

Land Use, Nature Conservation  
and Biodiversity  
in Central Europe  
(the Czech, Hungarian and Polish cases)



Edited by  
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**Series editor:**  
**Mariann Kovács**

**Key words:**  
**knowledge, rural development, rural sociology, sustainability**  
**nature conservation, biodiversity, agri-environmental scheme, organic farming,**  
**non-agriculture, land use, land use policy, land administration,**  
**spatial development, spatial planning**

ISBN 963 7372 31 8  
ISSN 1788-1064



The CORASON Research Project  
(A cognitive approach to rural sustainable development  
– dynamics of expert and lay knowledges)  
was funded by the EU 6th Framework Programme  
[www.corason.hu](http://www.corason.hu)

Published by the Political Science Institute  
of the Hungarian Academy of Sciences  
1014 Budapest, Országház u. 30.  
Responsible for publishing: the Director of IPS HAS  
Cover design and layout: Mariann Kovács

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## Introduction

This collection of papers is the first volume of four anthologies which explore the studies of European Union CORASON research project on Czech, Hungarian and Polish countryside. The CORASON project (A cognitive approach to rural sustainable development - the dynamics of expert and lay knowledges) - studies of changes towards sustainable rural development as a means of illuminating the shape and dynamics of European knowledge society. As Technical Annex of the project says: "These range from the scientific, economic, administrative, and managerial to local, practical, and ecological knowledge, traditional repertoires, trial and error or experientially-based discoveries. We further define sustainable development as a knowledge-based set of practices, within which the expert form of knowledge has been dominant, but to which non-expert forms may make a significant contribution. We seek to identify the dynamics of these different forms of knowledge, and their functioning in relation to economy and society, through case studies in 12 different European countries of rural development projects oriented towards increasing sustainability." The CORASON aims to identify different knowledge forms used in rural projects relevant to rural economic development, rural civil society, and the protection of rural nature and associated with this examine the concept of 'sustainability' in the context of rural development, track the emergence of knowledge society across rural Europe and the impact of these on social inclusion/exclusion and inequality and develop an evaluation of the social, cultural and institutional sustainability of these different forms of knowledge

The 12 participating European countries are Ireland, United Kingdom, Norway, Sweden, Germany, Portugal, Spain, Italy, Greece and from Central Europe the Czech Republic, Hungary and Poland. ( The Czech University of Agriculture Suchdol, Prague, Institute for Political Science, Hungarian Academy of Sciences, Budapest and a research consortium of Jagellonian University, Krakow and University of Lodz). In the four volumes we publish working papers on land-use and biodiversity, civil society and demography, food and alternative economic activities, sustainability and innovation in Central European countryside. The editors' approach of giving substantial primary source of studying Central European rurality is maintained in the four anthologies.

This book offers an integrative view on land-use and biodiversity in the tree Central European countries drawing on a diverse spectrum of research and takes a comparative approach, considering the ways in which different countries manage land-use and biodiversity. The papers examine national data and more intensively two study areas in each country and provide basic information for comparative exploration of current issues in land-use and biodiversity.

The analyses of present problem of land use and management contains users and knowledge issues, the state of the art analysis with regard to knowledge base for land-use and management and changes of knowledge and practices under the guiding idea of sustainable development. The papers respond questions of evolution of land use management, different types of knowledge combine for rural sustainable development, actors involved in land-use and management in study regions, the characteristic and combinations of different types of knowledge and experience that illustrate land –use management. The reports are structured around three key themes as land use management, rural actors, knowledge forms and dynamics.

The Czech paper states that from the statistical point of view, the changes in land-use are very small despite of privatisation of land ownership. In the study areas where agriculture holds its production functions, as well where the agriculture declines the multifunctional land-use model emerges and authors observed changes in land use related to sustainable development of rural areas.

The outcomes of first case study from Litomerice present the local cultural diversity and agro-biodiversity with strong ecological connotations. The actors of land-use have presented many types of knowledge. The lay knowledge was accord with expert knowledge; the managerial knowledge provided a technical implementation. In the second case study area the Regional Authority is the key actor. The land-use project has a top down character and responds with the economic perspective of sustainable development. The authors issue the conflicting co-operation between civil society and public administration as well the fact that rural societies lack elites who would be leading actors of planning sustainable land-use projects.

The Hungarian paper explores a couple of changes in the land-use. After the fall of socialist system land use and land ownership radically transformed through land restitution and co-operative act from commonly used land into fully private ownership system. The authors focus structural transformation and shifts from industrial agricultural production to sustainable land-use system as well emerging complex discourses on sustainable rural economy.

As the Polish paper presents spatial policy and land management are based on expert and managerial knowledge what is mainly scientific knowledge that is used to create the local plans and strategies. Among the local residents and administration, a consciousness of the area's value is growing. Researchers remind readers that today the value of land and work has been altered in a fundamental way and they stress: that continuity and change of land-use and management lies on two dimensions: farmers' subjective convictions about peasant traditions and rationality. The Polish analysis reveals that majority group of farmers questioning traditional values of land-use. The changing attitude regarding land becomes commodity value and also an asset which can be used to exploit for profit.

The records of natural conservation and biodiversity created through case studies and related literature provided empirical basis for papers. The key to understandings nature, sustainable rural development and knowledge lies on analysis of current problems in nature protection, actors involvement, knowledge deficit, links between structural components of natural resources and rural development activities, the effects of sustainable development discourse on the changing knowledge base and management practices used in resource conservation. In the paper natural conservation is used in a broad sense to refer studies and experiences of maintaining or increasing natural capital. The input paper of this research task encouraged research team to seek evidences of the restoration, improvement, protection and maintenance of habitats, mainly in protected areas or reserves, the protection of endemic or endangered species and their genetic material, and the preservation of landscapes, which is a side-effect of conservation policy and habitat restoration in the context of sustainable rural development and varying forms of knowledge.

The Czech paper presents case studies from two controversial regions – one industrial and another more green region. Having identified the main types of nature conservation they examined typical differences. The first thing that can be said is that the nature protection has its strong rational character in the industrial region when rural communities use it as an instrument of local development. In the more green region where local economy is based on tourism, the approach to nature conservation is much more emotional and lies on local knowledge and identity.

The Hungarian analysis of forms of knowledge in nature protection reveals that natural parks play key role and these state institutions are central actors of land protection. The projects of natural parks protect nature and make a rebirth of traditional form of farming which together with sponsored nature protection and tourism can provide surviving strategies for local farmers and same time improve varying forms of sustainable development. From other side in

the top-down model the newly emerging forms of traditional farming and extensive animal keeping constantly lead conflicting situation with actors of managerial, scientific based knowledge and dominant power position.

As the Polish paper stress the examined cases show the strong impact of co-operation and interaction between various types of actors on the improvement of rural sustainable development. Complexity and comprehensiveness are both part of the idea of sustainable development and hinder standardization of agricultural practices and products. The interdependencies can also increase sustainability. The authors of Polish paper identify two key conditions for integrating different knowledge in a coherent policy formulation. The scientific knowledge needs legitimacy in local community that presents its rationale and all types of knowledge have to be involved in different phases of projects.

The conclusion for the future nature conservation policy is that political entities and actors of nature protection need not only focus technical-ecological component but they should also involve networks of interdependent local actors and scientific knowledge.

*The editors*

# Land Use Management in the Czech Republic

Jakub Husák<sup>1</sup>–Lukáš Zagata<sup>2</sup>

## 1. Introduction

There were selected 2 regions, with one LIA in each of them, for the purpose of the study of the issue of land use management. The map on the right shows localisation of the RRAs (light blue areas) and the LIAs (deep blue colour) in the Czech Republic.

(1) The first RRA – Ústecký region is located at the Northwest border of the Czech Republic. The number of people employed in the industrial and construction sector is above the average of the country, so it can be depicted as a rather industrial region. The industry is founded on the plentiful brown-coal fields and other natural resources (such as kaolin,



argil, stone). The deposits of coal resulted in a long-run opencast mining, which has been intensively carried out since the late 60s of the 20th century, and which has significantly shaped the landscape of the region. Due to structural changes in economy, the population has suffered from high unemployment rates since the beginning of the 90s. From this point of view, the region has belonged to one of the most troubled areas in the Czech Republic.

Despite the size of the region, there are visible significant differences among the localities of the region, which implies a division of the region into the parts that share similar features (settlement structure as well as their natural and economic conditions). According to what has been stated above, one can recognise three sub-regions. Those are (1) Coal-basin area, (2) Agricultural area, (3) Ore Mountains and (4), Decin area.

This study focuses on the agricultural (rural) area of the region (i.e. the Southern and West-Southern part of the region that includes two districts – Litomerice and Louny) that used to be typical of intensive agricultural production. The LIA involves one of those agricultural districts (namely Litomerice). Within the selected LIA, we are going to study an association of municipalities that actively contributes to the regional development process in the region (respectively in the rural areas of the region). The selected LIA is identical with the NUTS 4 (i.e. district Litomerice), albeit the activities often cross over the administrative borders of the

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district. Nonetheless, in order to describe changes in land use within the selected area, it was necessary to mark the boundaries of the LIA on the basis of the district borders, because statistical data are available only on the NUTS 4 level.

Basically, there are two reasons for choosing the Ustecky Region (and the particular LIA). The RRA is very different from other regions of the Czech Republic. On the other hand, the region provides good illustrations of the general changes that take place in primary sector and inevitably include significant changes of the land use in rural areas. Secondly, the development policy of this region is heavily laden with the concept of sustainable development and therefore it provides a rich material for the studies on (rural) sustainable development processes (how it is made), including a network of actors involved in this process, and their knowledge that is shaping the notion and practical outcomes of the sustainable development strategies in this region.

(2) The second RRA – Jihocesky region, as its name says in Czech, is located in Southern Bohemia. From the geographical point of view, it is a relatively integral whole; its centre is formed by the South Bohemian Valley. It is surrounded by the Sumava Mountains in the Southwest, the Brdy foothills in the Northwest, the Stredoceska zulovala vrchovina (the Central Bohemian Granite Highlands) in the North, the Ceskomoravska vrchovina (the Bohemian-Moravian Highlands) in the East, and the Novohradské hory (the Novohradské Mountains) in the Southeast. There are two basins stretching in the South Bohemian valley: the Ceskobudejovicka and the Trebonska (near the cities Budweis and Trebon). The major part of the region borderline is formed by the border with Austria and Germany (323 km in total). The region also adjoins the Plzensky, Stredocesky, Vysocina and Jihomoravsky regions. Its position along the border creates favourable conditions for the effective cross-border co-operation in the field of manufacturing, services as well as tourism where there can be utilised the overall attractiveness of the region that can offer a well preserved countryside and many sights belonging to the Czech national heritage. Considering the environment, the region suffers from a relatively low environmental damage. The area of the region has always had a recreational rather than a developed industrial character. The commitment to maintain the natural environment has been manifested in the establishment of the Sumava National Park.

The location of the region, its preserved environment and its attractiveness for tourism as well as significant changes in land use in rural areas are the main factors for the choice of this region for the WP3. These factors were significantly influenced by political changes in 1989 and the henceforth started deep changes in land use. These changes have continued till present and were encouraged by the Czech Republic accession to the European Union in 2004, especially by the development of the cross-border co-operation.

The district Cesky Krumlov was chosen as a LIA. It is a border district with a restricted access of the general public before 1989, where the change from a less exploited to a more exploited area can be followed. There can be seen different types of knowledge (scientific, political, local, lay, etc.), which focus on different goals in land use and which sometimes become controversial. Therefore, the Jihocesky Region is a suitable and interesting example of land use changes in the Czech Republic, especially due to its historical development.

## 2. Land use management in the RRA context

### 2.1. Description of the Ustecky Region

This region can be considered, with regard to its size and number of inhabitants (820,868 inhabitants in the year 2003), as a middle-size region with an above-average population density. The total area is 5 335 km<sup>2</sup> (9.6% of the total area of the Czech Republic).

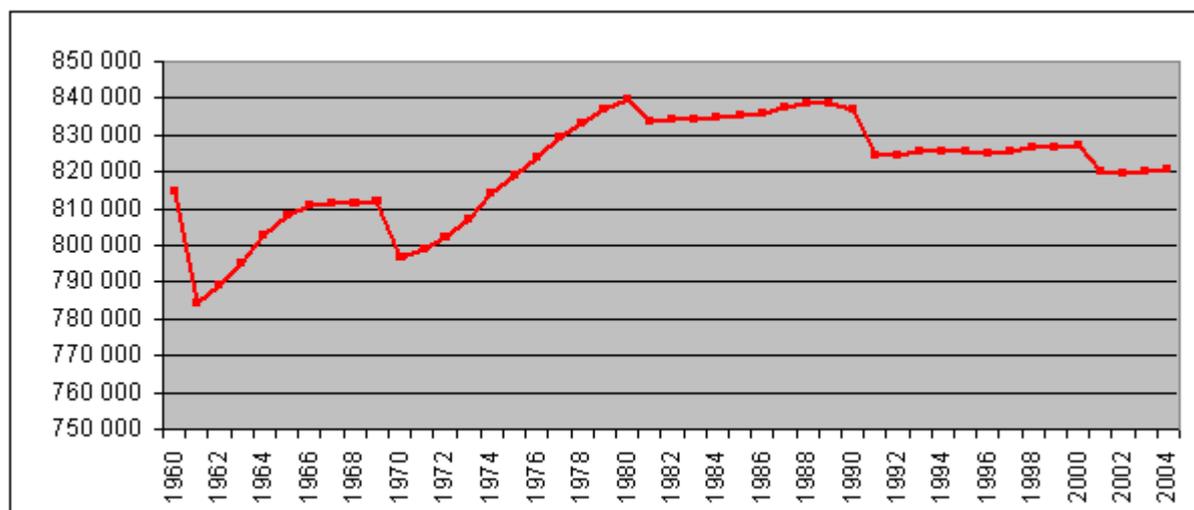
**Figure 1: Surface and population density in the Ustecky Region**

	1980	1991	2001
Surface (km <sup>2</sup> )	5 335	5 335	5 335
Population	832 525	824 421	820 241
Population density	156.0	154.5	153.7

Source: Czech Statistical Office

The number of inhabitants was rapidly growing during the urbanisation era (until the beginning of 20th century). The population included many Germans, who were forced to leave the country shortly after WWII. The pro-population policy of the Communist government led again to the population growth, especially in the coal-basin districts of the region. Both of these influences were reflected in the number of inhabitants in those times. During the last two decades, there were only slight changes in the number of inhabitants in this region. As one can see in the figure 2, the number of inhabitants has stayed at about the even level since the beginning of the 90s of the 20th century.

**Figure 2: Number of inhabitants development in the Ustecky region (1960-2004)**



At present, there are more than 820 thousand inhabitants (it is about 8 % of the total Czech population) located in 354 municipalities. Population density is about 153 inhabitants per km<sup>2</sup>. The most populated areas are the coal-basin localities and the area of the foothills of the Ore Mountains (there are concentrated more than 60% of the population of the region). The districts surrounding the coal-basin areas belong to the most urbanised localities in the Czech Republic (about 90% of people live in urban settlements; Czech average is 75%). On the

contrary, the agricultural districts keep their rural character – more than 35 % of inhabitants live in rural settlements.

Most of the economically active people in the region (about 55 %) are employed in the tertiary sector. Industrial sector provides work for more than 42% of the economically active people. About 3 % of inhabitants are employed in agriculture. The number of people in agriculture has decreased since the past decade, but the change is insignificant (1993 = 5.8%). The number of people in the secondary sector has been also decreasing since the 90s (1993 = 48.2%) in favour of the tertiary sector (1993 = 45.9%). In order to exactly depict the characteristics of the region, one has to keep in mind that the particular districts of the region vary greatly. In case of the agricultural districts (Litomerice and Louny), there are about 10% of the economically active people employed in agriculture.

