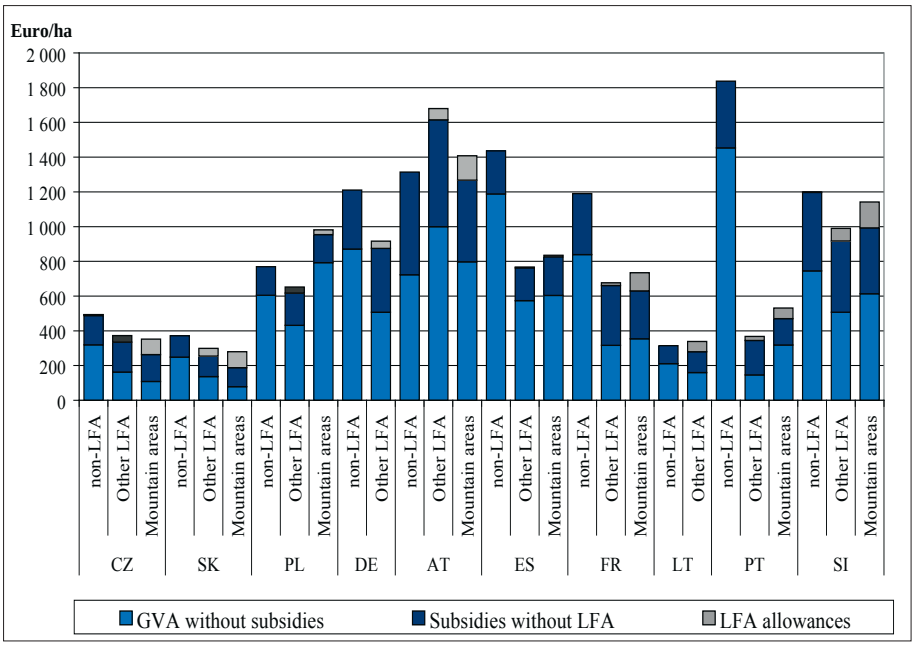

Figure 2. Comparison of level and composition of GVA per hectare of UAA
Source: Standardized output, FADN 2005, DG Agri 2008

Table 11. Gross value added according to LFA and contribution of LFA payments in the total in selected EU counties (€/ha)

Country	LFA type	GVA	Current subsidies	of which LFA payments	GVA	Current subsidies	In it LFA payments	Share of subsidies in GVA	Share of LFA in subsidies
		€/ha UAA			€/AWU			%	
CZ Czech	Outside LFA*	493	174	5	13 037	4 594	128	35,2	2,8
	Other LFA**	373	210	38	12 075	6 813	1 222	56,4	17,9
	Mountain areas	352	244	89	12 806	8 886	3 239	69,4	36,5
SK Slovakia	Outside LFA	372	123	0	8 793	2 906	0	33,0	0,0
	Other LFA**	299	163	45	9 840	5 364	1 467	54,5	27,3
	Mountain areas	280	202	92	8 673	6 264	2 853	72,2	45,5
PL Poland	Outside LFA	769	164	0	7 035	1 501	0	21,3	0,0
	Other LFA**	652	220	35	6 634	2 237	361	33,7	16,1
	Mountain areas	981	189	27	6 404	1 234	173	19,3	14,0
DE Germany	Outside LFA	1 210	339	0	39 803	11 131	0	28,0	0,0
	Other LFA**	916	409	41	35 690	15 950	1612	44,7	10,1
AT Austria	Outside LFA	1 314	591	0	34 510	15 515	0	45,0	0,0
	Other LFA**	1 680	680	65	27 736	11 230	1 065	40,5	9,5
	Mountain areas	1 408	611	140	27 747	12 032	2 757	43,4	22,9
ES Spain	Outside LFA	1 436	248	0	19 568	3 382	0	17,3	0,0
	Other LFA**	767	193	5	19 584	4 937	123	25,2	2,5
	Mountain areas	835	231	9	21 916	6 059	226	27,6	3,7
FR France	Outside LFA	1 190	351	0	40 122	11 823	1	29,5	0,0
	Other LFA**	676	360	15	34 953	18 611	770	53,2	4,1
	Mountain areas	734	380	104	29 741	15 405	4 197	51,8	27,2
LT Lithuania	Outside LFA	314	103	0	7 330	2 410	0	32,9	0,0
	Other LFA**	339	179	59	6 003	3 168	1039	52,8	32,8
PT Portugal	Outside LFA	1 837	384	0	8 817	1 843	0	20,9	0,0
	Other LFA**	368	222	24	10 034	6 058	650	60,4	10,7
	Mountain areas	531	213	61	6 111	2 454	708	40,2	28,8
SI Slovenia	Outside LFA*	1 199	454	2	7 244	2 744	12	37,9	0,4
	Other LFA**	990	483	73	5 375	2 622	398	48,8	15,2
	Mountain areas	1 142	529	149	7 088	3 286	924	46,4	28,1

Source: Standard results of FADN 2005. DG Agri, 2008, * Farms that represent outside LFA can have part of their acreage in LFA, ** Other LFA is LFA apart from mountain,

Conclusions

The background, criteria and scope of spatial definition of LFA are very similar in both countries. Less-favoured areas covered half of the agricultural land. The criteria for the delimitation of mountainous areas and "other" less-favoured areas are practically identical, areas with specific handicaps express the particularities of each country and they are not comparable. A large amount of financial resources (in term of Rural Development Plans in 2004-2006) was allocated for this measure in both countries (in Slovakia 47% in the Czech Republic 45%).

According to a comparison of the share of LFA payments with respect to their impact on the economic results of farms in both countries, with selected EU countries, it is clear that the Czech Republic and Slovakia both show low GVA per hectare of agricultural land and AWU not only in LFA areas but also in non LFA areas. This bears evidence to the fact that farmers are significantly dependent on subsidies in both countries. Their importance is almost irreplaceable.

Farm eligibility criteria are entirely different. In Slovakia the whole agricultural land of a holding is eligible for payment whereas in the Czech Republic it is only the area of grassland. Only the holdings breading cattle, sheep or goats with a given density per hectare are eligible in Czech. In Slovakia the eligible area amounted to 94% of the agricultural land in LFA, whilst in the Czech Republic it is only 34%.

In Slovakia the payments are more differentiated (18 rates) than in the Czech Republic where only eight rates exist. The average payments per hectare of agricultural land of holdings in LFA, are not very different in both countries (in mountainous areas in Slovakia 92 € and in the CR 89 €, in other than mountain areas in Slovakia 45 € and in the CR 38 €). But the Slovak system distributes payments more equably and primarily is aimed at the compensation for natural handicaps. The Czech system distributes payments among holdings primarily dependant on the share of grasslands and addresses objectives concerning protection from erosion.

This difference manifested itself especially on the development of the grassland acreage: in the Czech Republic the share of grasslands in LFA has increased in spite of the decrease in herbivorous animals, whilst in Slovakia the share of grasslands decreased. According to the results it is possible to deduce that the LFA payment system in the CR helps the objectives (to promote the use of grassland and to prevent erosion) to be met. Despite the differences in the area eligible for payments, the share of grasslands was 70% in both countries and in "other" LFA it is almost the same (CR 30%, SR 28%).In areas outside LFA in both countries, the share of grassland in agricultural land is very low.

The acreage of unused land has decreased in both countries, which indicates the favourable impact of LFA support and also of the other support of the Common Agricultural Policy. It is assumed that a decrease of unused agricultural land acreage is affected also by LFA payments. The income from LFA payments in the Czech Republic is lower than in Slovakia due to the smaller acreage of the eligible area (grasslands) in "other" LFA. Pursuant to this fact it is possible to explain the moderate increase of the idle land acreage in "other" LFA in the Czech Republic.

A decrease of cereals area primarily in mountainous areas can be evaluated favourably in the light of environmental protection. The same impact can be seen in the fact that potato growing has moved from LFA areas in both countries. In the CR in comparison with Slovakia, the area of forage crops on arable land has decreased more significantly in mountainous areas and in areas with specific handicaps. It can be assumed that in the Czech Republic forage crops on arable land have been substituted by grassland due to the LFA payment system.

The decrease in the number of farm animals could lead to insufficient maintenance of the countryside in LFA. In Slovakia, the decrease in livestock numbers and the low livestock density per hectare of agricultural land are critical. Up to 2005, in Slovakia the number of beef cattle decreased in all areas while in the Czech Republic there was more stability in LFA. This was caused first of all by the strict farm eligibility LFA criteria.

A decrease of agriculture labour is characteristic for both countries. The most important contributing factors are the transformation of farms, changes in the production structure and the decline in animal production. Subsidies for less-favoured areas in both countries delayed the labour input decline in relation to the agricultural land used. LFA payments play a very important role in the stabilization rural population.

The contribution of EU funds to LFA financial payments has resulted positively in the decrease of unused agricultural land and delayed the labour input decline in both countries. The differences of farm eligibility criteria have lead to different trends of grassland acreage and livestock number.

References

[1] Blandford D., Berkeley H., 2008, D*irection in Rural Development Policy – Lesson from Both Sides of the Atlantic,* EuroChoices, 7, 1, ISSN 14780917.