Due to the unfavourable structure of economic activities, the region suffered from high unemployment rates after the year 1989. It was not only the districts around the coal-basin areas, which were affected by the changes in economy (in particular in mining industry), but also one of the agricultural districts (Louny), which for instance experienced the unemployment rate 17.1% in the year 2000. The primary sector inevitably contributes to this troublesome state in the Louny district (as well as in the Decin district) that suffers from high specific-unemployment rate. It is mainly due to the fact that the number of job work opportunities in agriculture has significantly decreased after the year 1989.

Economic activity of the inhabitants is clearly reflected in the land use in the region, as it is shown in the following figure 3 and figure 22 (in appendix), which provide a general view on the land use in the region.

**Figure 3 Distribution of land use in the Ustecky Region**

	1980	1991	2001
Total (ha)	533 476	533 526	533 425
Agriculture (ha)	291 205	279 575	278 356
Agriculture (%)	54.42%	52.40%	52.18%
Built up area (ha)	8 814	8 967	9 484
Built up area (%)	1.65%	1.68%	1.78%
Woodland (ha)	157 110	157 179	158 790
Woodland (%)	29.45%	29.46%	29.77%
Water surfaces (ha)	9 742	9 959	9 874
Water surfaces (%)	1.83%	1.87%	1.85%
Other areas (ha)	66 605	77 846	76 921
Other areas (%)	12.49%	14.59%	14.42%

Source: Czech Statistical Office

One can see that agriculture is obviously of a little importance in the districts of the coal basin (Usti nad Labem, Teplice, Most, Chomutov), albeit Southern parts of those districts do not lack valuable agricultural land. The Southern and East-Southern parts of the region (i.e. the agricultural districts Louny and Litomerice) offer favourable conditions for intensive farming including production of special crops, such as fruits, hops and wine.

At present, agricultural land covers about 278 thousands hectares, which is more than 52% of the total area of the region. 67% of agricultural land is arable land. Both of these figures are under the average of the Czech Republic, which is 54%, respectively 72% (in 2003).

One can observe a gradual decline (0.2% per year) of the area of agricultural land. During the period 1980 – 2004, the area of agricultural land decreased by about 13.5 thousands hectares. The percentage of arable land lowered under 70% in mid 90'. At the same time, there has

occurred an increase in the share of the permanent grasslands, which nowadays represent one quarter (25.1%) of the total agricultural land .

With regard to the region structure, it is important to note that the agricultural districts are typical of the higher percentage of arable land (it is about 82%) and the Decin sub-region is typical of a larger share of permanent grasslands (60%), which implies a rather extensive form of agricultural production.

One of the problems in the field of land use is the fact that a part of the agricultural land is not farmed. Most land that lies fallow is located in the Decin district (it was 32% in 1996).

Non-agricultural land represents 48% of the total area of the region. The largest share of it is represented by woodlands, almost two thirds of the total is non-agricultural land, mainly due to the area of the Ore Mountains on the border with Germany. The area of non-agricultural land is slowly increasing. During the last 24 years, this area increased by about 6% (1980=100%) up to 255 thousands hectares. For further information on the use of non-agricultural land in the region, see the Appendix.

## 2.2. Description of the Jihocesky Region

The Jihocesky Region has the lowest density of population in the Czech Republic. Figure 4 shows basic data describing the population and surface of the region.

**Figure 4 Surface and population density in the Jihocesky Region**

	1980	1991	2001
Surface (km2)	10,055	10,055	10,056
Population	613 171	622 889	625 267
Population density	61.0	61.9	62.2
% of urban population	58.4	61.5	64.3

Source: Czech Statistical Office

The number of people in the Jihocesky region is increasing and between the years 1980 and 2001 rose by approximately 2% (from 613 171 to 625 267 inhabitants). During this period, there also increased the percentage of urban population, but the character of the Jihocesky Region still remains rural.

The prevailing sector in the regional economy (according to the relative numbers of economically active people in the population) are services with 47% of the active population in 2001. The percentage of population in services increased during the period 1980 – 2001 by about 12%. The other sectors (except of construction) have experienced a decline. Particularly the percentage of active population in agriculture decreased from 20,5 % in 1980 to less than 8% in 2001. Despite these changes, agriculture still plays an important role in the regional economy and significantly influences land use in the region. At the same time, there is increasing the importance of the sector of tourism.

Conditions of the Jihočeský Region are highly suitable for the development of tourism because the countryside of the Region - with its large forest coverage, water surface areas and a great number of national monuments (nearly 6,000) - is a place of leisure and recreation activities for people from other parts of the Czech Republic as well as from abroad.

The Jihočeský Region is rich in neither raw nor energy-producing materials. However, there are important natural resources of different kind in the region – the vast forests of the Sumava and Novohradske hory, mainly coniferous consisting of spruce and pine trees. The biggest raw material resources include deposits of sands and gravel sands, brick clay, aggregates and

glass sands. Other important resources include peat, and in some areas limestone and graphite. But the exploitation of raw materials and other resources is rather insignificant.

The distribution of land use in the Jihočeský Region is relatively stable. A slight decrease can be seen in case of agricultural land, but only by about 1.22% of the total area of the Jihočeský Region. The area of woodland increased by approximately 2%, what corresponds with the changes in the structure of economy. These changes in land uses encourage the transformation of regional economy and at the same time they are being encouraged by this transformation.

The detailed overview on the distribution of the land use in the Jihočeský Region is shown in the following figure 5. Part of the information is missing due to the changes in the statistical evidence, but we can assume that the distribution of land use in 1980 was probably similar to other years.

**Figure 5 Distribution of land uses in the Jihocesky Region**

	1980	1991	2001
Total (ha)	1 005 507	1 005 542	1 005 650
Agriculture (ha)	508 421	496 119	496 163
Agriculture (%)	50.56%	49.34%	49.34%
Built up area (ha)		10 103	10 502
Built up area (%)		1.00%	1.04%
Woodland (ha)	356 352	373 001	374 007
Woodland (%)	35.44%	37.10%	37.19%
Water surfaces (ha)		43 249	43 375
Water surfaces (%)		4.30%	4.32%
Other areas (ha)		83 070	81 603
Other areas (%)		8.26%	8.11%

Source: Czech Statistical Office

### **2.3. The relevant institutional framework for land use management**

The institutional framework for land use management is formed on three levels – national, regional and local level. The basis of land use management is at the local level but decisions of the local institutions stem from strategic documents and development plans of the regional and national institutions. The most important subject of the territorial planning at the national level is the Ministry for Regional Development. This ministry prepares the basic strategic documents for regional development. As an institution of territorial planning, it procures land use planning data for the whole area of the Czech Republic and represents the superior administrative authority at the field of spatial planning for the capital of Prague and other regions (NUTS 3). Another subject at the national level involved in territorial planning is the Ministry of Defence, which procures land use planning data for the military areas.

The subject involved in spatial planning at the regional level is the Regional Authority. The Regional Authority prepares the regional development plan for its administrative area. This plan provides outlines for regional development. In the field of spatial planning, the authority prepares land use planning data necessary for its work, procures the Territorial Plan of the Higher Territorial Units (its district/s) and represents a superior administrative authority for municipalities in the field of territorial planning on the municipality level.

The main subject of the spatial planning at the local level is municipality. Municipality procures land use planning data, the Zoning Plan and the Regulation Plan for its administrative area. Here, also other subjects and institutions on the municipality level of territorial planning are involved – land use planners, general public, entrepreneurs, owners of properties and other special state organisations.

Land use planner is a person who creates the land use plan according to the conditions settled by the municipality. General public, entrepreneurs and owners of properties represent their interests and try to influence the land use plan and the local zoning plan. These interests are often different and inevitably lead to a controversy. Last but not least, there are also special state organisations involved in land use management. These organisations represent special interests of the government administration. The special interest can be for example: environment protection, protection of agricultural land fund, defence and national security, protection of the deposits of raw materials, care of the health of people etc. For each of these interests, there is a special state organisation that deals with the specific problems and influences the process of land use planning (for example: the Ministry of Environment, the Ministry of Agriculture, the Ministry of Defence, the Czech Coal Board, the Ministry of Health, the Regional Environmental Health Office, etc.).

The described institutional framework clearly shows a close link between the territorial and regional planning and the territorial and regional development policies. The graphic scheme of the whole institutional framework and the relation between the particular levels of planning are shown in the figure 20 in the Appendix.

#### **2.4. Policy framework for land use management**

The crucial law for realising of the territorial strategies has been the Building Code (Stavební zákon in Czech).

First version of this law appeared shortly after the WWII. The former Czechoslovakia followed in this way other European countries. The application of this law was, however, strongly influenced by the rising totalitarian regime. The regional planning was not directly linked to economic planning, but it in reality depended on political decisions, that paid little or no attention to practical impacts on localities. Settlement policy was the matter of military-strategic goals of those times. As a result, there were mostly supported the regions and towns that were related to mining of natural resources and those regions, where there was located heavy industry. This legislation remained until the year 1976.

The Territorial Planning Act and the Building Code No.50 was passed in 1976 and it is valid (with many changes and amendments) until today. The spatial planning was during the period 1976 – 1989 formally framed with the societal development. In fact, the process of spatial planning was again subordinated to the national economy planning. Besides that, the public had very remote chances of getting involved in the process, despite the fact that this right was formally stated in the law.

The year 1989 has brought about many changes to territorial strategies in the Czech Republic. In 1990, there was established local governance of municipalities, which have become independent subjects with the delegated legislation power. The Building Code was thoroughly amended during the 90s. Town and country planning has become an important instrument for enforcing public interest. The new legislature also enabled the public to participate in the process of town and country planning and newly put the stress on environment protection and property rights. Another amendment of the law (in 1998) allowed municipalities to draw up documents for spatial planning. Yet another amendment took into account establishing of the Regional Authorities in the Czech system of public administration (in 2001).

Since the 90s, the preparation of territorial plans has become a matter of private architectonic offices. Land planners must be approved by the Czech Chamber of Architects, which provides expert guarantees for its members' work.

As we have stated above, in 2001, there have been newly established the regions and set up the regional bodies of public administration. This process of regionalisation implies the delegation of power from the central to local level, including the responsibility for spatial

planning. The Regional Authorities in particular exert planning for the Large Territorial Units (VÚC = Velky uzemni celek).

The current Territorial Planning and Building Code requires the spatial planning to deal with land use, to set up rules for spatial organisation and to co-ordinate building and other activities influencing territorial development. The law sets the basic instruments for spatial planning, which are: (1) Territorial Planning Working Papers (ÚPP = Uzemne planovaci podklady in Czech), (2) Territorial Planning Documentation (ÚPD = Uzemne planovaci dokumentace) and (3) Territorial Decisions (Uzemni rozhodnuti).

The purpose of the Territorial Planning Working Papers is to gather data and to evaluate particular proposals. Contrary to it, the Territorial Planning Documentation implies imposing the regulations that are obligatory for everyone (whom it concerns), for instance the regulation on and use despite the fact that it is a private land. The procedures of preparation and approving of the Territorial Planning Documentation is more detailed (than the Working Papers), because the public administration bodies define, on the basis of the planning documentation and of their decisions, the individuals' rights to deal with their property. The Territorial Planning Documentation includes a few types of documents that differ in their time horizons (prognosis, plan, project) and spatial scales (regional, urban, zone). The documents include (i) the Territorial Plan of the Large Territorial Unit (usually for more than one municipality; nowadays it often includes one or two districts), (ii) the Zoning Plan (for the whole area of the municipality) and (iii) the Regulation Plan (for a part of the area of the municipality).

The Territorial Decision represents an executive decision of a public administration body, such as the decision on the localisation of a new construction, decision on land use, decision on a protected area, decision on a construction closure in a certain area and so on.

### **3. Land use changes and processes: the LIA context**

#### **3.1. The description and land use changes in the Litomerice district**

The Litomerice district is located in the Southeast part of the Ustecky region along the confluence of the rivers Elbe and Ohre. The total area of 1 032 km<sup>2</sup> makes this district the second largest in the region. The landscape of the district is shaped on one side with the lowlands around the confluence and on the other side with the area of the Bohemian Central Mountains (Ceske stredohori). The average altitude of the district is 250 meters.

The district lost some of its inhabitants shortly after the WWII (there were almost 150 thousand inhabitants in the 30s). The population has remained stable since the 60s and the total number of inhabitants has been changing in the range from 110 to 120 thousand. Slight changes in the number of inhabitants have resulted only in minor changes of the population density (see Figure 6).

**Figure 6: Surface and population density in the Litomerice district**

	1980	1991	2001
Surface (km <sup>2</sup> )	1 032.21	1 032.14	1 032.10
Population (persons)	119 621	113 883	114 259
Population density (persons/km <sup>2</sup> )	115.9	110.3	110.7

Source: Czech Statistical Office

Considering land use within the district, one can see that agricultural land covers almost three quarters of the total area. 82% of agricultural land is formed by arable land. About a half of the non-agricultural land is represented by woodland.

The Litomerice district has got the largest share of self-employed farmers. The agriculture is typical by the specialised production of fruits and vegetables. Due to this specialisation, there are irrigated more than 10.000 ha in the district. The district is also known for the production of hops and wine.

**Figure 7 The distribution of land use in the Litomerice district**

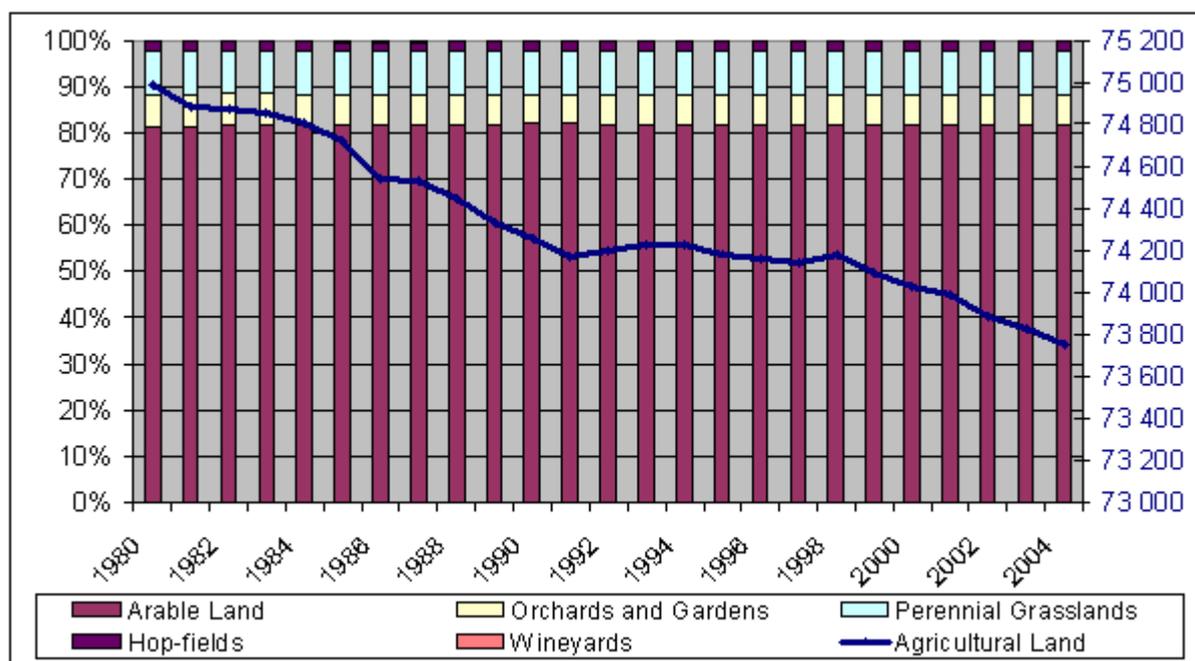
	1980	1991	2001
Total (ha)	103 221	103 214	103 210
Agriculture (ha)	74 991	74 173	73 985
Agriculture (%)	72.65%	71.86%	71.68%
Built up area (ha)	1 829	1 863	1 998
Built up area (%)	1.77%	1.80%	1.93%
Woodland (ha)	16 573	16 808	16 836
Woodland (%)	16.06%	16.28%	16.31%
Water surfaces (ha)	1 753	1 802	1 826
Water surfaces (%)	1.70%	1.75%	1.77%
Other areas (ha)	8 075	8 560	8 565
Other areas (%)	7.82%	8.29%	8.30%

Source: Czech Statistical Office

The total area of agricultural land has been slowly decreasing through the last 25 years (see the below figure 8). During the years 1980-2004, the total area decreased by 1 239 ha (i.e. 1.65 %). However, the structure of agricultural land use has remained almost unchanged: 82% arable land; 6% orchards and gardens; 9.5% perennial grassland; 2% hop-fields; 0.5% vineyards. The other agricultural district (Louny) in the region has not managed to preserve the structure of the agricultural land use and lost about 2% of arable land in favour of perennial grassland. One can assume that the reason why there remains the intensive way of farming in the Litomerice district is the quality of soil and specialisation of agricultural production.