[2] Molcanová J., Fitz M., 2007, *Znevýhodnené oblasti SR – problémy a výzvy,* Sborník konference Méně příznivé oblasti pro zemědělství a venkov, Jihlava, 7.-10.11.2007, Praha, VÚZE, ISBN 978-80-86671-46-8, 129-143.

[3] Štolbová M., 2006, *Méně příznivé oblasti pro zemědělství v ČR a EU,* Studie č. 85, Praha, VÚZE, ISBN 80-86671-35-6.

[4] Štolbová M., Hlavsa T., Johanovská L., Kucera J., 2007, *Problematika méně příznivých oblastí. Odborná publikace,* Praha, VÚZE, ISBN 978-80-86671-47-5.

[5] European Court of Auditors, 2003, *Special Report No 4/2003,* OJ C 151 of 27 June 2003, http://www.eca.Europa.eu/audit_reports/special_reports/docs/2003/rs04_03en.pdf.

[6] Institute for European Environmental Policy, 2006, *An Evaluation of the Less-favoured Area Measure in the 25 Member States of the European Union,* report for DG Agri, November 2006.

[7] Evaluation reports of the Horizontal Rural Development Plan of CR 2004-2006,

[8] Evaluation reports of the Rural Development Plan SR 2004-2006

[9] Farm Structure Survey of the Czech Statistical Office in 2000 and 2005

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Rural municipalities of Slovakia with a positive commuting balance

Abstract: *High concentration of jobs in cities and towns is accompanied by labour commuting from the rural (urban) hinterlands. It is the phenomenon that generates functional regions characterized by the relationship between an urban centre and its rural hinterland. The inverse relationship is if a rural municipality with available attractive jobs becomes the centre of the special functional region (or a centre on a lower hierarchic level) and its hinterland consists of urban and rural municipalities with labour commuting to the rural centre. The aim of the paper is to answer the question whether such inverse relationship, manifested by the rural municipality with the positive commuting balance exists in Slovakia and what is its cause. The original statistical data concerning commuting obtained from the last 2001Census has been used in this study in order to identify what is referred to as rural employment centres (more than 100 commuters, and the positive commuting balance). The paper maps, analyses and explains spatial distribution of rural employment centres in Slovakia and adds their inner characteristics.*

Keywords: *commuting, rural commuting centres, rural employment centres, Slovakia*

Introduction

The biggest cities and towns in Slovakia referred to as growth centres, are agglomerations of economic activity offering various economic benefits for participating firms. High concentration of jobs in cities and towns is accompanied by labour commuting from their hinterlands. Commuting is a significant process from the economic, social, cultural and environmental aspects both for an individual and the whole society (Pooley, Turnbull 1999). Investigations, aim of which is to express the dynamic balance of in- and out-commuting (basic types of population's spatial mobility), are very frequent in geographical, economic and sociological research (Bašovský 1968, Šípka

1970, Eliasson et al. 2003, Pooley, Turnbull 1999, Michniak 2005a-b, and Székely 2006). Records concerning population's commuting reflect spatial distribution of jobs both in urban and rural municipalities and facilitate identification of the main commuting centres on the basis of the balance between in- and out-commuters.

It is, as a rule, the rural area that serves as the source of labour forces for firms located in towns. The fact that they live in the rural area may be the result of inaccessible dwellings in town or intent to live outside the urban area. Commuting from rural area is the phenomenon that generates functional regions characterized by the relationship between a centre and its hinterland. The inverse relationship is if a rural municipality with available attractive jobs becomes the centre of the special functional region (or a centre at a lower hierarchic level) and its hinterland consists of urban and rural municipalities with labour commuting to the rural centre. Does such inverse functional relationship exist in Slovakia, and if so, what caused it? Which rural municipalities have become centres of employment in the course of their history?

Aim of the study, definition of the key term and group of solved problems

The aim of the paper is to map, explain and analyse the existence of the rural employment centres in Slovakia. The criterion for the definition of rural employment centre was the offer of jobs for more than 100 commuters, and the positive commuting balance (number of in-commuters is higher than that of out-commuters) in rural municipality. Original statistical data concerning commuting obtained from the most recent Census carried out in Slovakia in 2001[24] has been used in this study. The research tries to find answers to following questions connected with comprehension of the very existence of rural employment centres and recognition of their functioning in space:

1. Where are the rural employment centres located? What location factors decided about concentration of jobs in their territories, what is their relative geographic position to the nearest cities and towns generally accepted as the main employment centres?
2. What rural municipality size categories represent the rural employment centres?
3. What are the economic branches (with specific nature of work, requirements for labour qualification reflecting also in differentiated level of wages) that attract commuters? Are rural employment centres monofunctional or multifunctional?
4. Are there identifiable differences between male and female commuters?

24 The next census, which should map situation in commuting and capture not only the spatial changes but also the qualitative and quantitative characteristics of commuters will be in 2011.

Definition of commuting and the character of available statistical data

The notion commuting means travelling between the place of residence and the work place. The regularly held Censuses (the last one took place in 2001) provide extensive statistical material, part of which are also data about the movement of economically active population between the place of residence and the work place (including the data about in- or out-commuting) in case the commuter's municipality of residence and that of work are not identical. It means that distance and time are not decisive for the qualification of commuting. In turn, the decisive and indispensable criterion is crossing of the administrative boundary of a municipality of commuter's residence (with the exception of urban municipalities of Bratislava and Košice, where even commuting to individual urban parts is registered). This condition of course, makes registering of commuters very dependent on the size of the smallest territorial-administrative units, which is the municipality. The assumption that in the territory of bigger (urban) municipalities people have to overcome a fairly long distance on their way to work at certain time and financial cost is quite justified. Unfortunately, the mobility of this group of persons that takes place in the territory of a single municipality is not reflected in the statistical data (except for the already mentioned Bratislava and Košice). In spite of it, Michniak (2005) believes that the Census 2001, practically the only source of data about commuting at the national level by individual municipalities is valuable. He is convinced that an analysis of the Census data may render a comparatively exact picture of the spatial population movement and particularly commuting of active population in Slovakia.

The data about size and directions of in- or out-commuters (at least 10 persons), which have been processed for all municipalities are structured by sex, age and industries. Simultaneously, the data supplied by the Statistical Office of the Slovak Republic also contain not very exact information about time losses of daily commuters as declared by them during the statistical surveys concerning commuting.

Rural municipalities as rural commuting centres, and rural municipalities as rural employment centres

The primary result of our research is identification of rural municipalities with at least 100 in-commuters (we used the term rural commuting centres) in time of the last Census (in 2001). It was necessary to select those municipalities that met the criterion of a positive commuting balance from the set of identified rural commuting centres. The positive commuting balance can be only reached by higher in-commuting from other urban or rural municipalities than out-commuting. Number of so delimited municipalities referred to as rural employment centres was lower than the number of all rural commuting

centres. Table 1 provides a survey of number and size categories of all rural municipalities in Slovakia. Individual size categories of rural municipalities were also aligned both the rural commuting centres and rural employment centres.

Table 1. Rural municipalities as rural commuting centres, and as rural employment centres

Size category of rural municipality (inhabitants)	Number of rural municipalities						
	Total	More than 100 in-commuters		More than 100 in-commuters, and negative commuting balance		More than 100 in-commuters, and positive commuting balance	
		Number	%	Number	%	Number	%
< 200	370	5	1.4	0	0.0	5	1.4
201-500	804	19	2.4	1	0.1	18	2.2
501-1 000	784	78	9.9	45	5.7	33	4.2
1 001-2 000	545	181	33.2	149	27.3	32	5.9
2 001-3 000	150	92	61.3	84	56.0	8	5.3
> 3 000	92	75	81.5	65	70.7	10	10.9
Total	2745	450	16.4	344	12.5	106	3.9

Source: Own calculations based on the data from the Central Statistic Office of the Slovak Republic

Hypothetically, it was assumed that the growth of population in rural municipalities would be accompanied by the increasing share of municipalities that became attractive during their historic development and attracted investors producing new jobs. As Table 1 shows, this assumption was confirmed. The number of rural municipalities with more than 100 commuters is relatively high and they represent 16.4% of all rural municipalities. The higher the size category of rural municipalities and the assumed higher number of produced jobs, the higher the share of rural municipalities with negative or positive commuting balance.

Location of economic subjects in places, which are not characterized by higher population concentration and by the immediately available labour sources is generally sporadic. Reasons to locate an establishment, which will have to receive workers living in environs, are very disparate and in some cases even economically irrational. Certain exception is the location of businesses that are close to some local resources. These can represent not only the sources of raw material but also the originality/exceptionality of the landscape or a specific geographical and subsequently functional position requiring location of specific activities (border crossings). Even among the smallest rural municipalities in Slovakia (population below 200), that normally supply labour sources to larger municipalities, five were identified with the positive commuting balance. The 1.4% share in total number of municipalities under the same size category proves their singularity. They are dispersed all over the territory and

no regularity in their location was recognized. Regarding their small size and the adopted criterion of 100 commuters, all the smallest municipalities show a positive commuting balance so they are regarded as the rural employment centres.

Not all rural municipalities with more than 100 commuters though, can be considered employment centres. Rural municipalities in the top size category (population more than 3 000) are examples. In more than 80% of rural municipalities in this size category such jobs were generated that had to be served by population of other municipalities. The prevailingly negative commuting balance (only about a tenth of the biggest rural municipalities has a positive commuting balance) is the clear proof that the cause is definitely not in lack of labour sources living in the concrete municipality, but in the existence of disparity between employers' ideas about a suitable employee and population's ideas of an adequate job. The existing disharmony is one of the decisive impulses of commuting. This statement goes for all rural municipalities with negative commuting balance that might fill all existing work opportunities with their own people. Results of the statistical analysis have shown that in Slovakia hardly 4% of rural municipalities (106 rural municipalities) can be considered rural employment centres, i.e. rural municipalities with more than 100 in-commuters and the positive commuting balance. These rural municipalities will be subject to further investigation.

Distribution of rural commuting centres and rural employment centres

A proper understanding of rural commuting centres and rural employment centre distribution (Figure 1) requires including them into a wider spatial context formed by the neighbouring cities. Historically, cities have formed as mutually attractive centres of population and working opportunities. The urbanization process in Slovakia, which fell behind that in other European countries took place in the second half of the 20th century and was provoked by an extensive socialist industrialization of Slovakia (until 1993 as a part of former Czechoslovakia). Its political representatives set a major aim of gradual reducing of the existing differences between the economically developed Czech lands and underdeveloped Slovakia. The tool to be applied was industrialization, which in its later phases also pursued the intra-regional aim it means the regular distribution of industry all over the Slovak territory.

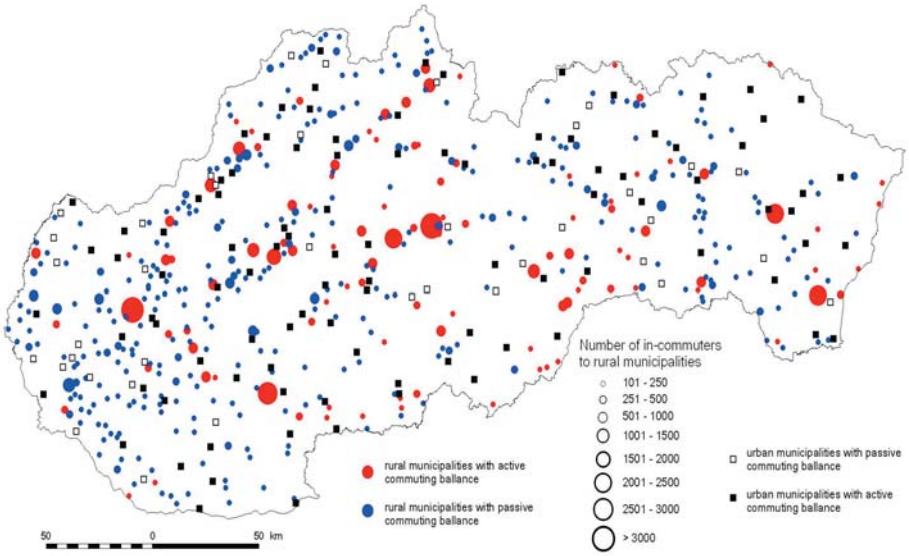

Figure 1. Rural municipalities as rural commuting centres and rural employment centres - their relative geographical position in relation to towns and cities

Location decisions concerning distributions for new industrial plants were results of a joint effect of several location factors (strategic position, raw materials, labour sources, and others). Part of newly built industrial plants exploited the linkages to raw material deposits, others were linked to consumption points. Decisions about location of industry, which was associated with an extensive construction of dwellings directly determined changes in population distribution. The majority of industrial plants were located in the cities. The accompanying construction of new dwellings led to a comparatively intensive exodus of population from villages. The depopulated rural area lost through the selective emigration its young generation and a great part of its labour potential that might have been used in exploitation of local resources. The resulting picture of distribution of industries was in no case ideal and some authors (e.g. Korec 2005) criticised it. They paid attention to local and regional disproportions that appeared between the generated work opportunities and labour sources. On the one side, the shortage of labour forces in particular places provoked an extensive commuting while some regions that disposed of labour remained underdeveloped.

Even in spite of the fact that cities were preferred for the location of industrial plants, some location decisions were oriented to the rural area. Reasons were various. Technological changes in agriculture (mechanisation and automation) set free labour forces that found opportunities in the developing industry. In the course of the 20th century, industry took on the profile of the biggest employer in Slovakia. It also plays an important role at present (despite the progressive decrease of its significance in terms of quantitative employment) in generation of work opportunities in the rural area.

Abundance of raw material and efforts invested in its exploitation was the decisive reason for the selection of the rural area by industry in the past. The mining industry, which often destroyed even the existing settlements, required an elevated number of workers, which it found in wide environs. During the socialist industrialisation of Slovakia that in some cases also concentrated on drawing work opportunities closer to population, selected industrial plants that did not require as many highly qualified labour forces, were located in rural area.

Dangerous businesses with negative environmental impact are often located in rural area. In case of potential crashes, the number of threatened persons is thus reduced. The contemporary suburbanising process and participation of a wider rural hinterland in the economic space also favours location of industrial activities in the rural area.

A full comprehension of the existence of rural employment centres with the positive commuting balance includes the awareness of substantial differences existing between agriculture that dominates among economic activities in the rural area and industry which helped to solve situation with the excessive offer of labour forces especially in the recent past. In difference from agriculture linked to extensive areas and the working activity carried out by a relatively low number of workers, industry is characterized by point locations and concentrations of a larger number of workers in a smaller area. Along with reasons in favour of location of industrial activities in rural municipalities with at least partial labour sources available, it is this substantial difference that leads to commuting into rural municipalities.

Figure 1 shows the distribution of rural commuting centres and rural employment centres along with the situation of the individual cities. The commuting balance characterizes the individual cities just like rural municipalities and they form various types regarding the employment. It is obvious that side by side in certain geographical distance there coexist varied types of municipalities. Four location combinations exist. Rural municipality with an active commuting balance is situated next to an urban municipality with passive (active) commuting balance. Or vice versa. Rural municipality with passive commuting balance is situated next to an urban municipality with active (passive) commuting. The existing spatial structure incites the following questions:

1. Did rural municipalities defined as rural employment centres act in relation to cities as competing spatial units that obtained labour forces from the neighbouring city/cities? or
2. Did rural municipalities defined as rural employment centre represent in their relation to cities rather a spatial complementary element, which gained from over-concentration of population in the cities and the regional concentration of labour-intensive economic activities, while it coexisted and formed/not formed rationally functioning cluster with economic entities located in the cities?

Table 2 summarizes the results of spatial distribution of rural commuting centres and the rural employment centres in relation to the cities.

Table 2. Relative geographical position of rural employment centres in relations to the towns with positive or negative commuting balance

Number of commuters	Number of municipalities	%	The nearest town with	
			Negative commuting balance	Positive commuting balance
101-200	41	38.7	6	35
201-300	12	11.3	2	10
301-500	20	18.9	5	15
501-1000	21	19.8	2	19
1001-2000	6	5.7	3	3
2001-3000	4	3.8	1	3
>3000	2	1.9	1	1
Total	106	100.0	20	86

Source: Own calculations based on the data from the Central Statistic Office of the Slovak Republic

The smallest rural employment centres above all did not become competitive for the nearest situated cities from the draining labour forces point of view. It is rather obvious that they form supplementing employment centres of a lower hierarchic level. However, any assertion regarding the functional linkage between the economic entities on the basis of material and non-material bonds requires further reliable research.

The increasing number of commuters to the rural employment centre is accompanied by increase (not continuous) of the share of municipalities that theoretically may represent some competition to its nearest city in the relation to potential absence of human sources. A city with negative commuting balance may be and as a rule is (even in case of cities at a lower hierarchical level i.e. smaller cities) affected by the above-average labour-intensive economic activities located in a close rural municipality. A single employer who found enough land for production normally offers employment and his location is the result of a joint effect and positive assessment of several location factors. Dwelling in the vicinity of a great industrial plant requires an additional cost-ineffective investment, the impact of which on population redistribution between the nearest cities and the rural municipality would be only limited. As a matter of fact, the idea to live in close vicinity of productive complexes, operation of which is not altogether ecological is very unattractive for population. This is the reason why the solution of a sufficient number of work force employed with employers seated in rural area by commuting seems to be the optimal.

A smaller city is usually a centre of dwelling while the rural satellite offers work opportunities. The distances between the cities and rural municipalities are short. It takes less to travel to them than the intraurban movement in the biggest Slovak

cities (Bratislava, Košice). For instance, there is the eastern Slovakian village of Vojany. A thermal power plant exists in its territory. The majority of its employees commute from Veľké Kapušany (population 10,000), which is not far away.

Larger rural settlements are not the only competition for small towns. Also the close situated cities at a hierarchically higher level compete with them. Precisely these cities become the destination of the commuting population from small cities with the negative commuting balance. Flows of commuters to rural centres and the finding that the most bulky flow is not formed by population of the nearest town but by that of other rural municipalities prove it. Examples can be found above all in eastern Slovakia where the sphere of influence of Košice also absorbs towns on the lower hierarchical level.