The inhibition of agricultural production is more visible in the case of the livestock production rather than plant production. As one can see from the figure 10, the number of cattle decreased by more than 60%. The similar case is the production of pork. The total number of pigs has remained about the same throughout the 80s (the average was 72 thousand animals), but since the year 1990, one can see a significant decrease in the number of pigs (about 30% since the year 1990). According to the statistics, poultry husbandry was the only sector of the livestock production that has been increasing in the district. Sheep husbandry has almost disappeared from the district. As a result, the number of sheep is ten times lower at present than in the year 1980 (1980 = 8 796 heads of sheep, 2001 = 960 heads of sheep).

**Figure 8** The total area of agricultural land (ha) and its use (%) in the Litomerice district during the years 1980-2004



**Figure 9** The distribution and variation of crops in the Litomerice district (ha)

	1980	1992	2001
Cereals		26 750	33 104
Potatoes		1 675	2 304
Hay		1 850	2 321
Rape seed			4 169

Source: Czech Statistical Office

**Figure 10** The distribution and variations of livestock unit in the Litomerice district (heads of livestock)

	1980	1990	2001
Cattle	46 236	47 930	16 882
Pigs	74 942	74 321	54 066
Poultry	408 621	584 286	584 561
Sheep	8 796	10 525	960

Source: Czech Statistical Office

Considering tourism, the area of the Litomerice district includes the Bohemian Central Mountains, which have been identified as one of the main tourist locations within the region (the other ones are the Ore Mountains and the National Park Czech Switzerland near Decin). The district has got an above average concentration of cultural and historic sights.

The tourist infrastructure is below average of the Czech Republic, however. The Litomerice district provides only 3.2 beds per km<sup>2</sup>, which is one of the lowest numbers within the region. It is quite difficult to capture the activities related to tourism on the statistical basis. The statistics that was available before the year 1990 did not pay attention to this category. Since the year 1990, the Czech Statistical Office (respectively its Regional Office) provides data on the number of accommodation facilities, the number of visitors and the number of foreign

tourists. The methodology of collecting the data often differs in certain ways; therefore the work with the data is very limited.

**Figure 11 Accommodation infrastructures in the Litomerice district**

	1990	1996	1997	1998	1999	2000	2001
Accommodation facilities	36	56	57	86	90	77	73

Source: Czech Statistical Office

**Figure 12 Number of visitors in the Litomerice district**

	1990	1996	1997	1998	1999	2000	2001
Number of guests (persons)	61 518	48 104	57 066	62 903	63 873	60 920	55 875

Source: Czech Statistical Office

### 3.2. Explicative factors of the land use changes in the Litomerice district

#### 3.2.1. Contextual factors

The Southern part of the district, along the Elbe river and particularly in the area of the confluence of the Elbe and Ohre river is typical of intensive agricultural production. Despite the fact, that the district itself was qualified as a favourable area for agricultural production with the highest productivity, this is not valid for the entire area of the district. There are located the Bohemian Central Mountains that significantly change the conditions for farming and land use in general. The Bohemian Central Mountains are of a volcanic origin and therefore the landscape of the mountains is formed by many volcanic cones, stacks and short backs. Natural conditions and the landscape do not always correspond with the administrative borders of the district.

The Northern part of the district (the main area of the Bohemian Central Mountains) includes lands, which are qualified as the less favourable areas for agricultural production. The case study takes places in the locality that is located in the middle of those two extremes (the highly productive agricultural area and the LFA). This is the area, where the landscape is becoming rather undulated and farming is therefore more difficult. Besides that, a part of this area belongs to a Protected Landscape Area with a special regime for agricultural production. Our further specification will be focused on this area.

Considering the climate conditions, the locality belongs to a rather warm area, with a dry mild winter. The average temperature is about 8° C (on the top of the highest mountain – the Milesovka, the average is 5,1° C). The rainfalls are below average, because the locality (the foot of the massif) is shaded by the mountains. The local flora and fauna is adjusted to those conditions, consequently there are prevailing dry and heat-loving species.

In the past, people used to perfectly respect those conditions, which were reflected in land use. Humans used to apply specific technologies of farming with regard to the type of field (its accessibility, slope, erosion threats, humidity conditions and the quality of soil). Land use in this area had much more conveyed with the nature. The farming was mostly based on the production of fruits, in particular on the famous local varieties of fruits (such as pears). Extensive orchards were usually combined with pastures for sheep and cattle (in the areas with milder conditions). The collectivisation of agriculture (starting in the 50s of the 20th century) brought about intensification of farming on a large-scale basis. Many of the extensive orchards were cut down and replaced with large intensive orchards or fenced-fields. This practice implied the application of high doses of chemicals. The fields, implying the elimination of grass cover, were threatened with water erosion.

Flat areas of the Southern part of the district were traditionally used for the production of grain or root crops (and later on also corn). In the times before the collectivisation, this area was typical of the small-scale division of fields and larger variety of crops.

The current state of the landscape and the land use is obviously burdened with the practice of the past 40 years. Fifteen years of transformation brought an inhibition of intensive agriculture in this area (except the high-productive Southern part of the district). The decline was also linked with economic changes that resulted in many negative effects in the agrarian sector (such as the problems connected with economic transformation, rising income disparity, under-capitalisation of many businesses and the increasing rate of specific unemployment).

The time before the collectivisation, which was typical regarding land use and farming technologies that were more in accord with the natural conditions of this area, was based on the lay knowledge. This type of knowledge simply stemmed from the historical experience of the local population. The post-collectivisation era (from the 60s to 1989) broke up this tradition. From a certain point of view, one can see that the beginning of the 90s led to the effort to pick up the old tradition. The “revival” has been supported by (1) negative economic situation of many agrarian businesses and therefore by a digress from intensive farming, and (2) regional development policy representing the managerial knowledge. However, the return has been hindered by an inevitable dependency on the previous path.

### **3.2.2. Policy implementation**

Land use changes within the selected LIA stems from the territorial strategy of the Czech Republic. This strategy is reflected in the Territorial Development Policy that is currently being prepared. The Territorial Development Policy is directly linked with the Regional Development Policy.

In the field of the land use, the Litomerice district is subject to the Territorial Plan of Large Territorial Unit (UP VUC) of this particular area. The Plan has been approved by the national government and includes guidelines for the specific aspects of the territorial development, such as environment, infrastructure, agriculture etc. At the same time, it is necessary to make the spatial planning on the lower level (i.e. the Territorial Plans of the particular municipalities) in accord with the UP VUC. The plan for the district also includes guidelines for each field (demography, environment, industry, agriculture, transport, etc.) for the next 10 years. The UP VUC for the Litomerice district recognises agriculture as one of the most important elements of the social and economic development of the district. Agriculture is required to emphasise its landscape function, in particular within the area of the Bohemian Central Mountains. The plan also claims that agriculture ought to respect the conditions that are related to the protection of the other functions of land. Those limits stem from environmental protection and water use. The Plan suggests that the complex changes in land use on the lower level (i.e. on the municipality level) should reflect this orientation.

Besides the territorial strategy, land use is significantly shaped by the regional development policy. The LIA is a matter of the Development Programme of the Ustecky Region, which is prepared by the Regional Authority. The goal of the Program is to stimulate local organisations and institutions to prepare projects that convey with the region interest, defined and articulated by the aims of the Program. The presented priority implies measurements (the Landscape Maintenance and Non-agricultural Use of Land, and the Revitalisation of the Mountains Areas) that are directly linked with land use. It suggests revitalisation of woodlands, turning agricultural land into perennial grassland and woodland. Those kinds of activities are supposed to decrease the high-percentage of the arable land and to support the development of the non-production use of agricultural land (such as agri-tourism).

There are also implemented regional policies of the particular sectors and a different level of origins in the LIA. Land use in rural areas is formed by the Program of Countryside Revitalisation for the Ustecky region (that is of the regional origin) and the Operational Program of Rural Development and Multifunctional Agriculture (that is of the national origin). The aims of the Operation Program overlap with the Development Program of the Ustecky Region in the field of agriculture.

The Development Program was evaluated by the Institute for Ecopolitics (a non-governmental organisation) with regard to sustainable development. The paper concluded that the Program represented a strategic document that can be used as a base for drawing upon the European funds. On the other hand, the Program does not quite match together all pillars (social, economic and environmental) of sustainable development. What more, in some field it does not fully respect the principles of sustainable development.

### **3.2.3. Governance**

The Building Code sets up rules for the public participation on the processes of territorial planning on the municipality level. According to our general experience, the individual actors rarely take part in the process.

An interesting situation has occurred in the studied LIA. There was established a (non-governmental) organisation, the goal of which is to facilitate participation of municipalities in the programmes and projects involving rural development. For this purpose, there was established the so-called service organisation, named Serviso. Its goal is to mobilise resources for the purpose of the realisation of the social and economic local development. The organisation hires highly professional persons. As a result, their activities are based on the top-managerial knowledge (used for the preparation and technical implementation of projects) and expert knowledge (that comes from scholars preparing the expert parts of the project).

Due to a fairly flexible organisation of activities, members of the Serviso can also use their individual social capital in order to call in experts from universities and research institutes.

In order to describe the governance of the land use management, it is necessary also to mention different associations. Social life of rural inhabitants, in particular before the year 1989, was often framed by the activities of those associations, which gathered people according to their interests (such as gardening, bee-keeping, hunting, etc.). Social researches nowadays pay a high attention to the question about the role of those associations in the current rural areas.

The society located in the LIA includes an association of huntsmen, which seems to play an important role in the public life of the local society. However, it has been fairly difficult to track down the position of the association members and to locate them in the social network of actors, who are involved in the particular case of rural development.

### **3.3. Description and land use changes in Cesky Krumlov district**

The district Cesky Krumlov is a typical border region, which is situated at the Southern part of the Czech Republic. Its South – West, South and South – East borderlines are formed by the borders with Austria. At the north and North – East it adjoins the district Ceske Budejovice and at the North – West the district Prachatice. The figure 13 shows basic data describing the population and surface of the district Cesky Krumlov.

The surface of the district is 1 615 km<sup>2</sup> and it is the third largest district of the Jihocesky Region. The population development of this district is quite progressive and during the period 1980 – 2001 it increased from 55 919 to 59 632 inhabitants. Population density increased from 34,6 to 36,9 inhabitants per square kilometre, but the district has still remained the district with the lowest population density in the region, as well as in the Czech Republic.

**Figure 13: Surface and population density in the Cesky Krumlov district**

	1980	1991	2001
Surface (km <sup>2</sup> )	1 615	1 615	1 615
Population density	34.6	35.6	36.9

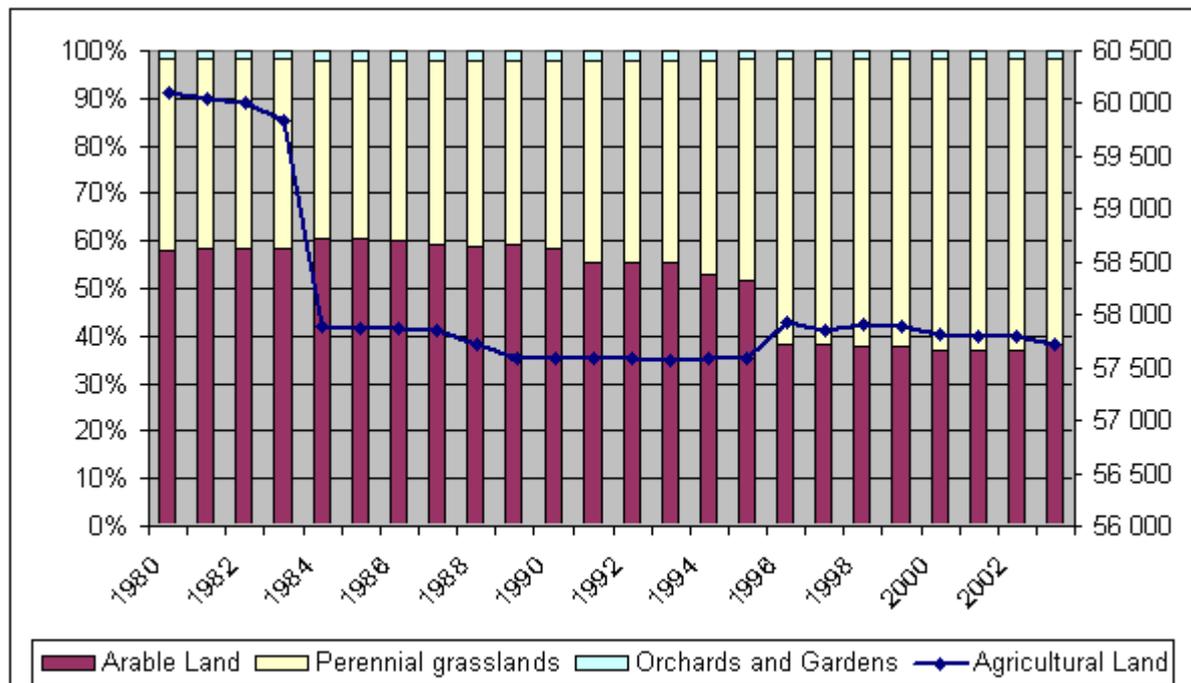
Source: Czech Statistical Office

**Figure 14: Distribution of land uses in the Cesky Krumlov district**

	1980	1991	2001
Agricultural land (ha)	60 111	57 592	57 802
Agricultural land (%)	37.09	35.67	35.79
Built up area (ha)	681	748	804
Built up area (%)	0.42	0.46	0.50
Woodland and semi-natural areas (ha)	76 164	76 099	76 248
Woodland and semi-natural areas (%)	47.18	47.12	47.18
Water surfaces (ha)	6 969	6 957	6 972
Water surfaces (%)	4.33	4.33	4.33
Other areas (ha)	17 580	20 098	19 671
Other areas (%)	10.89	12.44	12.18

Source: Czech Statistical Office

**Figure 15: The total area of agricultural land (ha) and its use (%) in the Cesky Krumlov district during the years 1980-2004**



**Figure 16: Distribution and variation of crops in the Cesky Krumlov district (ha)**

	1980	1991	2001
Cereals	18 144	18 032	8 237
Potatoes	818	893	85
Rape	-	601	2 371
Arable forage crops	14 634	14 425	10 209

Source: Czech Statistical Office

**Figure 17: Distribution and variations of livestock units in the Cesky Krumlov district (heads of livestock)**

	1980	1992	2001
Cattle	39 256	38 484	22 062
Pigs	30 880	29 375	22 225
Sheep	2 621	3 305	1 509
Poultry	523 788	284 143	173 451

Source: Czech Statistical Office

The area with farm crops has decreased during the period 1980 – 2001 from 35.2 to 21.2 km<sup>2</sup>. The most important crops in the 1980 were cereals but in 2001 it were forage crops o arable land – this is the main change of land use of agricultural areas. The decreasing number of livestock units corresponds to the decreasing importance of agriculture, regarding its production functions.