In case of bigger cities with diversified economic structure, an important and close situated rural employment centre does not have to necessarily participate in their negative commuting balances. In case of a city situated in the lowland its orbit is evenly spread around it. It is the result of a regular transport infrastructure, building of which was not limited by the terrain. People arriving of all directions enjoy the optimal conditions for commuting while they enhance the significance of the big city. Rural employment centres (often with a single-branch economic structure) cannot, in this case, cause the negative commuting balance to the big city. Even in spite of the fact that the big city is the principal supplier of labour forces for big rural employment centres. Location of the nuclear power plant in the territory of rural municipality Jaslovské Bohunice that is situated 12 km away from Trnava with population 68,000 is a good example of the above-described relationship.

Table 3 depicts the relative geographical situation of rural employment centres from the point of view of the nearest cities. Vicinity of a city with its population concentration and economic activities plays an important role in terms of their existence.

Table 3. Distance of rural employment centres from the nearest town

Number of commuters	Towns with negative commuting balance					Towns with positive commuting balance				
	0-5 km	5.5-10 km	10.5-15 km	15.5-20 km	> 20 km	0-5 km	5.5-10 km	10.5-15 km	15.5-20 km	> 20 km
101-200		2	3		1	4	9	10	4	8
201-300		1	1			2	3	1	4	
301-500	1	3		1		2	4	3	5	1
501-1000		1	1			4	8	6	1	
1001-2000	2	1					2	1		
2001-3000		1					2	1		
>3000		1						1		
Total	3	10	5	1	1	12	28	23	14	9

Source: Own calculations based on the data from the Central Statistic Office of the Slovak Republic

As much as 50% of all rural employment centres are situated in the distance below 10 km from the city. The short distance is the precondition of strong linkages between populations of rural and urban municipalities. However, if this distance is higher than 20 km, the situation is that of a sort of isolation of the rural municipalities where specific jobs existed. In Slovakia, peripheral municipalities mainly represent such rural employment centres or those situated close to the State frontier. The service to border crossings required commuting of specialised employees from the close environs of the border crossing. The entry of Slovakia to the Schengen area caused redundancy of such jobs and consequently the reasons for commuting and employment centres (for instance, Mníšek nad Popradom and Vyšný Komárnik on the border with Poland or Medveďov on the border with Hungary) disappeared.

Rural employment centres and structure of job occupancy– non-commuters versus commuters

The rural employment centre has been defined in introduction to this paper as the rural municipality with at least 100 in-commuters and a positive commuting balance (number of in-commuters is higher than that of out-commuters). It is not only commuters that fill in the work opportunities existing in rural municipalities. As humans generally try to behave economically rationally (minimisation of cost and maximisation of profit), the assumption that permanently residing inhabitants of rural employment centres should not prefer commuting to other municipalities is justified. As a matter of fact, commuting to other municipalities is normally connected with a higher cost and loss of time possibly not compensated by earnings. This is the reason why both in productive and non-productive businesses, employees residing in the same municipalities also work. In an effort to obtain a deeper knowledge of rural employment centres and their existence, the following questions should be answered: What is the share of the permanently residing population in overall employment in a rural municipality? Does this share depend on the size of the municipality or on the overall number of commuters?

Table 4 presents results of a simple statistical analysis carried out with the aim to answer the above questions. Figure 2 brings the picture of spatial distribution of rural employment centres and saturation of the created jobs by employees residing in a municipality and by commuters.

Table 4. Distribution of rural employment centres by size of the rural municipality and by share of commuters in overall number of created jobs

Size category of rural municipality	Total	Share of commuters in overall number of created jobs			
		20 - 40 %	40.1 - 60 %	60.1 - 80 %	> 80%
< 200	5			1	4
201-500	18			11	7
501-1000	33		6	21	6
1001-2000	32	4	6	14	8
2001-3000	8		4	2	2
> 3000	10	1	5	4	
Total	106	5	21	53	27

Source: Own calculations based on the data from the Central Statistic Office of the Slovak Republic

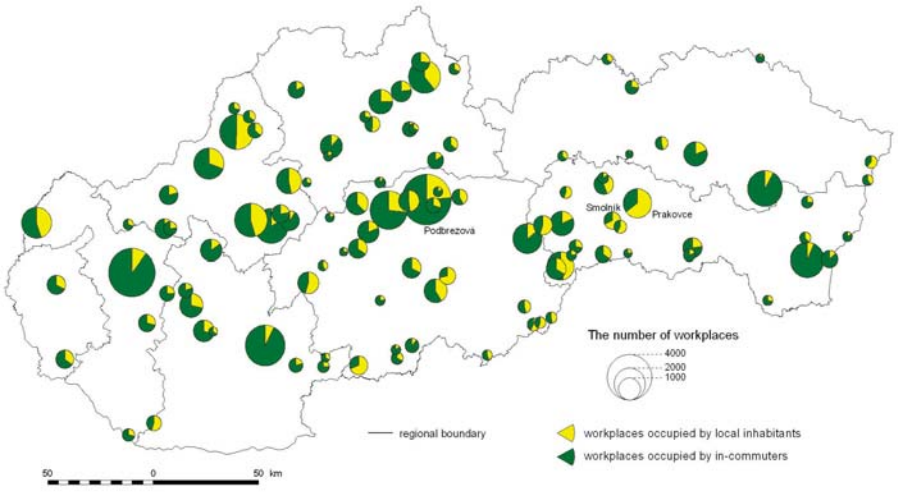

Figure 2. Rural municipalities as rural employment centres - share of commuters in overall number of created jobs

The fact that the number of such Slovak rural employment centres where the work positions are saturated above all by commuters from other rural or urban municipalities prevails is obvious at first sight. Local people filled at least 40% of the created jobs only in about a quarter of identified rural employment centres. As a rule, they are historic, spatially more or less isolated industrial centres in mountain valleys of eastern Slovakia (for instance, Prakovce and Smolník). Situation is opposite in the majority of rural employment centres where the share of the residing population in overall employment rate of the rural municipality accounts for a maximum 40%. It is due to the fact that the construction of dwellings lags behind the creation of jobs or that the employees of the local firms are dispersed all over the environs. This especially goes for the smallest rural municipalities because of their size where any bigger employer has to rely on commuters.

On the other side, there also are such rural municipalities in Slovakia, where population number, supply of jobs and options to dwell together with their technical and social infrastructure bestow them the character of an urban municipality. Their long-year appurtenance to the category of rural municipalities (without official legislative town status) is hardly comprehensible. The most typical representative of such rural municipality is Podbrezová situated in central Slovakia. The municipality with population more than 4 thousand and with a positive commuting balance amounting to over 3 thousand commuters is known as the second most important metallurgical centre in Slovakia.

Rural employment centres - structure of commuters by individual branches of economy

Every rural municipality possesses its own specific potential for the location of varied economic activities (the importance of the relative geographical position has been emphasized above). Requirements of the individual industries concerning spatial characteristics just like those concerning quality and quantity of labour forces are not the same either. Hence, the structure of the created jobs and subsequently the appurtenance to the individual branches were expected to be highly differentiated in individual rural employment centres. A strong correlation of commuters' appurtenance to different branches of economy with the economic structure of Slovakia where the dominant position in terms of employment creation corresponds to the industry was also expected.

These hypothetical assumptions were confirmed. Figure 3 depicts rural employment centres by the number of commuters according to individual branches of economy. Even a cursory glance at the map reveals the dominance of industry as the principal employer of not only the local population but also numerous commuters. In spite of the comparatively uniform distribution of commuting to rural industry in the entire territory of Slovakia, two specific features are evident. The first is higher concentration of commuting to rural industry in the economically advanced western part of Slovakia and the second is the sporadic even minimal commuting to rural industry in the peripheral boundary areas. It is the consequence of the historic development, unfavourable in terms of inclusion of these areas into the economic system of the State. These poorly populated areas without any more important natural resources, together with their strategic geographical position, were not suitable for industrial location.

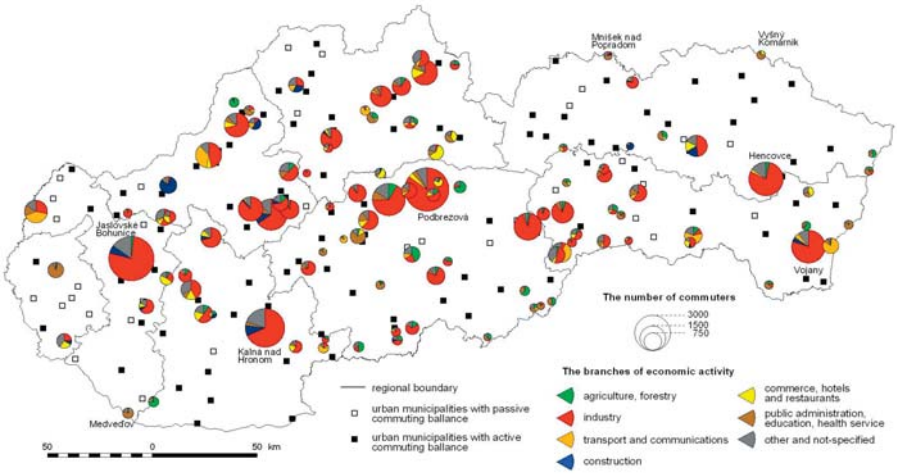

Figure 3. Rural municipalities as rural employment centres - structure of commuters by individual branches of economy

Even in spite of the fact that other branches of economy are merely complementing in terms of the rural employment rate compared with the dominating industry, there still are rural employment centres in the country where commuting to industry is not decisive. Table 5 brings information about the number of rural employment centres classified by size and appurtenance to the dominant economic branch of commuters.

Table 5. Division of rural employment centres according to size and the dominant economic branch appurtenance of commuters

Number of commuters	Total	Agriculture, forestry		Industry		Construction		Transport and communications		Commerce, hotels and restaurants		Public administration, education, health service	
		abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
101-200	41	9	22.0	13	31.7	2	4.9	2	4.9	2	4.9	13	31.7
201-300	12	2	16.7	4	33.3	1	8.3	1	8.3	2	16.7	2	16.7
301-500	20	1	5.0	13	65.0			1	5.0	3	15.0	2	10.0
501-1000	21			17	81.0	1	4.8	3	14.3				
1001-2000	6			6	100.0								
2001-3000	4			4	100.0								
>3000	2			2	100.0								
Total	106	12	11.3	59	55.7	4	3.8	7	6.6	7	6.6	17	16.0

Source: Own calculations based on the data from the Central Statistic Office of the Slovak Republic

Although appurtenance of commuters to industry is normal in any rural employment centre, its dominant position in terms of the percentage of commuters is not so high (about 56% of total rural employment centres). Important

thing is that only industry is in the position of the dominant provider of jobs for commuters in every rural municipality where the number of commuters exceeds 1,000 and the commuting balance is positive (12 rural employment centres, i.e. 11% of the total). Appurtenance to other branches of economy, not so demanding in terms of quantitative dimension of labour forces, may dominate in case of commuters to smaller rural employment centres. Agriculture and forestry as the economic branch, which is often used to define the differences between rural and urban areas, is worth mentioning. Commuting to agriculture and forestry is connected with the smallest rural employment centres. Their geographical position is characterized by remoteness from main population and economic centres, and also by so called inner regional isolation, by peripherality. Agriculture and forestry in Slovakia are among the branches of economy with the lowest wages, low qualification of labour and the greatest efforts put into reduction of jobs. These characteristics explain why the dominating commuting in this economic branch is linked almost exclusively to small and peripheral rural employment centres.

Rural employment centres and gender composition of commuters

Males are traditionally taken as the main economic force in a Slovak household, task of which is to secure the family financially. Position of females in the society is more complicated. On the one side, they long for self-realisation on the labour market while on the other side their economic activity is also necessary for the full financial security of the household. Women take on the time-demanding care for the family what reflects in their approach to harmonisation of both the professional and family duties. Their choice of job is often limited when they try to avoid time losses caused by commuting if that is the case. Several authors (for instance, Bašovský 1968) arrived at the conclusion that commuting is more spread among males. It is also true that with the increasing distance from the commuting centres the percentage of commuting males increases. Nowadays, persons with higher level of acquired education and skills are those who along with the search for a better paid job are also motivated to seek satisfaction of their professional ambitions and an adequate role on labour market. And it very often connected with long distance commuting.

We assumed that the rural employment centres, above all the bigger ones, are centres of male commuting. As a matter of fact, such centres must acquire labour forces from wider environs and the time losses associated with commuting are higher. Additionally, it was assumed that rural municipalities with location of productive and non-productive activities that are more acceptable for females also exist. The gender division of labour is considered something natural and appurtenance of commuters to selected branches of economy evokes potentially higher representation of commuting females than males (for instance, female commuters dominance in public administration, education, and health service). Table 6 presents individual rural employment centres by size and gender struc-

ture of commuters. Figure 4 provides the spatial picture about the quantitative relationship between the male and female commuting in individual rural employment centres.

Table 6. Division of rural employment centres by size and gender structure of commuters

Number of commuters	Number of rural employment centres	Dominating male commuting		Dominating female commuting	
		abs.	%	abs.	%
101-200	41	30	73.2	11	26.8
201-300	12	9	75.0	3	25.0
301-500	20	18	90.0	2	10.0
501-1000	21	17	81.0	4	19.0
1001-2000	6	5	83.3	1	16.7
2001-3000	4	4	100.0		0.0
>3000	2	2	100.0		0.0
Total	106	85	80.2	21	19.8

Source: Own calculations based on the data from the Central Statistic Office of the Slovak Republic

Results have confirmed assumptions. Male commuting prevails in the majority of rural employment centres (80 %) and in some cases it approximates to the maximum value. More than 90% of male commuting is typical for monofunctional rural employment centres with representation of the typical male activities: mining (Cígeľ) or construction. Rural employment centres where commuting to construction prevails are smaller as a rule. Their existence is linked to the temporally limited investment in construction. After it is finished, the rural employment centre disappears or a new one is formed somewhere else. Construction of the road tunnel Branisko carried out by companies seated in the rural municipality Korytné is a good example of this phenomenon.

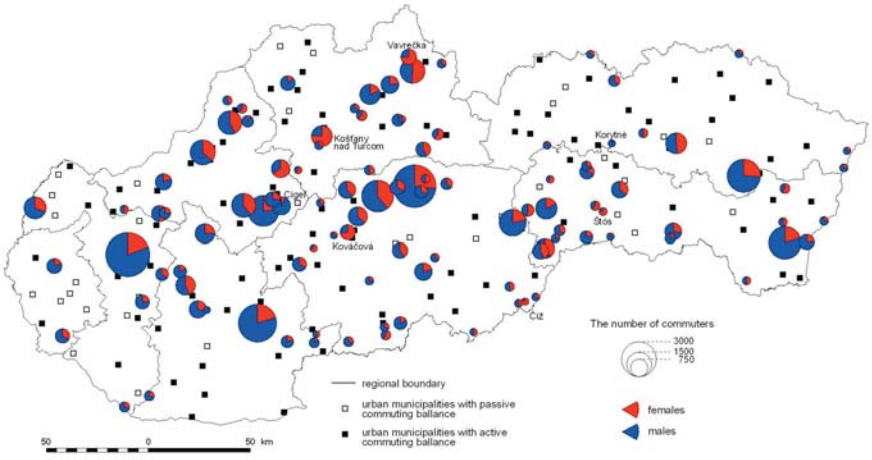

Figure 4. Rural municipalities as rural employment centres - gender structure of commuters

Percentages of female commuting that prevails in a fifth of rural employment centres are not so extreme. Despite, above all in case of small spas like Číž, Štós, Kováčová and other administered by the health service sector which represent the typical female employment domain, almost four commuting females correspond to one male commuter. However, the high representation of commuting females is also characteristic for some labour-intensive industrial branches (electro technical and textile industry). Monotonous nature of work and the demand to reduce the costs in companies lead to search for female labour outside the main areas of the economic growth. Location of plants with some production tradition or history in a particular production (including skills of locals) in (peripheral) regions, in a rural municipalities and in the proximity of medium sized cities (lower cost of properties and the important source of labour forces) seems to be the optimal solution for investors oriented to female and lower paid employment. Examples are Košťany nad Turcom near Martin (car seat cover manufacturing) or Vavrečka near Námestovo (wide-spectral electro technical production).

Conclusion

What are the general features of the few existing rural employment centres in Slovakia? Above all, they are rural municipalities located in the proximity to towns and cities. The relative geographical position regarding the distance from the town (interconnected with the transport accessibility) is an important location factor for the establishment and functioning of the rural production and/or non-production firms. Rural employment centres normally form an organic unit with the town: the town supplies labour forces and the rural municipality offers jobs that cannot be filled with locals (for the various reasons). A mutually beneficial commuting starts. As a matter of fact, it is the manifestation of efforts in spatial optimisation of human movement. Such relationship exists above all between a medium-sized town and small rural employment centre. In some cases, rural employment centre competes with the town.

In spite of long-year historic tradition of rural population working in agriculture and forestry, the contemporary decisive employer for rural municipalities with active commuting balance is industry. Location of industry in rural environment can be the response to raw material occurrence and efforts in its economic exploitation or it can result from a complex multicriterial decision-making preceded by assessment of various rational (sometimes irrational) location factors. The essential spatial characteristic of rural employment centres where labour-intensive branches of economy prevail, is again the proximity to the town where dwellings had been constructed according the urbanization project of Slovakia (with adequate concentration of population).

Principally, males commute to the rural area. Higher (statistically recorded) economic activity and the nature of production and/or non-production processes carried out in rural employment centres (prevalence of industrial enterprises) have led to the above mentioned conclusion. In specific cases (rural

municipalities as spas or localities where the industrial companies focus on employment of female labour), female commuting dominates and this especially in smaller rural employment centres.