Agriculture in the district was replaced after the year 1989 by the tourism industry – as it is shown by the following figures.

**Figure 18: Accommodation infrastructure in the Cesky Krumlov district**

	1980	1985	1996	2001
Accommodation facilities	36	56	57	86
Hotels (of total)	13	13	32	-

Source: Czech Statistical Office

**Figure 19: Number of visitors in the Cesky Krumlov district**

	1980	1985	1996	2001
Number of guests (persons)	67 840	55 476	190 205	199 413

Source: Czech Statistical Office

The number of accommodation facilities increased from 36 in the year 1980 to 704 in the year 2001. It corresponds to the increasing number of guests (visitors and tourists), which increased from 67 840 to 199 413 during the period 1980 – 2001. The number of guests increased nearly three times but the number of visiting foreigners increased nearly six times from 11 780 to 63 673 in the year 2001. This increase proves the high potential of tourism industry in the district (due to its nature and undisturbed environment and the percentage of forests, which are suitable for recreational activities). For statistics on the development of the first and second homes, see the Appendix.

### **3.4. Explicative factors in the land use changes in the Cesky Krumlov district**

#### **3.4.1. Contextual factors**

Considering the physical and geographical conditions, the district Cesky Krumlov is very multifarious. It can be seen by the focus on climate, the biodiversity of fauna and flora and the

geological structure of this district. Nearly 50 % area of the district is a part of the National park Sumava or the other protected landscape areas. This is one of the main factors influencing land use. The district Cesky Krumlov is typical by the significant vertical diversity of the area. The highest part of this district is the Smrcina (1 332 m) and the lowest part is the Vrabce (420 m) as a part where the river Vltava leaves the area of the district. So the difference of altitudes is more than 900 m while the average altitude is 690 m. Due to these facts, the significant part of district has been qualified as a less-favoured area for agriculture.

The geological structure of the district Cesky Krumlov is the most multifarious within the region. The main part of the geological strata of the border part of this district is formed by the gneiss, different types of granite, the mica schist, limestone and serpentine. Some of these minerals are at present mined (especially limestone) but the mining industry is not the main kind of industry developed in the district Cesky Krumlov.

Another factor that influences land use is hydrology. The most important river of the district is the river Vltava. At the river Vltava, there was built between the years 1952 and 1956 the water reservoir Lipno. The stretch of the water reservoir Lipno is nearly 50 km<sup>2</sup>. The Lipno is used as a factor of the development of tourism industry and partly for the production of electricity. The construction of the water reservoir Lipno influenced the countryside by flooding of some villages and at present it influences the development potential of the whole district Cesky Krumlov. Another important river, especially for the Eastern part of the district, is the river Malse. The district Cesky Krumlov has an undisturbed environment and the main part of the district belongs to the National park Sumava or to the Protected Landscape Area Blansky Les and to other nature reservations (for example: the National Nature Reservation Vysenské kopce, Divci Kamen, Jaroninska Bucina, Velká Niva etc.). The largest pond of the district Cesky Krumlov is the pond Olsina with 133 hectares. However, the district is otherwise quite poor with regard to ponds or lakes.

One of the main important factors of land use is climate. The district Cesky Krumlov belongs into two different climate areas. One of these areas is a cold area and the second one is a mildly warm area. The average year temperature is 7.5°C in the warmest part of the district. The warmest month is usually July with the average temperature 17°C, the coldest month is January with the average temperature -2.5°C (and -4°C at the highest parts of the district Cesky Krumlov). The number of frosty days (when the temperature decreases to less than 0°C) is approximately 120 and at the area of Lipno even 150. Due to the significant vertical diversity of the district, the level of precipitation is quite non-uniform. At the highlands, it is nearly 1,000 mm per year and in the other parts of the district, it is about 600 mm per year. This type of climate determines land use and creates the conditions for the development of different kinds of the tourism industry and specific types of agriculture, because the land use changes lead up to the development consistent with the weather and the other physical and geographical conditions.

The development of infrastructure is another aspect of land use and land use changes because the system of communications and infrastructure influences the development of economy of the locality. Through the district, there traverses the international road E 55 which crosses the Czech Republic from the North Bohemia to the Dolni Dvoriste where there is situated the border crossing with Austria (Wulowitz). The total length of the road network is nearly 700 km. Important for the development of locality are two railways tracks: the first one from Ceske Budejovice to Volary and the second one from Ceske Budejovice to Dolni Dvoriste which continues to Linec (Austria). The railway track Rybnik – Lipno nad Vltavou is especially important for the development of tourism industry. In general, the communication structure of the district is insufficient due to a missing highway and that is one of the reasons

for the land use as a less exploited area and as an area with the undisturbed nature. At the other side, it is one of the reasons for the less developed industry.

Very important for the land use in the district is its historical development, especially after the Second World War. The border part of the locality was de-populated after the year 1945 and small villages along the borderline disappeared. The second important point of the historical development of the locality was the creation of a border area with the restricted access for more than 40 years. These factors influenced the development of the locality as a less exploited area with the undisturbed nature and environment and with less developed agriculture. The main part of the district is formed by forest and semi-natural area and the locality is known as one of the most valuable area for its biodiversity and high-quality nature and countryside. The third important point of the historical development of the district is the year 1989 and the “opening” the borderline. It was especially important for the development of tourism industry, which used the high-quality nature and environment to attract tourists and visitors both from the Czech Republic and foreign countries. This factor started the land use changes towards the more exploited area but with respect to nature and environment rather than industry. The fourth important point of the historical development of the locality was the accession to the European Union in the year 2004. The EU membership encouraged the land use changes and the development of the tourism industry in the same direction as the changes after the year 1989 but in a higher quantity. The EU membership encouraged the cross-border co-operation too.

Another important factor influencing land use is the economic structure and economic activities at the locality. The district has an industrial – agricultural character. Between the most important branches, there belong the industry of paper and cellulose, engineering and building industry. The mining industry is quite less developed because there are mined only graphite, peat and limestone in small quantities. Due to the submontane character of the locality, agriculture is focused mainly on the grazing farming, especially cattle breeding on pastures. However, important for agriculture and land use is also crop production as the residuum of the former land uses. An increasing importance for the development of the district Cesky Krumlov has the tourism industry but not only due to the natural wealth but also due to the architectural sights.

The district Cesky Krumlov is typical by a high percentage of hired agricultural land, which is not used by the owners. This is the factor which influences land use and restricts the local development and other significant land use changes. At the other side, the displacement of border parts of the district after the Second World War and the high percentage of newcomers lead to a less sentimental linkage between the local actors and land.

All these factors influence the land use changes from the less exploited area and the agricultural area focused on crop production to a more exploited area focused at one side on the tourism industry and at the other side on organic farming and animal husbandry which are consistent with sustainable development.

### **3.4.2. Policy implementation**

For the land use, there is important not only the policy framework but especially the implementation of the policies and strategic documents. The most important for the regional development is the Act on Regional Development Support, which is implemented through the Strategy of Regional Development of the Czech Republic. The district Cesky Krumlov is defined in this strategy as a lagging-behind region (an economically weak region) with a low standard of living, a high share of employment in the primary sector, a low population density. Due to this fact, it is the district that is able to obtain the support from the special programmes and activities, which are laid down both for the local actors and public administration.

The other possibilities for support of the local development and land use are the Operational Programmes (sector and regional), which have background in the National Development Plan. Important for the regional development is the Regional Development Plan of the Jihočeský Region, which supports the other specific problems localities within the region. At present, the first projects are submitted to the specific programmes but usually only for the support of creation of the particular “development projects”. The main part of the projects is prepared by public administration authorities using especially the managerial knowledge to encourage sustainable development. Due to the character of the district Cesky Krumlov, the main aim of the projects is to encourage economic development. The public administration authorities are using their managerial knowledge to encourage tourism, small entrepreneurship and organic farming to ensure the rural sustainable development. Local actors using their lay knowledge are involved in the regional development too, but only a small part of them puts forward the particular projects. In general, there exist two different and controversary opinions about the rural sustainable development. The first one is similar to the opinion represented by the public administration authorities and it is consistent with the managerial knowledge and sometimes tries to start deeper land use changes than the public administration. The second one is more ecological and prefers to conserve the nature and environment in the present state or to establish new nature protected areas. This opinion is represented usually by non-governmental organizations, which try to reach sustainable development by the support of soft tourism and organic farming and only small land use changes. The problem is that the lay knowledge is able to influence the policy implementation only by some non-governmental organisations or active entrepreneurs but the influence of local actors (and their lay knowledge) who are not organised in these types of organisations is minimal.

One of the specifics of the district Cesky Krumlov is the existence of the military area Boletice, where the policy implementation is quite difficult due to the different procedure of spatial planning. The subject involved in land use planning and spatial planning for this area is the Ministry of Defence. The Jihočeský Region tries to convert this locality under the civil administration to encourage rural sustainable development of the locality and the whole region. This is one of the reasons for which this area was chosen for the case study.

### **3.4.3. Governance**

Some aspects of this relationship were analysed in the previous chapters and this part of work describes it in detail. The most important for this influence are social networks and informal relations between the actors of rural development. Within the district Cesky Krumlov, there are the most important municipalities and its elites, consisting of a mayor and usually three or four entrepreneurs with a long time linkage to the land within the locality. These actors are able to influence land use and to attract new activities, which encourage the development of the locality. The other important institutions able to influence land use are non-governmental organisations, which represent civil society. The influence of other inhabitants is minute and their activity (with regard to their engagement in the rural development process) is quite small.

The most important question is the way the local actors can influence the policy implementation and land uses. The first possible way is to object to the regional plan and land use plan during the process of their evaluation. The second way which can be used any time is to elaborate their own project of the land use changes which would be consistent with the principles and aims of the national and regional strategic documents but which would influence the local development in the required way. The third (but one of the most effective) way is to try to use informal relations to influence the local development and land use. Considering the case of the military area Boletice, it seems to be better not only to criticise the land use changes implemented by the region or the state, but also to try to prepare an

alternative project of the local development and land use. It is sometimes necessary to try to influence policy implementation within the Jihočeský Region because the Regional Authority using the managerial knowledge sometimes does not reflect the local needs and lay knowledge.

So within the district Cesky Krumlov, it seems that the informal connections and social networks are the best ways how to influence the local development and land use or to correct the negative impacts of policies and programmes on the locality rather than the usage of the formal institutional framework.

## **4. The study cases**

### **4.1. Study case 1 – LIA: Litomerice district**

The selected empirical case can be considered as an example of changes in the land use – in the context of the transformation of Czech agriculture. The case was selected because of the following reasons. (1) The realisation of the project represents a successful practice of rural sustainable development, based on the co-operation of a wide network of actors mixing different types of knowledge. (2) The project outcomes tackle various aspects of rural space. (3) Despite the priorities included in all kinds of strategic documents (involving territorial and regional development), it is one of the rare cases that aim at land use in the selected regional research area.

The studied case was realised within the project “Transformation of Agriculture in the Ustecký Region with regard to sustainable development, formation and protection of environment”. The project, which has started in 2001, was completely founded by the FAO. Besides some other outcomes, the project in particular consisted of creation of a zone of free movement of animals. For this purpose, there were fenced off 45 hectares of agricultural land, set up perennial grassland and placed roe-deer, mouflons and wild boars that are hunted. The grassland is regularly cut and used for hay-making. There is also a possibility to visit an outdoor museum of bee-keeping and the entire zone is interlaced with bicycle roads, where people can ride.

The project was prepared by the service organisation Serviso that co-operates with the association of municipalities, named Integro (a more detailed view on their activities has already been provided in the chapter 3.2.3). Considering the aim of this organisation (to facilitate activities of the member municipalities in the field of regional and social development), it may seem that the organisation uses a purely managerial knowledge. But the members of this organisation belong also to the locals, who at the same time take part in the political processes (through the local government). The activity of the service organisation is strongly linked with all kinds of research institutes, because the organisation often calls in experts to take part in the projects that are being prepared. On the realisation of the project, there participated experts from the Institute of Ecology and Animal Breeding Ltd. as well as experts from the Faculty of Agrobiolgy, Food and Natural Resources of the Czech University of Agriculture in Prague.

The public has been engaged in the project ex-post. This special example of the land use attracts tourists, who can come and watch the animals or visit the outdoor museum. Schools organise fieldtrips to this locality and the project itself supports the traditional elements of the rural society – local clubs, namely beekeepers and huntsmen.

The actors, who take part in the project, shape up an imbroglio of the managerial, expert and local knowledge. This peculiar situation stems from the fact that some of the major actors perform more than one role within the development process. Once they hold the position of locals, who dwell in the area and make an effort to direct the local development so that they can benefit from the changes. Other time, they perform the role of local shareholders

(possessing managerial knowledge), who realise the projects in co-operation with the experts bringing in their expert knowledge.

From one point of view, the lay knowledge played an important role in the studied case. The outcomes of the project are definitely in accord with the traditional way of land use (less intensive, respecting local natural conditions and stressing the ecological aspects of land use). Besides that, the project supports the traditional (the clubs) as well as new elements (the tourists) of the rural space. On the other hand, it may seem that the lay knowledge and the public has been crossed out from the preparation of the project, because it has been prepared by managers (members of the service organisation) in co-operation with external experts. Despite the fact that the project was approved by the local government (that is supposed to represent a public interest), the public still stayed away, because the public-administration functions overlap with the managerial functions (the members of the service organisation are at the same time local politicians). This situation raises many new questions. Some of them will become the matter of the final section of this paper.

#### **4.2. Study case 2 – LIA: the Cesky Krumlov district**

This case describes the project of revitalisation of the military area Boletice within the district Český Krumlov. The aim of this project is to change land use of a part of the military area Boletice from a less exploited (the area was only partly used for military purpose) to a more exploited area and to encourage local development. The main objective of the project is to build up the largest ski-area of the Czech Republic with not only local, but also national importance. This project was elaborated by the company Lipno Servis and it is consistent with the opinion of the Regional Assembly of the Jihocesky Region about land use and the local development of the military area Boletice. Because this project is just a first conception, there have not been solved the financial issues yet. This project was chosen for the CORASON due to the different types of knowledge that were combined during the solution of usage of the military area Boletice.

The main actors involved in the project are the Jihocesky Region Authority, the Ministry of Defence, the company Lipno Servis, local inhabitants of Boletice and environmental non-governmental organisations (for example the Jihoceske matky – South Bohemian Mothers). Each actor contributes a different type of knowledge and different opinion about the rural sustainable development. The Regional Authority and the company Lipno Servis represent the mixture of managerial and scientific knowledge and prefer great land use changes and a more economic way of sustainable development by encouraging the tourism industry. Non-governmental organisations represent part of the local inhabitants and the interests of environment and nature using the mixture of scientific and lay knowledge and they prefer the conservation of the military area Boletice and a more ecological way of sustainable development. The other local inhabitants are quite passive and their lay knowledge is applied in this project only partially. The Ministry of Defence plays a specific role, while it seeks only its own interests within the military area Boletice and tries to keep its influence on the development of the locality. Its plans are not clear till these days. The different types of knowledge interact through the discussions between the delegates of the particular associations like the company Lipno Servis, the Jihočeský Region, the Ministry of Defence, ecological non-governmental organisations and local inhabitants. The other way of interaction is the discussion on web sites and petitions representing in particular the lay and scientific knowledge composed by non-governmental organisations.

Due to the fact that this is only the first stage of the project preparation, there is not any vertical co-ordination. The project of land use changes within the area Boletice will be probably co-ordinated by the Regional Authority of the Jihočeský Region. The horizontal co-

ordination exists only between the local actors using their lay knowledge and these activities are co-ordinated by non-governmental organisations.

## **5. Conclusion**

There were selected two localities in the Czech Republic for the purpose of the study on land use management. We assumed that those areas could in particular provide a material for the study due to the transformation processes and changes in agriculture, which holds an important position in regional economies of both localities.

From the statistical point of view, the changes in land use are very small. Both of the regions include the areas, where agriculture holds its production functions, as well as the areas, where the production function of agriculture declines in favour of the non-production function, i.e. towards the European Model of Agriculture – emphasising multifunctionality. Due to the varieties of sub-regions within the RRAs, the aggregated data embodied only minute changes. On the other hand, the changes in land use do appear and do have impacts on the local people lives. The statistical point of view failed to capture these phenomena not only on the regional, but as well on the district level, because the administrative boundaries of the NUTS4 still lead to a large-scale view. Unfortunately, smaller territorial units (such as cadastral areas) do not provide sufficient long-term statistical data that could be used instead of those that have been presented here.

A close view on social life in the localities, illustrated by the study cases, enables to observe changes in land use related to sustainable development of rural areas. At the same time, a step from the macro-level (represented by the statistical facts that had led us to the notion about the changes in the land use) to micro-level (represented by the particular cases of the new use of land) became quite difficult. Despite the fact that many strategic documents (used in territorial/regional development) respond to the new situation of rural areas, which leads to changes in land use management, it has been difficult to find specific examples of this practice of rural sustainable development. Even the areas, which obviously suffered from structural problems in the field of land use (for instance the Decin district, as it was stated in the description of the Ustecky Region) have not taken part in any of the projects aimed on the new use of the local land.

The study cases in the Litomerice district (the RRA Ustecky Region) and the Cesky Krumlov district (the RRA Jihocesky Region) represent two examples of the land use management. The first case (in the Litomerice district) may be seen as an example of endogenous approach to rural development. The key principle for the development is based on specific resources of the area. The approach to sustainable development is related to rurality. It counts on rural traditions and knowledge based on the cultural capital of the locals (namely the skills of the members of the rural associations of beekeepers and huntsmen). The outcomes of the project are prone to maintain the cultural diversity and agro-biodiversity of the rural locality with strong ecological connotations. Considering the list of actors who have been involved, one can see that there have been presented many types of knowledge. In spite of their varieties and differences, there were no clashes between them. The lay knowledge, represented by the local laymen, was in accord with the expert knowledge, represented by the people, who prepared the project. The managerial knowledge simply provided a technical implementation of the project in the locality. The harmony of the variety of knowledge involved in the project stems from the fact, which has been already mentioned above, i.e. that some functions of the participating actors are overlapping. However, this “easy-to-do” practice of RSD brings about a potential hitch.

The second case has presented an example of the project that is being prepared from top to bottom. The main actor in the process is the Regional Authority. Its project corresponds with the economic perspective of the rural sustainable development. The Regional Authority tries

to maintain a more economic way of rural sustainable development and to encourage economic activities within the locality rather than to preserve this area from the ecological point of view. The Regional Authority considers this way of rural sustainable development as a more useful within the particular area and the presented case study is one of the demonstrations of this opinion.

By chance, both cases take place in areas with preserved nature. The LIA in the Ustecký Region includes a Protected Landscape Area that requires a specific approach to land use. The development of the localities with such natural conditions often causes controversies on how to deal with those areas. According to some opinions, it is necessary to preserve those areas and therefore to put stress on ecological aspects and protection of environment. On the other hand, others see those areas as an obstacle to development (in economic terms) of the localities and call for changes in the legislative framework. This controversy is present on all levels of the territorial and regional development policy.

Without getting involved in further discussion of this issue that is the subject of another WP, we can mention few notes on the role of the public (representing lay knowledge). Despite the official framework that provides many possibilities for the public to participate in the decisions that are being prepared by the public administration, the public gets rarely engaged. NGO's that make an effort to oppose some actions of the public administration authorities often tend to mix the lay (in order to mobilise public) and expert knowledge (for the purpose of providing expert studies that could oppose the managerial knowledge of the public administration). Co-operation of the public society and public administration authorities often brings in conflicts.

The low activity of the public in the Czech Republic stems from the fact that the rural societies often lack elites, who would pro-actively take part in the political processes including the rural development projects. This feature often results in the situation when only a few people perform functions in the administration of public issues. This is most likely the crucial point that shapes the processes of sustainable development in rural areas.

This perspective adds some new questions regarding the rSD to those that were raised by the CORASON project. From this point of view, it might be particularly interesting to focus on the issue of the lack of elites in rural societies. While this situation often implies a transformation of the knowledge of actors, we could consequently ask how the laymen become managers and what it means for the realisation of the development projects. This context is typical of the Czech Republic and constitutes a framework that has to be taken in account in research on the topic of rural sustainable development.

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## Appendix

Figure 20: Policy frameworks for spatial and regional policy

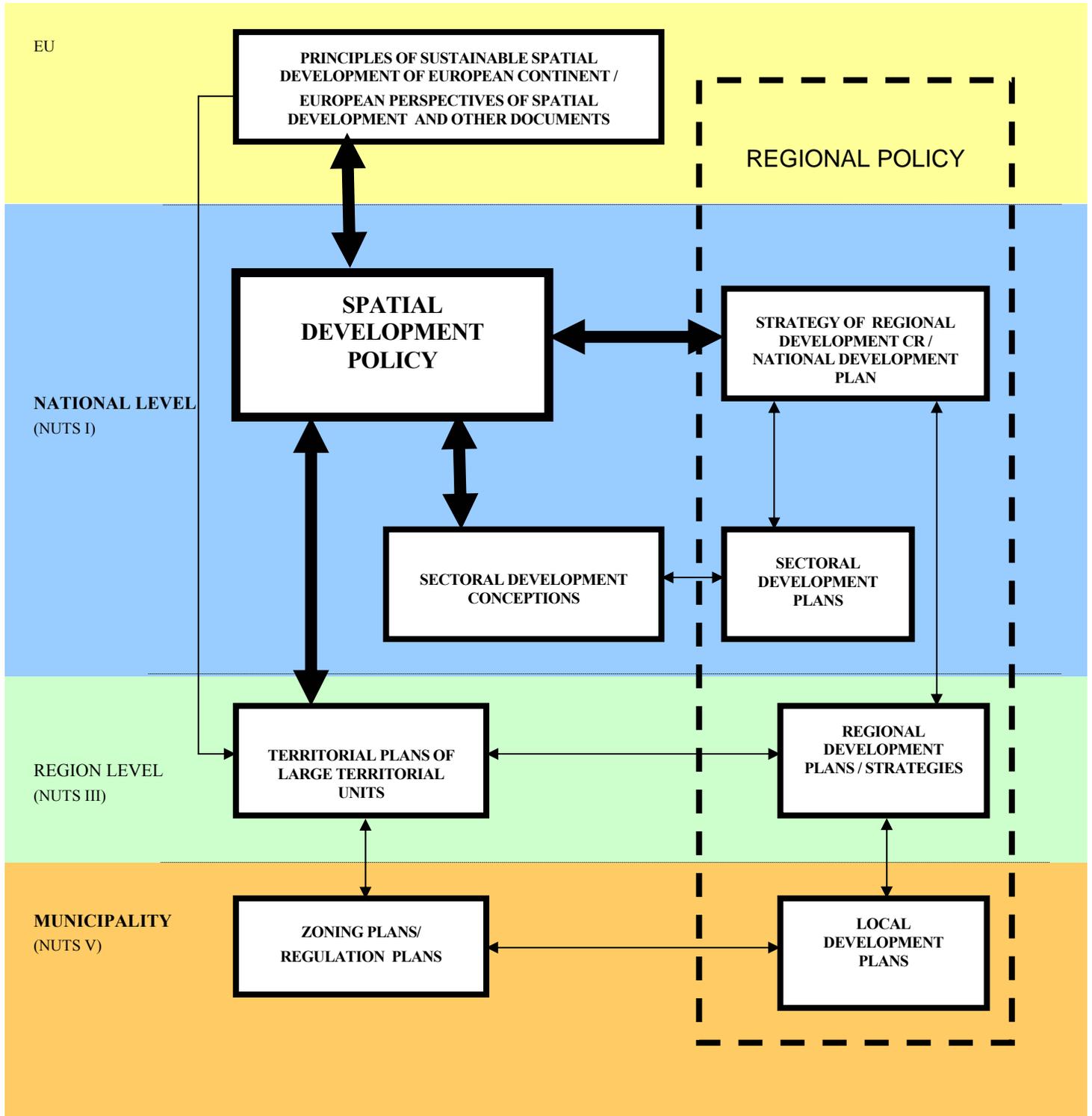


Figure 21: Land use in the Ustecky Region and its districts

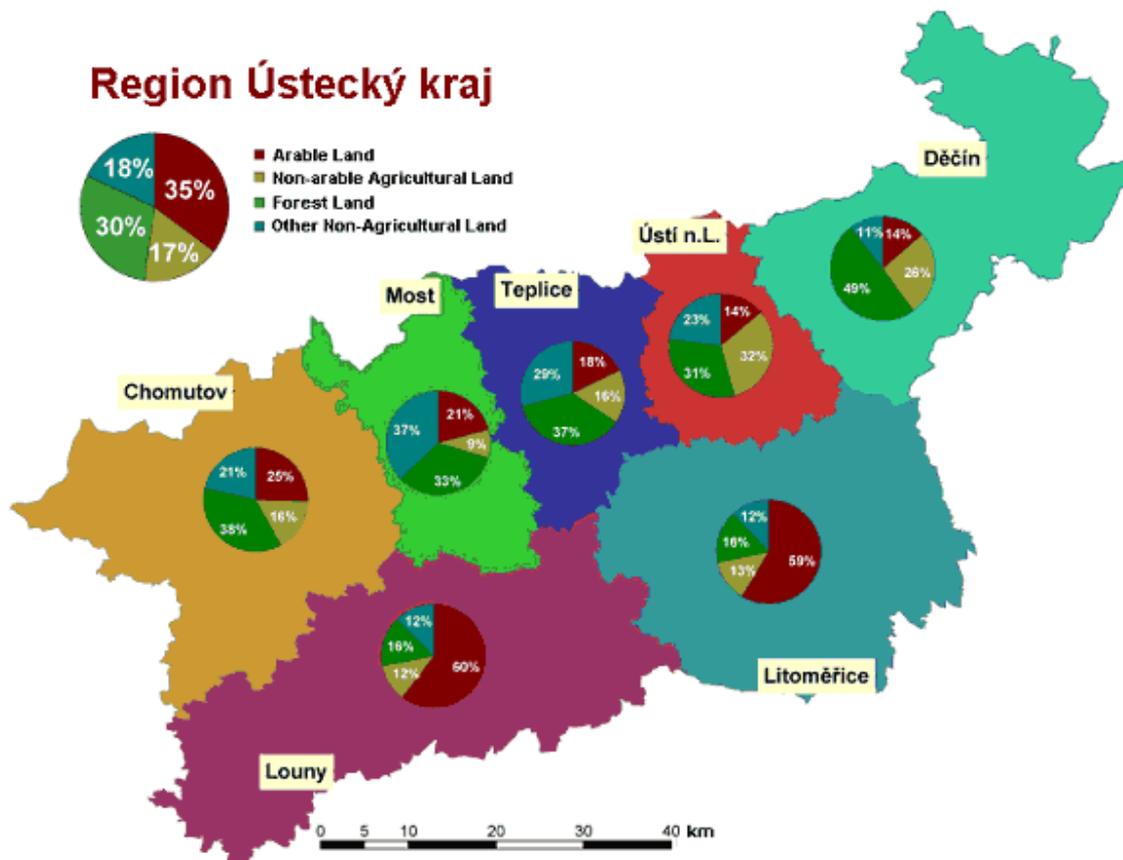
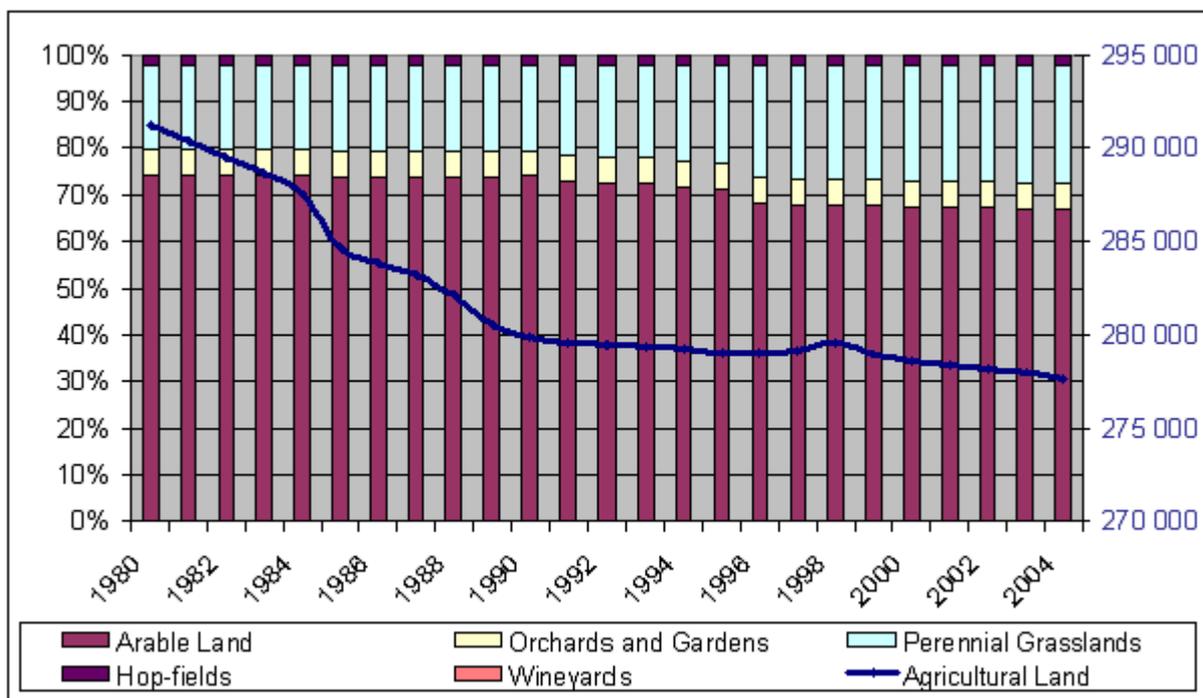
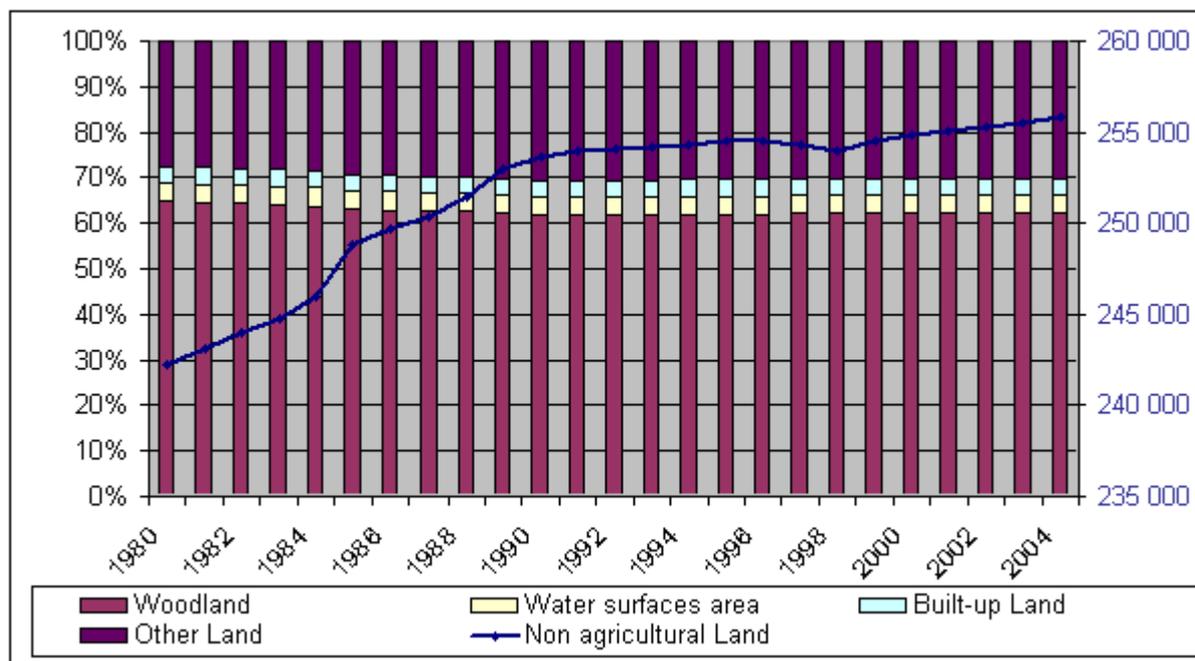