Existence and character of rural employment centres is a dynamic phenomenon easily altered by changes in a society. It will be certainly interesting to observe what structural and spatial changes will arise in the rural area of Slovakia. It is reasonably predictable with regard to the ongoing redistribution of population between the towns and cities and rural municipalities accompanied by an increasing spatial dispersion of economic activities that changes in commuting are also possible. Changes in number, spatial distribution and character of rural employment centres will represent one of the concrete manifestations modified spatial choice behaviour of urban and rural population.

References

Bašovský O., 1968, *Commuting to work as an element of economic-geographical regionalization of the territory (based on Orava),* Acta Geographica Universitatis Comenianae, Economico-Geographica 8, 53-93.

Eliasson K., Lindgren U., Westerlund O., 2003, *Geographical labour mobility: migration or commuting?* Regional Studies, 37, 8, 827-837.

Korec P., 2005, *Regionálny rozvoj Slovenska v rokoch 1989-2004: Identifikácia menej rozvinutých regiónov Slovenska,* Bratislava, Geo-grafika.

Michniak D., 2005a, *Niekoré priestorové aspekty dochádzky za prácou na Slovensku v roku 2001 na úrovni okresov,* Geografický časopis, 57, 3, 207-227.

Michniak D., 2005b, *Changes in commuting in Slovakia in the years 1991-2001,* Europe XXI, 12, 163-178.

Pooley C.G., Turnbull J., 1999, *The journey to work: a century of change,* Area, 31, 3, 281-292.

Šípka E., 1970, *Geographical aspects of the coming to work in the region of Liptov,* Acta Geographica Universitatis Comenianae, Economico-Geographica 8, 121-156.

Sčítanie obyvateľov, domov a bytov 2001, CD-ROM, Štatistický úrad Slovenskej republiky, Bratislava.

Székely V., 2006, *Commuting to work,* In: Mládek J., Kusendová D., Marenčáková J., Podolák P., Vaňo B. (eds.), *Demogeographical analysis of Slovakia*, Comenius University Bratislava, 84 – 86.

Acknowledgement

This article was prepared as part of the Project No. 2/6038/26 “Economic performance and competitiveness of localities and regions” funded by the Slovak VEGA Grant Agency. Authors thank to the Slovak VEGA Grant Agency for its financial support.

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Harmonizing nature conservation and agricultural activity for the sustainable utilization of protected grasslands

Abstract: *Agricultural production is going on at the significant part of the total area of Hungary, thus it is understandable that nature conservation activity is dependent on the cooperation with agriculture. The cooperation of these two activities is extremely important in the case of protected grasslands. On one hand because from a nature conservation point of view, the grassland management systems own the biggest importance of the inland agricultural systems in Hungary and on the other hand because in the conservation of these areas grazing animal husbandry could hold a determinative role.*
Being aware of the importance of the harmonization of these two areas, I would like to emphasize the common interests of these mutually dependent activities and promote the bilateral cooperation. My main research aim was to create a grass production model for a protected pasture which model could serve as a tool for determining animal carrying capacity. Although the prepared grass model requires further validation, methodical grazing upon strict regulation could be suggested. My grassland management suggestions satisfy predominantly nature conservation objectives but do not neglect the rural and regional development aspects. According to my suggestions over and also under grazing of the examined pasture could be avoided what is very important in the conservation of the significant plant and animal species attached to this habitat. Besides, I also would like to promote local farmers in planning their activity, to get the proper number of grazing animals that could be kept on the exact protected grassland year by year.

Keywords: *nature conservation, protected grasslands, grazing animal husbandry*

Introduction

As agricultural production is going on at the significant part of the total area of Hungary, it is understandable that nature conservation activity is dependent on the cooperation with agriculture. The conservation and if it is necessary, the restoration of the protected areas are amongst the important elements of the management methods of these areas. These activities cannot be achieved without ecological farming methods. However a viable activity from also an economic view can be only imagined with the harmonization of agricultural and nature conservation interests, as the efficiency of agriculture decisively depends on the state and quality of the environment, and thus of nature resources.

According to Béri et al. (2004), from a nature conservation point of view, the grassland management systems own the biggest importance of the inland agricultural systems in Hungary, because great part of the protected plant and animal species are attached to them. From the extensive grasslands in Hungary more than 200 thousand hectares are under nature protection. In the conservation of these areas grazing animal husbandry could own a determinative role (Bodó 2005; Stefler & Vinczeffy 2001). The opinion of Kárpáti (2001) is that there is a high need for a nature conservation grassland management, where the aim is not to reach the possibly highest economic advance but to conserve the biodiversity and through this, the habitats of protected species. More authors argue this statement, according to Gencsi (2003) methodical grazing is not only a tool for the management of protected grasslands but with the attendance of the local population it is food production also. Furthermore, the food produced in an environmentally conscious way has an added value compared to food produced in a traditional way. The issues 'health' and 'safety' might contribute to this added value (Husti 2006). Agricultural activity also plays a critical role in influencing the ability of ecosystems to provide services for the society and to support human well-being (Fekete-Farkas et al. 2006). Dömsödi (2006) also states that beside nature conservation activity the appearing economic result could promote the protection of the nature conservation values financially. According to all what have been mentioned so far, it can be stated that however nature conservation activity is prominently important, it is not suitable also for the economically suitable management of protected grasslands per se. With my examinations I would like to emphasize the common interests of these mutually dependent activities and promote the bilateral cooperation.

Taking into consideration the opposite or sometimes the parallel opinion of some regarded professionals my aim is to model the grass production of a certain pasture in Hungary, namely the Lesser Mole Rat Reservation of Hajdúbagos Nature Conservation Area, viz. of the great pasture of Hajdúbagos. My overall objective is to elaborate the management plan for the examined pasture by my examination results.

Materials and methods

According to my overall objective, to gain weather, territorial, land historical, botanical and grass production data were necessary for the model development and for the elaboration of the management plan, as well as for determining the animal carrying capacity of the examined pasture.
The algorithms necessary for modelling the grass production had been integrated into MS Excel programme. The algorithms were inserted to the model in two large groups, as functions (Atmosphere, Soil, Plant) and processes (Weather, Soil, Plant).
To create the input weather database of the model I used the global solar radiation data [MJ m-2 day-1], the daily minimum, maximum and average temperature [°C], the daily precipitation sum [mm], the daily relative air humidity [%] and the average daily wind speed [m s-1] data as inputs, from the Debrecen Weather Station of the Hungarian Meteorological Service. The interval of the weather data is 01.01.2005 to 31.12.2007.
To gain land historical data I carried out archival examinations during which I aimed to survey the characteristics and changes of livestock of the examined area from the 1750's. I also did GIS examinations on maps from different eras, as historical and present maps representing the examined area tell a lot about land use changes.
I carried out the botanical survey according to the Balázs quadrate method (Balázs, 1949). I worked with 1x1 metre sized examination quadrates. Due to the overall research aims all together 34, uniformly 1 square metre sized quadrate were developed. I located the exact geographical situation of the quadrates by GPS device (Figure 1).

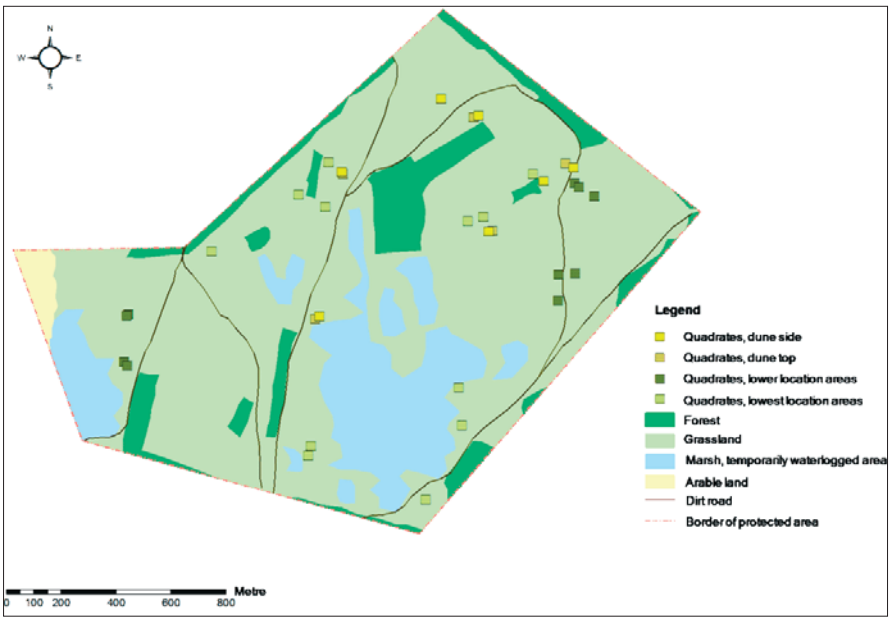

Figure 1. Examination quadrates on the studied pasture

On the developed quadrates I carried out two coenological surveys, the first was in 2006 representing the late spring – early summer aspect, while the second showed the late summer – early autumn aspect and was made in 2007. By the results of the botanical examinations the botanical character of the great pasture of Hajdúbagos could have been stated.
I collected the realized grass production data by the series of test reaping in the developed examination quadrates throughout the year 2006 and 2007, during which I also measured the average grass height in each quadrates before reaping. After removing the grass I measured the green and after drying the dry volume of the samples.
The last part of my examinations was to determine the animal carrying capacity of the studied pasture upon the collected data and the developed grass model, to be able to set a management suggestion for the examined protected grassland. I took the fodder amount requirements of sheep and cattle into consideration by literature recommendation (Kertész 1993; Béri 1993).