Figure 22 Total area of agricultural land (ha) and its use (%) in the Ustecky region during the years 1980-2004



**Figure 23: Total area of non-agricultural land (ha) and its use (%) in the Ustecky region during the years 1980-2004**



**Figure 24: Distribution and variations of crops (ha)**

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Cereals, total	18 144	18 194	18 591	18 667	18 609	18 841	18 455	18 669	18 623	18 700	18 658
Wheat	3 279	2 839	2 130	2 212	1 875	2 569	2 591	3 116	3 343	3 832	3 985
Potatoes	818	846	817	837	845	853	854	875	825	774	804
Rape	-	-	-	-	-	-	-	-	-	137	240
Arable forage crops	14 634	14 589	15 033	15 006	15 212	15 587	16 292	16 125	15 881	15 584	15 018
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Cereals, total	18 032	16 026	14 646	15 776	14 041	12 620	12 024	10 008	9 357	8 289	8 237
Wheat	4 167	4 805	4 353	4 406	4 388	4 298	4 544	4 083	3 815	3 914	3 887
Potatoes	893	876	644	504	567	489	346	290	211	183	85
Rape	601	754	1 291	.	2 267	2 360	2 049	2 093	2 593	2 270	2 371
Arable forage crops	14 425	13 950	13 923	10 788	11 902	12 835	9 703	8 246	7 192	10 706	10 209

Source: Czech Statistical Office

**Figure 25: Distributions and variations of livestock units (heads of livestock)**

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Cattle, total	39 256	40 339	41 935	43 001	43 911	43 103	43 276	43 198	43 089	43 522	44 539
Cows	14 882	15 115	15 265	15 127	15 166	15 036	15 092	15 278	15 429	15 407	15 657
Pigs	30 880	33 665	33 417	30 692	26 741	23 794	24 264	26 096	28 278	28 949	30 424
Sheep	2 621	3 006	3 283	3 634	3 988	3 963	4 028	3 923	3 576	3 506	3 535
Poultry	523 788	439 694	414 459	387 790	404 343	411 482	302 137	428 614	398 597	389 158	340 085
Hens	57 969	57 591	56 796	56 366	60 915	56 832	55 471	54 534	56 810	52 636	52 596
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Cattle, total	43 779	38 484	33 391	27 877	25 956	25 481	23 637	20 741	20 254	20 093	22 062
Cows	16 175	14 763	14 019	12 034	10 687	10 530	9 596	8 923	9 054	9 281	9 760
Pigs	30 216	29 375	29 480	25 963	22 942	25 418	26 911	23 174	24 564	22 050	22 225
Sheep	.	3 305	2 907	1 506	820	1 976	1 678	1 670	2 104	1 466	1 509
Poultry	368 574	284 143	318 197	147 132	159 700	165 491	141 173	217 007	208 231	211 163	173 451
Hens	53 257	53 470	55 080	55 596	59 644	58 645	52 821	52 638	52 647	46 581	32 444

Source: Czech Statistical Office

(.) information is unavailable

**Figure 26: Development of first and second homes – the Cesky Krumlov district**

	1980	1991	2001
First homes	8 930	8 938	9 579
Second homes	5 399	5 098	1 044*

Source: Czech Statistical Office

\* incomplete number

# Land Use Management in Hungary

Ildikó Nagy<sup>3</sup>

## 1. Introduction

The condition of the natural environment, water and soil that is the entire ecosystem has become an increasingly pressing problem recently. Ecological changes and environmental pollution may have unforeseen impact on both micro and macro levels. Parallel with increasing population, production and consumption has also increased, resulting in the more intensive exploitation of the environment. As a consequence, environmental values have played a significant role in the economic planning of the past thirty years. In Hungary this is a relatively new phenomenon, its emergence is primarily due to the accession process to the European Union. Both the spatial and the land use planning system are being changed according to the EU-conform environmental approach. During the era of state socialism the dominant approach focused on economic development that would help overcome capitalism and rational environmental economic policy was subordinated to this desired outcome. After the change of regime a new economic, social and political context was established. Our research focuses on micro regions that have undergone significant change, making them particularly good examples of the transformation of the land use system in Hungary. One of our research areas is Keszthely Micro Region situated on the Northwest shore of the Lake Balaton in Zala County. The landscape is hilly with national parks and a holiday resort on the shore of the Lake. The other two study areas are Mezőtúr Micro Region and Tiszafüred Micro Region. These regions are situated in the Northeast part of the country, on the Hungarian Great Plain in Jász-Nagykun-Szolnok County. These regions partly belong to the largest national park in Hungary called Hortobágyi National Park. There is another national park in this area called Kőrös-Maros National Park, which also belongs to these regions. Here we have examined the transformation of agricultural land use, as well as the development and the operational circumstances of the above national parks.

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## 2. Land use management in the RRA context

### 2.1. Description of the RRAs

#### Zala County

##### Population

Zala County is located in the Southwest corner of Hungary, bordered by Croatia and Slovenia from the south, Vas and Veszprém Counties from the northeast and Somogy County from the east. Geographically the micro region is situated on the peripheries of the country and belongs to the Keszthely Mountains, part of the Transdanubian Mountains of medium height. The area of the county is 3784 square meters and it has more than 300 000 inhabitants. This is about 3 % of the total population of Hungary. The county's population has continuously decreased in the past 30 years. At present the population density is 80 people per square meter.

**Table 1: Surface (km<sup>2</sup>), population density (person/ km<sup>2</sup>) in the RRA of Zala County (1980, 1990, 2000, 2004)**

RRA	Surface km <sup>2</sup> 2004	Population density 1980 Person/km <sup>2</sup>	Population density 1990 Person/km <sup>2</sup>	Population density 2000 Person/km <sup>2</sup>
Zala	3 784	84	81	80

**Table 2: Population (person) in the RRA of Zala County (1980, 1990, 2000)**

RRA	Population 1980 Person	Population 1990 Person	Population 2000 Person
Zala	317 298	306 398	301 214

The Keszthely Micro Region lies in the Eastern corner of the county. In the 505 square meter area the number of the inhabitants is over 47 000 that is 15 % of the whole county's population. The town of Keszthely is located on the shore of Lake Balaton. It is the centre of the micro region comprised of 26 further municipalities.

**Table 3: Surface (km<sup>2</sup>), population density (person/ km<sup>2</sup>) in the LIA of Keszthely Micro Region (1980, 1990, 2001, 2004)**

LIA	Surface km <sup>2</sup> 2004	Population density 1980 Person/km <sup>2</sup>	Population density 1990 Person/km <sup>2</sup>	Population density 2001 Person/km <sup>2</sup>
Keszthely	505	95,3	92	94,3

**Table 4: Population (person) in the LIA of Keszthely Micro Region (1980, 1990, 2000)**

LIA	Population 1980 Person	Population 1990 Person	Population 2000 Person
Keszthely	48 144	46 440	47 561

The micro region is considered a well developed one in Zala County. Contrary to the county trend, the population here is increasing. This phenomenon is due to the touristic importance of the micro region, as the Lake Balaton is famous for its recreational areas and the town of Hévíz is well-known for its medical tourism. When comparing data from 1980, the population of the towns and villages was decreasing, however at a micro regional level this process had turned after the change of regime.

**Table 5: Population of towns and villages (person) in the RRA of Zala (1980, 2000)**

RRA	Population of towns 1980	Population of towns 2000	Population of villages 1980	Population of villages 2000
Zala	151 771	159 855	165 527	133 378

**Table 6: Population of towns and villages (person) in the LIA of Keszthely (1980, 2000)**

LIA	Population of towns 1980	Population of towns 2000	Population of villages 1980	Population of villages 2000
Keszthely	27252	25 171	20892	20 550

## Natural environment

The topography of Zala County is extremely diverse and as a result, its flora is quite varied. The natural vegetation of the county is forest. In general arable land in the county is of poor quality, coupled with poor water management. Due to these conditions the whole area is rather poor and secluded, so old forms of agriculture, life styles and customs, even elements of traditional folklore have survived until recently. The exploitation of oil, the most important mineral resource in Hungary was started after 1948, causing significant change in the natural environment, as well as the lifestyle of the inhabitants. Thanks to the disastrous exploitation the oil reserves of the county, it has begun to run out recently. There is a fen in the county called Kis-Balaton that has rich and rare flora and fauna which changed a lot due to the reclaiming and refilling of the area.

## *Jász-Nagykun-Szolnok County*

### Population

Jász-Nagykun-Szolnok County is located in the middle of the Hungarian Great Plain and is bordered by seven other counties. The area of the county is 5582 square meter, with more than 421 000 inhabitants, a number which has been decreasing in the past 3 decades. Because of the structure of its settlements this is one of the Hungarian counties with the lowest population density.

**Table 7: Surface (km<sup>2</sup>), population (person) and population density (person/ km<sup>2</sup>) in the RRA of Jász-Nagykun-Szolnok County(1980, 1990, 2000, 2004)**

RRA	Surface km <sup>2</sup> 2004	Population density 1980	Population density 1990	Population density 2000
		Persosn/km <sup>2</sup>	Person/km <sup>2</sup>	Person/km <sup>2</sup>
Jász-Nagykun-Szolnok	5 582	80	76	75

**Table 8: Population (person) in the RRA of Jász-Nagykun-Szolnok (1980, 1990, 2000)**

RRA	Population 1980 Person	Population 1990 Person	Population 2000 Person
Jász-Nagykun-Szolnok	446 708	426 491	421 412

The Tisza Lake, the second biggest lake in Hungary can be found in the Tiszafüred Micro Region. Almost 41 000 inhabitants live here in 13 municipalities. The infrastructure, the economic and social situation of the region is characterized by adverse conditions.

**Table 9: Surface (km<sup>2</sup>), population (person) and population density (person/ km<sup>2</sup>) in the LIA of Mezőtúr and Tiszfüred Micro Regions (1980, 1990, 2000, 2004)**

LIA	Surface km <sup>2</sup> 2004	Population density 1980 Person/km <sup>2</sup>	Population density 1990 Person/km <sup>2</sup>	Population density 2001 Person/km <sup>2</sup>
Tiszafüred	847	53,5	50,1	48,1
Mezőtúr	726			43

**Table 10: Population (person) in the LIA of Mezőtúr and Tiszfüred Micro Regions (1980, 1990, 2000)**

LIA	Population 1980 Person	Population 1990 Person	Population 2000 Person
Tiszafüred	45 289	42 464	40 754
Mezőtúr			31 024

The Mezőtúr Micro Region is located in the Southeastern part of the county where two important centres can be found: Mezőtúr and Túrkeve. The most important sector of economy is agriculture which can be considered quite stable and productive. The population of the small region is decreasing, however since this micro region was created only recently, comparative data from an earlier period is not available. Population decrease is experienced in the whole county, including both of the studied micro regions, not only in villages, but towns as well.

**Table 11: Population of towns and villages (person) in the RRA of Jász-Nagykun-Szolnok County (1980, 2000)**

RRA	Population of towns 1980	Population of towns 2000	Population of villages 1980	Population of villages 2000
Jász-Nagykun-Szolnok	258 404	271 731	188 304	139 878

**Table 12: Population of towns and villages (person) in the LIA of Mezőtúr and Tiszafüred Micro Regions (1980, 2000)**

LIA	Population of towns 1980	Population of towns 2000	Population of villages 1980	Population of villages 2000
Tiszafüred	23 969	22 822	21320	18 687
Mezőtúr		29 038		

## Natural environment

The topography of the county is perfectly plain. There is considerably less rainfall, so aridness and drought often pose difficulties for the economy. The high quality of arable land, the hot springs and the great number of the sunny hours can be mentioned as the most important natural values of the county. The flora and fauna is also rich, for this reason there is a great deal of protected land in the region, such as river basins, stretches of land with alkaline soil and loess soil, fens or arboretums. Soil in the county is of high quality, 75% of the agricultural area is arable land. The entire county lies in the catchment basin of the River Tisza. Recently water pollution and floods have been causing ecological problems on a regular basis. In the northern part of the county the river has been dammed, creating the Tisza Lake in order to develop the watering structure of the region.

## ***2.2. Presentation of the relevant institutional framework for land use management in the RRA***

When analyzing land use management, taking into account its background and history in Hungary, one must consider the changes in the different fields of policy-making that have had significant impact on land use. In this chapter we aim to present the highlights of recent transformation in regional development policy, as well as the most important political, economic and legal intervention concerning land use in Hungary.

### ***Regionalism and regional policy in Hungary***

Contrary to other communist countries, the political situation in Hungary was characterized by gradual reforms, the decentralization of decision-making, the introduction of new models and the small, but nevertheless very important role of the private and the shadow economy. In the beginning of the state socialist era centralized national planning was considered the key approach to the country's economic management. It was based on hierarchically organized top-down relations in industries, as well as local governments. The New Economic Mechanism introduced in 1968 was one of the milestones in the transformation of the economic management, bringing about certain decentralization in the decision-making processes and a larger degree of flexibility at the lower levels of the economic planning system. The gradual reforms of the 1980s resulted in introducing some elements of the market system in the Hungarian economic context.

In the post-war period Hungarian regional development was the outcome of national economic planning promoting industrialization. The most important process, aiming to achieve this purpose was the intention of transforming rural agrarian society into an urban and industrial one by way of industrialization and agricultural collectivization. The policy-makers made an effort to reduce the dominant role of Budapest in the country. The industrialization policy included investments in the heavy industries as well as the establishment of new industrial towns. However, industrialization in the 1950s could not eliminate the difference between urban and rural areas. At this time the so-called Small Farm Council started to operate with the purpose of uniting the Small Farms in the area of the Hungarian Great Plain.