Results and discussions

With the help of the hypothetic grass model elaborated to the examined pasture the potential grass production have been calculated. The potential grass production is determined by the photosynthetic active radiation, the temperature and also limited by the precipitation and the water management characteristics of the soil.

The actual grass production data are not taking into consideration the nutrient supplying ability of the soil, but comparing it to the realized production data and other research results it can be stated that the values are rather close to reality. However the model requires further validation it can be stated that it could serve as a good tool for determining animal carrying capacity of the examined pasture. By the simulated actual grass production data the animal carrying capacity of the examined pasture is 2.28-6.11 ewe ha-1, and 0.27-0.71 cow ha-1 during the studied years. However between the certain increments of the examination years there are significant differences (Table 1).

According to the production values simulated by the model I also stated that the optimal usage for the grass flora is 6 rotations by 35 days within the general 210 days sheep grazing period, namely the highest grass yield can be ensured with this utilization schedule independently from the effect of the different annual weather circumstances. It is certified that the carrying capacity calculated by increments gives more accurate results, as the carrying capacity of the whole grazing period assumes the balanced distribution of the annual grass yield.

Table 1. Simulated potential and actual grass production in the examined years

Simulated grass production			Sheep carrying capacity [ewe ha^{-1}]	Cattle carrying capacity [cow ha^{-1}]
Date of simulated grazing/reaping	Green grass production [g m^{-2}]	Green grass production [kg ha^{-1}]		
20.04.2005	0	0,00	0.00	0.00
25.05.2005	117	1168.41	4.77	0.56
29.06.2005	181	1812.27	7.40	0.86
03.08.2005	233	2327.69	9.50	1.11
07.09.2005	222	2216.38	9.05	1.06
12.10.2005	121	1212.01	4.95	0.58
16.11.2005	1	8.39		
21.12.2005	0	0.00		
2005	Σ ***875***	Σ ***8745.17***	$\overline{x}$ ***5.94***	$\overline{x}$ ***0.69***
25.01.2006	0	0.00		
01.03.2006	0	0.00		
05.04.2006	0	4.69		
10.05.2006	342	3421.27	13.96	1.63
14.06.2006	370	3703.18	15.12	1.76
19.07.2006	23	226.37	0.92	0.11
23.08.2006	123	1233.07	5.03	0.59
27.09.2006	23	233.52	0.95	0.11
01.11.2006	17	171.33	0.70	0.08
06.12.2006	1	5.42		
2006	Σ ***900***	Σ ***8998.84***	$\overline{x}$ ***6.11***	$\overline{x}$ ***0.71***
10.01.2007	0	0.00		
14.02.2007	0	1.23		
21.03.2007	2	16.33		
25.04.2007	0	0.00	0.00	0.00
30.05.2007	9	93.23	0.38	0.04
04.07.2007	99	990.84	4.04	0.47
08.08.2007	36	359.48	1.47	0.17
12.09.2007	10	98.46	0.40	0.05
17.10.2007	181	1809.20	7.38	0.86
21.11.2007	1	6.00		
26.12.2007	0	0.00		
2007	Σ ***337***	Σ ***3374.78***	$\overline{x}$ ***2.28***	$\overline{x}$ ***0.27***
	$\Sigma\Sigma$ ***2112***	$\Sigma\Sigma$ ***21118.78***	$\overline{x}$ ***4.78***	$\overline{x}$ ***0.56***

Conclusions

By the animal carrying capacity calculated upon the grass yields simulated by the grass model, and by the land historical and botanical examinations I suggested the management of the examined protected pasture to be based on accurate regulation that serves predominantly nature conservation objectives but do not neglect the rural and regional development aspects. The management strategy that I suggest could promote the improvement of the possibili-

ties for the local population in agricultural production thus in income increase as well, establishing by this the synergic sustainability of nature conservation and socio-economic interests.

References

Balázs F., 1949, *A gyepek termésbecslése növényszociológiai felvételek alapján,* Agrártudomány I.1, 26-35.

Béri B., 1993, *Szarvasmarhák legeltetése*, In: Vinczeffy I. (ed.), Legelő- és gyepgazdálkodás, Mezőgazda Kiadó, Budapest, 242-249.

Béri B., Vajna T-né, Czeglédi L., 2004, *A védett természeti területek legeltetése,* In: Nagy G., Lazányi J. (eds.), *Gyepgazdálkodás 2004 Gyepek az Agrár- és vidékfejlesztési politikában,* Debreceni Egyetem, Debrecen, 50-59.

Bodó I., 2005, *Legeltetés a táj- és környezetvédelemben,* In: Jávor A. (ed.), Gyep-Állat-Vidék-Kutatás-Tudomány, Debreceni Egyetem, Debrecen, 106-112.

Dömsödi J., 2006, *Földhasználat*, Dialóg Campus Kiadó, Budapest-Pécs.

Fekete-Farkas M., Béres-Husti K., Szűcs I., 2006, *Economic evaluation of chemical pollution, fodd safety, biodiversity and sustainability,* Cereal Research Communications 34, 1, 797-801.

Gencsi Z., 2003, *Gyepgazdálkodás a Hortobágyon,* In: Nagy G. (ed.), *Termelési, környezetvédelmi és vidékfejlesztési célprogramok a gyepgazdálkodásban,* Debreceni Egyetem. Debrecen, 39-43.

Husti I., 2006, T*he main elements of sutsainable food chain management*, Cereal Research Communications, 34, 1, 793-797.

Kárpáti L., 2001, *A gyepek természetvédelmi jelentősége,* In: Nagy G., Pető K., Vinczeffy I. (eds.), *Gyepgazdálkodásunk helyzete és kilátásai,* Debreceni Egyetem Agrártudományi Centrum Agrárgazdasági és Vidékfejlesztési Intézet, Debrecen, 57-60.

Kertész, I., 1993, *Juhok legeltetése,* In: Vinczeffy I. (ed.), *Legelő- és gyepgazdálkodás,* Mezőgazda Kiadó, Budapest, 253-257.

Stefler J., Vinczeffy I., 2001, *Környezet- és természetvédelmi igényeket is szolgáló extenzív állattartási rendszerek létrehozása,* In: Kovács F., Kovács J., Banczerowski J-né (eds.), *Lehetőségek az agrártermelés környezetbarát fejlesztésében,* Magyar Tudományos Akadémia Agrártudományok Osztálya, Budapest, 64-87.

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Human capital and rural multifunctionality - a territorial overview – Romania's case[25]

Abstract: *The assumption of the multifunctional character of the rural area implies the multiplication of roles that this territory has in the society. The new roles (ecologic, socio-cultural, etc.) are assumed as far as the rural society perceives their importance, as well as the benefits generated by this new vision. The rural society should be able to fructify the new opportunities (new occupations, funding sources) resulting from assuming the new roles. The initial assumption was that the driving force of the change of vision is the human capital. Its characteristics, from the demographic aspect, to the educational and occupational characteristics and ending up with the psychological and perception characteristics with regard to the rural community future, can represent constraints or catalysts in assuming the multifunctional character of rural areas.*

Keywords: *rural multifunctionality, human capital, territorial disparities, Romania*

Introduction

The rural area is a multifunctional space and it should be treated as such. The experience has shown that things are going well when the human activities are integrated into a unitary concept, that is if the possibilities and needs of the ecosystem are into consideration when a water management is designed or a certain agricultural production is envisaged (Rodriguez et al. 2004). All this specific knowledge, meant to ensure the community survival in a certain rural area, used to be transmitted from father to son. But in the second part of the twentieth century, the unisectoral development concept was practiced, and very many specialists emerged in certain sectoral fields, the so called "specialist specialists", yet the "generalist specialists" were absent, who might have had the capacity to synthesize the different sectoral development trends. As

25 The article was made possible under the project PNCDI II Parteneriate 92072/2008 "Economic-social models to attenuate the inequalities in the rural areas by regions"

the reciprocal influences in the case of river management, agriculture, forestry have not been taken into consideration, many conflict situations emerged with an adverse impact upon the landscape and the ecological system. The community life itself went through radical changes, and this situation was neither investigated nor taken into consideration. This had serious consequences (too little analyzed until the present moment), as the communities identified themselves with the landscape, shaping each other, not only the landscape being shaped by the community, but also the community character being shaped by the landscape. (Hajdu 2008; Hadyńska and Hadyński 2005)

Thus, the most important conclusion and recommendation would be that each community (of course, we must take into account the traditional communities and not necessarily the present communes, which, in many cases have been artificially created) should identify its own (natural and human) resources and project its future development on the basis of these resources. In this way, a Romanian farmer, who is involved only in traditional farming, could be easily assimilated to an organic farmer with a radical vision from Western Europe. Of course, the putting into value of the obtained production, as well as of the whole rural area (for example through eco-tourism) is more complicated, but the building up of the whole system will be possible only if we maintain the solid foundation that we have (Popescu 2001).