The sixties were be characterized by large investment projects focusing on five developing cities, namely: Miskolc, Debrecen, Szeged, Pécs and Győr. The new role of these cities was to offset the dominance of Budapest. During this period the development of light industries started in small urban centers and backward areas. In the seventies, the government adopted the Concept of National Settlement Network Development. The Concept was based on a hierarchical model of national and regional centres. Nine hierarchical categories of centres were identified and four of these were defined as follows: the capital, regional centres, sub-regional centres and local centres. The hierarchy of the centres was defined by the functions and services provided by the centre for its region. At this time centres and larger settlements received most of the state assistance, so by the time they started developing, the villages had started to become deserted. Finally, out migration from rural areas became so substantial that the standpoint of the policy changed. In 1985, a new program concerning The Long-term Tasks of Regional and Settlement Development was approved with priority given to the cooperation between settlements, the development of backward rural areas and the protection of the environment (Valuch 2001).

Presently Hungary has a population of 10.3 million and a territory of 93 thousands km<sup>2</sup>. The Hungarian Republic is divided in the capital city, 19 counties, 20 county centres (towns of county rank), 148 towns and 2905 villages. The capital is divided in further 23 districts and some towns have also chosen to be divided in districts. The old hierarchically organized model of councils (local organs of state power and administration) was abolished in 1990 by amendments of the Constitution, further elaborated in the Act on Local Self-Government.

There are two core levels of local self-government: the level of municipalities (towns and villages) and of counties. Local self-governments may differ from each other according to their responsibilities, nevertheless they enjoy the same legal status, there is no hierarchy subordinating either one to another. However, while the Act on Local Self-Government awarded municipalities independence and autonomy, it also considerably reduced the counties' functions. The counties were given subsidiary status that is they can only assume functions that municipal self-governments cannot perform or refuse to assume.

The county self-government is controlled by a directly elected County General Assembly (until 1994, the representatives were delegated by local governments). State interests at a county level are represented by prefects appointed by the president on recommendation by the prime minister. The most important task of the prefect is the legal supervision of local governments. In recent years 6 larger regions were established to comply with the European Union's territorial structure. According to the Nomenclature of Territorial Units for Statistics, NUTS I level is the national and NUTS II the regional level. Hungary can be divided in seven geographical regions which correspond to the NUTS II level: Northern Great Plain, Southern Great Plain, Northern Hungary, Middle Hungary, Northern Transdanubia, Middle Transdanubia and Southern Transdanubia. The NUTS III level means the counties of which there are altogether 19 in Hungary. NUTS IV stands for the 168 micro regions, while NUTS V means the settlements. According to this classification, the study areas of present research, the LIAs represent the level of NUTS IV and the RRAs represent NUTS III.

### ***Land use and land use policy in Hungary***

In Hungary the structure of land use has been changed radically three times following World War II. It is a well-known fact that in the countries east of the River Elba a phenomenon called second serfdom determined the land use structure for centuries. This

implied a structure of large estates, employing a great number of people (serfs) without land of their own. The land reform launched in 1945 was supposed to change the landownership system. As a result, the agrarian structure became characterized by a dual structure, involving many small-scale farms. These farms co-existed with a few relatively large state-owned farms, comprising a bit more than one-tenth part of the land. After the Communist take over the policy of collectivization was introduced, putting all the new landowners under pressure. Following the second wave of the collectivization, in the beginning of the sixties 90 % of the total arable land was integrated into large scale farms.

At the time of the transition, parallel with the political changes, the transformation of the Hungarian agricultural system also began. Privatization, land restitution and economic liberalization were key factors in the changes determining rural restructuring and land use in the 1990s. Nearly two million families were entitled to restitution, meaning that the amount of land available for restitution was not sufficient to enable the development of new, viable agricultural enterprises. As a result of the restitution, 1.5 million households became landowners by 1996. More than 90% of the arable land was privatised, however the national average of plot size for land acquired by restitution was no more than 4.4 hectares per household. It was out of question that the ownership and agricultural production structure before the collectivization could be restored by restitution (Kovács, 1994).

Private production is gradually becoming dominant in agriculture, though the number of registered individual entrepreneurs active in the sector had not increased since 1993. The number of registered individual farmers is about 30 000 (about 3-4% of all the family farms). There are about 1.2 - 1.6 million private family farms, the majority of which are part-time and mostly produce for household subsistence. The average area of land held by private family farms is below 1 hectare (Burgerné, 1996). In the 1990s the structure of land ownership was characterized by holdings smaller than 5 hectares; 44.2% are holdings below this size (Burgerné, 1996). About half of the land cultivated by individual farms belongs to units smaller than 10 hectares. Tenants cultivate 62.5% of arable land. Only 23-26% of farms over 50 hectares are owned by farmers (Harcza 1995; Harcza and Kovách 1996). Hungarian agriculture consists of a mixture of farm types, including full- and part-time family farms, co-operatives, shared and limited liability companies. This complexity may prove to be permanent.

After 1989 shifts in the patterns of ownership and economic and political structures followed one another rapidly, while the organization of family farm production, inherited from the period of collectivization, was more resistant to complex change. The pressure on farms to produce for subsistence became greater as a consequence of general economic depression, hindering the growth of specialized production (Nemes and Heilig 1996). A significant aspect of the new family units is establishing and developing enterprises under the pressure of necessity. The size of private agricultural units has not gone beyond family dimensions. The average number of people employed by the largest private farms does not exceed two or three people, only 10 to 15% of all private family farms can be regarded as small or medium agricultural production units suitable for commodity production.

Between 1992 and 1999 a degree of differentiation could be noticed between top family farms (Harcza and Kovách, 1996). With the concentration of land and production, the most successful family farms with significant capital were able to develop into real enterprises, even under the adverse economic conditions of the period of 1992-1999. Furthermore, the slow differentiation and concentration of agricultural private production has resulted in changes in the top producers' mentality and practices. Data from 1982 and 1995

stratification surveys (Kovách 1988) enable comparisons to be drawn between the types of units involved. This indicates that the proportion of free market enterprises has grown from 9.6% to 21.4% and the proportion of peasant-type farms of mixed production structure decreased from 69.5% to 52.6%. This provides evidence of the gradually expanding market economy. The dominance of peasant-type units also suggests that the complete transformation of the private sector in agriculture is still far from being accomplished despite the concentration of production and the strengthening of entrepreneurial character. The system of credit and state subsidy has had little impact on boosting entrepreneurial activity in the face of the dominance of the peasant type production (Harcza and Kovách 1996).

The question – how and for what purpose to use land – has been raised in several areas, predominantly in case of main touristic regions, the metropolitan agglomeration around Budapest, five other cities and some quickly developing industrial, commercial centres. The decline of agricultural production does not necessarily lead to conflict between traditional and alternative farming. The most problematic issue is that not all arable land was cultivated in the mid-nineties. The conflict of land use first emerged as a consequence of market transition and the restructuring of agricultural production. Land use has two conflicting characters: a traditional one of agricultural modernization and a post-productivist one of urban colonization, such as tourism and out-migration. In Hungary three categories of land use can be defined: nature preservation in national parks and other protected regions, agricultural land and rural areas under urban pressure due to tourism, out-migration, newcomers from the city building second flats or summer cottages.

The post-communist transformation of the early 1990s has brought many changes to land use and land use policies in Hungary. Post-communism has not only reshaped the political system of the country, it has also deeply influenced long-term transformation processes of the society. The dramatic decline of agricultural production, the privatization and reprivatisation of collective farms, also including a comprehensive land ownership reform, refashioned the basic institutions of rural life. Rural local governance has also been transformed, as democratically elected local governments replaced the communist system of micro regional councils. Interregional migration has also increased, because former regulations constraining domestic movements had been abolished. Another important factor influencing Hungarian land use legislation has been the European Union. In the course of the accession negotiations Hungary has introduced hundreds of new regulations, the impact of which has remained unstudied until now. In this chapter we mainly concentrate on the changes of land use policy in the 1990s, however, where possible, we briefly refer to earlier developments.

Regarding land use policies the post-1990 era can be divided in two periods. The first one, between 1990 and 1994, was characterized by *ex lege* conditions. During the second period, starting in 1994, new legislation was enacted, re-regulating land use and spatial planning. Before enumerating the core regulations of contemporary spatial planning, let us consider the long term transformation of Hungarian land use.

**Table 13: Type of cultivation (hectare) in Hungary**

Type of Cultivation	1970	1980	1990	1994	2001
Arable	5046,2	4734,7	4712,8	4717,4	4516
Garden	146,3	291,4	341,2	35,0	98
Orchard	171,6	138,4	95,1	92,7	97
Vineyard	229,7	167,8	138,4	131,9	93
Green	1281,3	1294,2	1185,6	1148,0	1061
Forest	1470,7	1610,3	1695,4	1766,5	1772
Reed-plot, fishpond	56,1	63,0	67,2	68,0	92
<b>Total productive area</b>	<b>8401,9</b>	<b>8299,8</b>	<b>8235,7</b>	<b>7956,5</b>	<b>7729</b>
<b>Uncultivated land area</b>	<b>901,3</b>	<b>1000,8</b>	<b>1067,5</b>	<b>1346,5</b>	<b>1574</b>

One of the first new regulations concerning land use and spatial planning was introduced in 1994 when the Parliament passed the act on the protection of arable land (LV Act 1994). According to the law, non-Hungarian citizens and corporations could not acquire arable land and new measures were introduced to prevent the further decrease of the area under agricultural cultivation. The act can be regarded as an attempt of the Hungarian agrarian interest groups to legally obstruct foreign and non-agrarian land ownership. In 1996 the Hungarian Parliament amended the above regulations on non-Hungarian land ownership and decided to allow foreign citizens to acquire non-agricultural land freely. A new act in 1996 introduced formerly non-existent measures on environmental protection, one of them being an environmental impact assessment. Increasing environmental concerns can also be perceived in spatial planning. The corresponding new legislation came into force in 1996. The Act on Spatial Development and Spatial Planning (XXI Act 1996) determines the functions of spatial planning in assessing and evaluating the environmental resources and capacities of a given administrative unit and harmonizing developmental and environmental objectives. The act strengthens the position and responsibility of local governments in spatial planning. The year 1996 was also a turning point with regard to the Hungarian nature protection policy. According to Act LIII, spatial planning has to pay special attention to preserving natural values and systems, as well as unique landscapes.

The integration of nature protection in the institutional framework has been a characteristic feature of the 1990's land use policies. The following table shows the change in the territories under nature protection between 1994 and 2000. It also illustrates that the issue of nature protection had not been unheard of before the post-communist transition. What happened in the 90's was the creation of new national parks as the primary instrument of nature protection.

**Table 14. Nature protection areas (hectares) (1994 – 2000)**

	1994	2000
<b>National parks</b>	177738	440839
<b>Landscape protection districts</b>	466653	349242
<b>Nature protection areas of national significance</b>	26230	25927
<b>Nature protection areas of local significance</b>	32964	36700
<b>Total</b>	<b>703585</b>	<b>852708</b>

A Report of the Government of the Republic of Hungary on Spatial Processes, on the Implementation of Spatial Development Policy, March 2000 (pp. 174-175) states that the size of territories under nature conservation increased by 25% by the end of 1998, while in case of specially protected areas the improvement was one third. 9% of Hungary's territory is classified as nature conservation area. The number of national parks grew from four to nine and the total surface was tripled, reaching 4285.6 km<sup>2</sup>. In 1990 the National Park Directorates controlled only 3.3% of the protected areas of national significance, by 1998 this rate had increased to 20%.

Recently the classification of national park zones (natural zones, zones under management and demonstration zones) had begun, ensuring the special protection of the most outstanding assets. A National Core Plan for Nature Conservation had been elaborated during the past years. In this plan, the preservation of wetlands had been designated as a priority issue, therefore their registration has been carried out. Under the scope of biotope reconstruction 20 wetlands were restored in 1999.

As a result of the growth of forest areas between 1990 and 1998, by now the total area covered by forests has reached 19% of the national territory. A favorable dimension of this change is that the size of the forest areas under nature conservation has increased, their proportion with regard to the total forest area of the country has grown to 20%. This means that 46.8% of all nature conservation areas are forests. At the same time, forest areas with public welfare function have decreased in the past decades.

The proportion of open urban spaces has grown by one fifth compared to 1990, however the maintenance of these territories has not improved. The increase of open spaces in the capital only reached 4% and there was no improvement in the most densely built areas in the central districts.

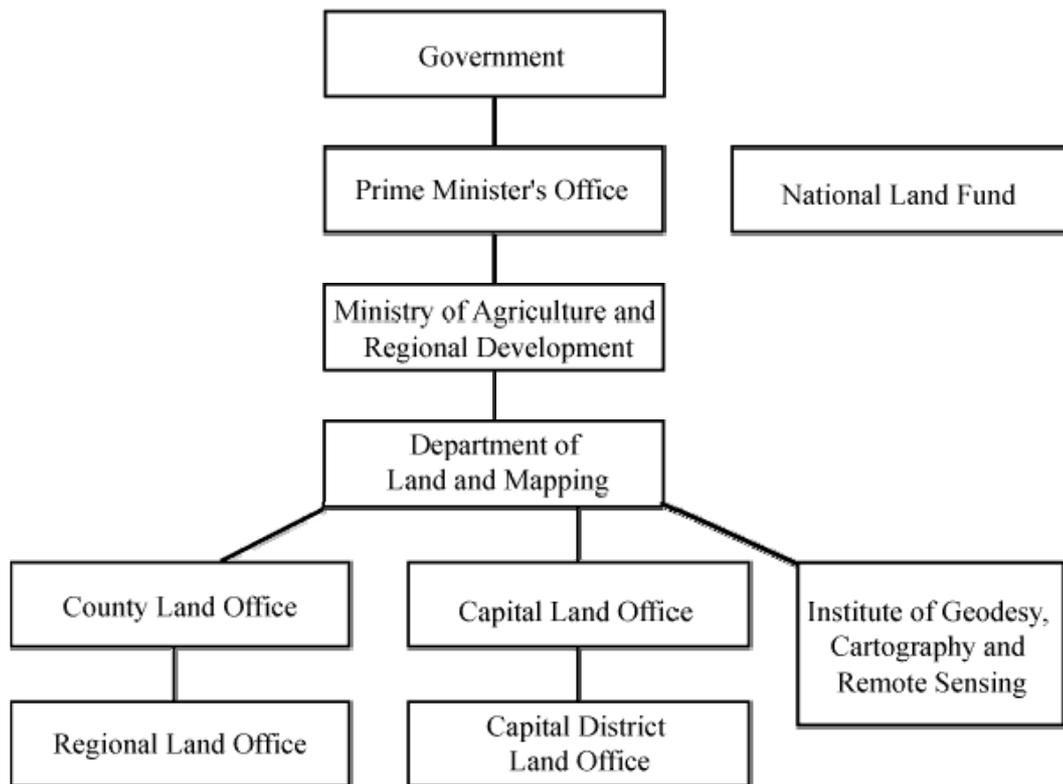
In order to increase the efficiency of nature protection, a strategy has been elaborated and presented to the establishment of the National Ecological Network. International treaties declare that the National Network is linked to the European ecological network. Preparations have been made to designate Environmentally Sensitive Areas (ESA), in accordance with EU requirements. The aim is the preservation of natural assets and biological diversity by means of maintaining the traditional use, cultivation and management of the land.

In 2002 nature protection areas made up 9.2% of the total land area (852 thousand hectares), of which 200000 hectares are managed by nature park directorates. 20 per cent of Hungarian forests are under nature protection (375000 hectares) which means there has been an increase of 50000 since 1994. 54% of protected areas are under agricultural cultivation. In 1999, as a part of the National Agri-environmental Programme, sensitive natural areas were identified. However, the programme meant to subsidize environmentally friendly farming in those areas has not launched yet. Another element of the programme is the information and monitoring system of soil protection, originally set up in 1992, with the task of monitoring agricultural land use (85% of Hungary's land area is suitable for agricultural cultivation). In 2001 the Hungarian network of Natura 2000 has also been launched. From the perspective of the research project, the Act on Spatial Planning in the Balaton Touristic District (2000. CXII.) is of great importance, since it re-regulated private and community land use in the Balaton district. The act makes it very difficult for local governments to increase the size of residential areas and prohibits the transformation of green areas into residential ones.