For this purpose, the **European Agricultural Fund for Rural Development (EAFRD)** has as **objective** under Axis III ("Life quality in the rural areas and rural economy diversification") The development of multifunctional rural area through the support to off-farm economic activities on the agricultural household, and in general, to the economic activities in the rural area with the goal to:

- increase the additional incomes of the subsistence and semi-subsistence farms on the basis of off-farm activities;
- create job opportunities in the rural area
- best use of the local potential
- reduce the rural area depopulation
- create services for the rural population
- best use of the renewable energy production potential
- develop the rural tourism
- promote the entrepreneurship.

All these objectives will remain only desiderata in rural Romania if they are not supported by the human capital through which and for which they should be put into practice.

Approach and methodology

The multifunctional character of the rural area implies the multiplication of roles that this territory has in the society. The new roles (ecologic, socio-cultural, etc.) are assumed as far as the rural society perceives their importance,

as well as the benefits generated by this new vision. The initial assumption was that the driving force of the change of vision is the human capital. The human capital characteristics, from the demographic aspect, to the educational and occupational characteristics and ending up with the psychological and perception characteristics with regard to the rural community future, can represent constraints or catalysts in assuming the multifunctional character of rural areas.

In the present study, from the many dimensions describing the characteristics of the human resources, only those are selected that exercise the greatest influence upon the assumption and internalization potential of the multifunctional character of the rural area:

- *The average age of the population in the sample* – represents an important predictor of the opening towards the occupational diversification of the rural communities, as a younger population has a higher openness degree towards innovation, a greater occupational mobility and a greater openness to the requalification.
- *The share of households with dependent children* – as indicator reflecting the demographic regeneration potential and through this, the continuity opportunity at community household level.
- *The population ageing index* – calculated as a ratio of the number of persons over 60 to those up to14 years old, reflects the demographic regeneration potential at the overall community level. The values larger than one of this index induce great risks of decreasing the number of the population in the commune, which is similar to a contraction of the demand on the local markets for goods and services, making the respective micro regions less attractive for investments.
- *The average number of schooling years* – reflects the population's training level in the investigated communes; a higher level of this reveals a greater opportunity for the respective community to attract new investments, as the available labour at community level benefits from a higher educational level, which results in a higher adaptability and the possibility to get professionally requalified and reoriented more easily.
- *The active population employment rate* – calculated at community level as a ratio of the employed population to the population of working age (15-64 years) reveals to what extent the active population gets involved into economic activities generating welfare at household level and consequently also at community level. A low employment rate clearly signals out the need to implement new investments that should create jobs at local level.
- *The occupational structure* – indicated by the share of the main economic activities (agriculture, agro-processing industry, industry – constructions and services) in total employed population in samples reveals the diversification of the local economic activities. This indicator (partially) indicates whether the rural communities are or are not following a multifunctional development path. In this way, a high share of labour employed in the primary sector of the economy can be associated to a weak internalization of the

multifunctional development principles. As the importance of employment in the secondary and tertiary sectors of the local rural economy is growing, assuming the multi-functional character of the rural areas is easier, because the communities are already following this path.

- *Labour renewal index* – calculated as ratio of the population aged 15-29 years to the population aged 33-44 years. As it compares the young labour force volume, at the very beginning of active life, to the volume of adult labour, this index highlights the trend in the evolution of labour available for the future. A ratio larger than one reveals the growth opportunity of the young labour force available on the local market, which favour the attraction of investments in alternative economic activities. By contrast, the more the ratio tends to zero, the higher the contraction risk of the available labour at community level.
- *The share of households with members who left the locality for a job* – reflects the occupational mobility of the rural household members. The occupational mobility is a good predictor for diversification of the economic activities and mainly for the multiplication of the income sources at household level. A high occupational mobility is the sign of a greater openness towards understanding and accepting new ideas and practices in the field of professional life. It also means the courage to face the challenges of a new business environment. The occupational mobility ensures the premises for enlarging the technical horizon and the methodological instruments with which they are operating in the rural economy by taking over new working and managerial methods and techniques from the destination place of the occupational migration.

As the development of the rural area's multifunctionality is put into practice through the support provided to off-farm economic activities (AXIS 3 - EAFRD), we consider that the diversity of the potential economically exploitable resources also becomes a stimulating factor in the rural economy diversification. This is the objective reason for which in this study we opted for capturing the present disparities between the communes located in the three important geographical areas (mountain, hill, plain). The goal of this geographical approach is to investigate:

- To what extent the human resources are able to multiply the multifunctional development of the rural areas that benefit from a great diversity of the natural resources (the hilly areas and the mountain areas in particular)

or

- Can the human capital, through its characteristics, determine the multifunctional development of the rural areas in the plain, even though these are the "depositors" of less diversified natural resources?

The data that lay at the basis of the analysis were collected during a questionnaire-based survey[26] applied at the level of representative samples of rural population in the three great geographical areas of Romania, i.e. mountains,

26 Field data collection was conducted in 2007 by the "Rural economy and sociology" department of the Institute of Agricultural Economics, Bucharest.

hills, plain; for each geographical area, rural communities were selected on a random basis. The field survey was conducted in 2007 and comprises 1097 valid interviews. Data collection was based on standardized questionnaires through direct interviews addressed to respondents.

Results and conclusions

The comparative analysis of the human capital characteristics in the territory reveals the existence of significant disparities between the communes of Romania, located in the three geographical areas (see table 1). Hence the premises of assuming the rural area's multifunctionality are also different.

Table 1. The human capital characteristics as premises of assuming the multifunctional character of the rural areas by geographic zones in Romania

Main characteristics of the human capital	Geographic area		
	Plain	Hill	Mountain
Average age (years)	41.25	39.73	38.91
% of households with dependent children under 15 years old	34.00	41.00	39.33
Population ageing index (%)	1.67	1.34	1.12
Average schooling years	8.24	9.08	9.12
Employment rate (%)	62.54	59.26	53.43
Occupational structure			
- primary sector (%)	34.89	16.14	13.32
- secondary sector (%)	30.22	41.00	42.37
- tertiary sector (%)	34.89	42.86	44.31
Labour renewal index	0.77	0.81	1.08
% of households with members who left the locality for work	15.60	23.50	18.00
% of househ. who intend to develop an off-farm business	5.8	5.6	7.0

Thus, the populations of the communes located in the plain zone are those that are the oldest, the less educated and with the lowest demographic regeneration opportunities. The communes from this geographic area are subject to the highest depopulation risk and there is a stringent intervention need in the attraction and set up of young people in the rural area. Although the active population employment rate has the highest value, the occupational structure in the plain zone is dominated by the primary sector, the tertiary sector being represented here by the people employed in the segment of public services (local administration, retail trade, education, health) rather than in productive services. The occupational mobility is limited, reflecting a more conservative attitude. The non-assuming risk tendency is obvious as only 5.8% of households declared that they intended to develop an off-farm business because they

could not identify the economic niches (business type) in which they could be successful. As a result, the transformation of the rural areas from the plain zone into a multifunctional rural area imposes concerted measures for changing the rural population's mentality and attitude in the first place.

In the communes located in the hilly and mountainous zone, the premises of assuming the multifunctionality of rural areas at population level seem to be slightly more favorable compared to the population from the rural localities from the plain. As they benefit from better trained human resources (the average number of schooling years correspond to graduating a vocational school that provide a solid basis of technical skills and knowledge), these communes are already on the path to multifunctional development, the importance of the primary sector in labour employment being much lower. For these areas it is necessary to stimulate and encourage private initiative development, as more than 40% of the active population has no occupation. The lack of job opportunities at local level, together with the increased occupational mobility, may induce the depopulation risk in these areas, as the labour force is likely to prefer to migrate – even on a definitive basis – looking for more favourable living and work conditions. This risk is higher in the case of localities from the hilly zone where about one quarter of the households members who left the locality for work have. As the intention to invest in an off-farm business appears only in 5.6% of the households located in the hilly areas, we can estimate that those involved in occupational migration would not find sufficient jobs at local level in the future, which can make them definitively migrate from these communes.

The most favourable premises for assuming the rural area's multifunctionality are found in the case of communes from the mountain zone. The multifunctionality for these communes is not a new concept; due to the diversity of the available natural local resources (pastures, forests, landscape, etc.) these communes have followed multifunctional development trajectories. Benefiting from a younger population and a renewable and better trained labour, these communes have real chances to fructify the benefits that "multifunctionality" is currently promoting. This is proved by the fact that 7% of households intend to develop an off-farm business in the near future.

References

Hadyńska A., Hadyński J., 2005, *Concepts and Definitions of Multifunctionality in Polish Agricultural Policy and Research,* Roczniki Akademii Rolniczej w Poznaniu – CCCLXVII (2005)

Hajdu Z., 2008, *Ce înseamnă pentru locuitorii zonelor rurale concepția de dezvoltare durabilă,* Focus eco Center

Popescu M., 2001, *Lectii ale tranzitiei. Agricultura 1990-2000,* Expert, Bucharest

Rodriguez M., Galdeano G.E., Cespedes J. L., 2004, *Rural multifunctionality in Europe: the concept and policies,* 90th meeting of the EAAE.