In summary, the main features of land use policies in the post-1990 era have been (1) the Europeanization of nature protection and the development of a significant environmental bureaucracy, (2) the decline of agriculture and accordingly, the decrease of agrarian land use and (3) the localization of land use policies through re-established local governments in 1990.

### ***Land administration***

The Department of Land and Mapping (DLM) of the Ministry of Agriculture and Regional Development plays a significant role in land administration. The main tasks of the department can be summarized as follows. The DLM has overall responsibility in the land management sector, meaning that it carries out land management tasks, such as registration, evaluation and land use protection. The department is in charge of unifying the land registry and cadastre, of doing large-scale cadastral and topographic mapping, as well as preparing geodesy and land surveys. Furthermore, it is also responsible for the infrastructural development of information on land use. In the following figure seven relevant institutions of land management are illustrated.



The **Department of Land and Mapping** operates and supervises the Land Office Network consisting of 19 County-level and 116 Regional Land Offices, the Capital Land Office and Capital District Land Offices, as well as the Institute of Geodesy, Cartography and Remote Sensing. The latter institute coordinates technological development and operational services between the offices..

The **National Land Fund** was established with the purpose of managing land in the property of the Hungarian State. In addition, its goal was to facilitate the use of agricultural land by considering the ecological conditions of agricultural production, economic efficiency and profitability, as well as supporting the development of a rational farm structure based on family farms.

The **County Land Office** (CLO) is directed by the Head of the County Land Office who reports directly to the Head of the Department of Land and Mapping at the Ministry of Agriculture and is responsible for the operation of the office, according to the Ministry regulations. The role of the County Land Office is management, control and technical support of the District Land Offices within the County. The County Land Office controls the budget for the County (including the District Land Offices budget) and is the link between the District Land Offices and the central organizations of the Ministry and the Institute of

Geodesy, Cartography and Remote Sensing. The CLO is also responsible for specific project management-type activities:

- Management of CLO (planning, managing the daily operational work, periodic evaluation of achievements, sharing the resources between the institutes and the tasks, providing data for public relations)
- Land Surveying Division (the contractual ordering & supply of new & renewed cadastral maps. The work is carried out by the private sector and submitted to the County Land Office, or by the CLO itself: regulating and performing the quality control of the new mapping/map renewal, the maintainance of the higher order geodetic control points, the execution of land consolidation programmes, providing information to the management)
- Land Registration Division (supporting the Land Privatization Programme, acting as a forum of second level decision-making, providing the management with information)
- Land Qualification and Land Protection Division (the protection of agricultural land, the monitoring of land use, providing the management with information)
- Financial and Economics Division (responsible for the accounting of financial activities and providing the management with information)

There are 116 **District Land Offices**, also including the Capital District Land Offices. Each DLO has the following sections:

- Land Registration Section
- Land Surveying Section
- Land Classification and Land Protection
- Administrative Section

The District Land Office is controlled by a District Land Officer who reports directly to the County Land Office and is responsible for the operation of the office, according to the Ministry regulations.

#### Land Registration Section Activities

The DLO files the Land Registration administrative records (Property Sheets, Land Books and other documents), also keeping track of the applications for change in the records' contents. The Land Registration administrative records consist of Property Sheets, including a description of the parcel, the ownership and property rights, as well as any special rights or restrictions that may apply.

The Land Registration Section is responsible for doing the administration of the property sheets and carrying out the following activities.

Administration of the Property Sheets:

- Registration of new parcels (following pre-registration)
- Changes in designated soil classification

Changes in land evaluation:

- Changes in land area
- Changes in easement, usage, owner's rights etc.
- Changes in the owner's person
- Changes in land rights etc.
- Processing Requests for copies of Property Sheets
- Keeping record of all Applications Received
- Storage of sketch maps, easements and other documents

#### Surveying Section Activities:

The DLO Surveying Section maintains the Cadastral Maps and processes all requests for information that arise in connection with them.

The cadastral maps themselves are still largely graphical and are updated by the DLO to reflect current situation in the area.

#### Land Classification Section Activities:

The DLO maintains the Land Use / Classification maps. Classification is done according to soil type. The DLO has maps showing different soil types as polygons drawn on large-scale cadastral maps, furthermore reference sites for purposes of soil evaluation are also available. Depending on the soil type, the land unit is assigned a Golden Crown value (based on the former Austrian system). This system of classification and the resulting evaluation is not directly related to the market value of the land.

#### Administrative Section Activities

The Administrative functions include activities related to human relations, financial issues and report obligations.

The DLO is controlled by a complex set of regulations that define all aspects of the technical work and establish standard methods for the execution of the work process.

The **Institute of Geodesy, Cartography and Remote Sensing** was founded in 1967. The Institute is a key organization, responsible for all official activities in Hungary in the field of surveying and mapping, forming an integral part of the land management, surveying and mapping sector. It directly answers to the Head of the Department of Land and Mapping and is responsible for supporting programs of national interest in the area of Geodesy, Cartography and Remote Sensing. Its mission includes: the administration of the national archives; various state-oriented administrative tasks; scientific research; income generation through commercial activity. The principal activities of the Institute are:

- Organizing, managing and controlling surveying and mapping at a national level, ensuring the correct use of state funding.
- Archiving & supplying data for all national horizontal and vertical control points, cadastral base maps, topographic base maps and derived maps as well as aerial photographs.
- Surveying, updating and maintaining state boundaries in co-ordination with the Ministry of the Interior.

- Ensuring that quality control in the land management sector is applied on a nationwide basis - in particular by monitoring the quality of the activities of the County Land Offices.
- Supporting the CLOs & DLOs in operating and developing a nationally consistent approach to the use of the newly introduced information systems, (such as: TAKAROS, TAKARNET, META).
- Producing, maintaining and supplying cartographic, cadastral and other geoinformation databases and value added products from the data
- Documenting systems, products and services developed in the sector and maintaining the central technical library.
- Organizing training and continuing education for the sector
- Representing Hungary at international forums, especially in the EU and other pan-European organizations
- Acquiring, archiving, pre-processing and distributing satellite data, imagery and aerial photographs; assisting the users with training, consulting and distribution of informative publications
- Carrying out Remote Sensing projects (national and international), mainly in the field of agriculture, environmental protection, water management and cartography.
- It is the National Distributor of Landsat, SPOT, ERS, IRS-1C and Cosmos satellite data and operates the satellite data archive along with the computer system and colour photo laboratory for satellite images and aerial photographs.
- Maintaining the national GPS (Global Positioning System) network & information service.
- Co-coordinating activities associated with national and international geodetic networks

### **3. Land use and land changes**

#### **3.1. Zala County**

##### **Agriculture – land use**

In Zala County agriculture has been the main source of subsistence for local population, even though the soil's level of productivity is not very high. Livestock farming, orchards and vineyards still have an important role in the local economy. The food processing industry that started to develop in the seventies was inevitably based on this fact. Due to the drastical changes in the agricultural sector the number of livestock has started to decrease. Similar difficulties can be experienced in the case of orchards, although foreign capital – primarily Austrian investments – have had a positive impact. The above agricultural sectors can be considered developing fields with suitable circumstances. After analyzing the

distribution of land use in Zala County, one can see that after the change of regime in 1989 the relevant processes also went through transformation. The rate of productive land use decreased and the proportion of uncultivated area grew significantly. By analyzing the distribution of cultivated land, further differentiation is possible and nuance characteristics are revealed. When comparing the period of state socialism and post socialism, the most important differences are the decreasing rate of forests and the increasing rate of the arable land and grasslands.

**Table 15: Distribution (hectare and %) of the land uses in RRA of Zala County (1980)**

RRA	Land area, total hectare %	Uncultivated land	Productive land use					404 358 91.9%		
			Agricultural area		237 606 58.7%			Forest	Reeds	Fish-ponds
			Arable land	Gardens	Orchards	Vineyards	Grasslands			
Zala	440 004 100 %	35 646 8.1%	134 972 30.7%	15 936 3.6%	11 095 2.5%	9 188 2.0%	66 415 15.1%	166 392 37.8%	249 0.06%	111 0.03%

**Table 16: Distribution (hectare and %) of the land uses in RRA of Zala County (1990)**

RRA	Land area, total – hectare %	Uncultivated land	Productive land use					400 870 91.1%		
			Agricultural area		227 560 56.7%			Forest	Reeds	Fish-ponds
			Arable land	Gardens	Orchards	Vineyards	Grasslands			
Zala	440 129 100 %	39 259 8.9%	133 427 30.3%	19 719 4.4%	6 614 1.5%	7 419 1.7%	60 381 13.7%	172 140 39.1%	1 059 0.27%	111 0.03%

**Table 17: Distribution (hectare and %) of the land uses in RRA of Zala County (2003)**

RRA	Land area, total – hectare %	Uncultivated land	Productive land use					314 205 84%		
			Agricultural area		195 936 62.4%			Forest	Reeds	Fish-ponds
			Arable land	Gardens	Orchards	Vineyards	Grasslands			
Zala	373 957 100 %	59 752 16%	126 317 33.8%	2 648 0.7%	3 022 0.8%	3 585 0.9%	60 364 16.1%	117 961 31.52%	214 0.05%	94 0.03%

**Table 18: Livestock (thousands) in the RRA of Zala County (1990, 2000)**

RRA	Cattle stock		Pig stock		Sheep stock		Fowl stock	
	1990	2000	1990	2000	1990	2000	1990	2000
Zala	52	25	80	117	43	14		1 364

At a national level agrarian Zala County does not have a significant role which can be attributed to the natural conditions mentioned above. While there is relatively less agricultural area and forest, the proportion of the protected area is large in comparison. Such a land use structure can partly explain problems with regard to farming in the county. The high rate of protected area sets limits to land available for agricultural or silvicultural use. The value of agricultural land is quite low, therefore the efficiency of cultivating low quality land is less and as a result, what agricultural production can provide is not sufficient. This phenomenon determines the potential improvement of economic sectors, as such influences the employment structure, as well as the local labour market. From this point of view the phenomenon has negative impact in the studied county.

### Tourism

One of the main sources of income in the county is the tourism. This is confirmed by the rapid increase in the capacity of the public accommodation establishment.

**Table 19: Number of dwellings and holiday homes built in the RRA of Zala County (1980, 1990, and 2001)**

RRA	Dwelling built			Holiday homes built		
	1980	1990	2001	1980	1990	2001
Zala	101 336	109 719	117 974			11 303

**Table 20: Capacity of the public accommodation establishment (number, %) in the RRA of Zala County (1990, 2003)**

RRA	Hotels		Boarding houses		Tourist and youth hostels		Camping sites and bungalows		Total	
	1990	2003	1990	2003	1990	2003	1990	2003	1990	2003
Zala	4 094	10 715	56	2 608	1 189	2 915	4 280	10 054	17 810	26 292

**Table 21: Number of tourists and tourist's nights at the public accommodation establishment (1990, 2000)**

RRA	Tourist arrivals		Tourist nights	
	1990	2000	1990	2000
Zala	245	418	1 192	1 867

Due to the increasing number of tourists and the spreading reed-grass and alga in the Keszthely Bay, the deterioration of the water quality has become one of the most relevant environmental issues. Earlier the Kis-Balaton used to determine the water quality of the Lake

Balaton, but since the Kis-Balaton was reclaimed, its important cleaning function had come to an end.

## Economic activity

Decreasing population naturally entails the decrease of economically active population. Statistical data on economic activity at a county level mirrors the national tendencies of the past thirty years. The most characteristic trends are the emergence of unemployment and the decrease of employed population. In comparison with the county level Keszthely Micro Region has a relatively good economic position, as the rate of unemployment is half of the average county rate according to the statistical data.

**Table 22: Economic activity (person) in the RRA of Zala County (1980)**

RRA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Zala	150 423	-	150 423	64 057	102 818	317 298

**Table 23: Economic activity (person) in the RRA of Zala County (1990)**

RRA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Zala	135 665	2 533	138 198	76 335	91 865	306 398

**Table 24: Economic activity (person) in the RRA of Zala County (2004)**

RRA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Zala	117 614	10 117	127 731	91 953	77 720	297 404

**Table 25: Economic activity (person) in the LIA of Keszthely Micro Region (2001)**

LIA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Keszthely	18 560	1 487	20 047	14 631	12 883	47 561

Besides the economic activity we also analyzed the change in the number of employees per industries. Two tendencies can be recognized as decisive phenomena: the continuous decrease of the dominance of agriculture and mining, and the continuous increase of services, real estate and business activities. As tourism is the most important economic activity in Keszthely Micro Region, the majority of employees belong to the third sector.

**Table 26: Number of employees by industries in the RRA of Zala County (1980, 1990, 2001)**

RRA	Zala		
	1980	1990	2001
Agriculture	35 827	22 623	6 416
Mining	4 815	3 820	726
Manufacturing	40 372	36 138	35 083
Electric energy industry	3 736	3 858	1 699
Construction	11 765	9 468	8 219
Trade	11 816	13 265	15 294
Restaurants	3 992	4 476	6 328
Transport, post, telecommunication	11 135	10 183	7 810
Financial intermediation	845	1 147	1 648
Real estate and business activities	2 551	2 390	5 857
Public administration	5 687	8 021	7 713
Education	7 556	8 670	8 889
Health	5 752	7 357	7 577
Other	4 492	4 199	4 355
<b>Total</b>	<b>150 341</b>	<b>135 615</b>	<b>117 614</b>

**Table 27: Number of employees by industries in the LIA of Keszthely Micro Region (2001)**

	Keszthely
<b>Total</b>	<b>18 560</b>
Agriculture	847
Industry	4 200
Services	13 513

### 3.2. Jász-Nagykun-Szolnok County

#### Agriculture – land use

Jász-Nagykun-Szolnok County is considered one of the country's larders as the structure of agricultural production is quite stable. 86 % of the agricultural area is arable land, and 57 % of this land is used to grow grain. This rate exceeds the national average by 10 %. According to statistical data, 21 % of the land area is uncultivated, 60% is arable land, while more than 8% is grassland and over 8% is forest. The main products are wheat, corn, sunflower, rice and industrial plants, but at the same time raising cattle, pig and sheep is also very important. The distribution of agricultural land has changed significantly since 1990. The rate of productive land has decreased along with agricultural land. The most drastic fall was experienced in the case of orchards and vineyards. Nevertheless the proportion of different agricultural activities has not been altered significantly, as weather and geographical conditions are the primary factors determining it. The Hungarian Great Plain is recognized as one of the main grain producing regions in the country. The changes in the distribution of land use illustrated by the tables below can be analyzed by longitudinal data.

**Table 28: Distribution (hectare and %) of the land uses in RRA of Jász-Nagykun-Szolnok County (1980)**

RRA	Land area, total – hectare %	Uncultivated land	Productive land use					521 250 88.7%			
			Agricultural area		467 932 89.8%			Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vineyards	Grasslands				
<b>Jász-Nagykun-Szolnok</b>	<b>587 789</b> <i>100 %</i>	<b>66 539</b> <i>11.3%</i>	385 540 <i>65.6%</i>	12 702 <i>2.1%</i>	2 605 <i>0.4%</i>	3 538 <i>0.6%</i>	63 547 <i>10.8%</i>	50 272 <i>8.5%</i>	1 049 <i>0.1%</i>	1 997 <i>0.3%</i>	

**Table 29: Distribution (hectare and %) of the land uses in RRA of Jász-Nagykun-Szolnok County (1990)**

RRA	Land area, total – hectare %	Uncultivated land	Productive land use					520 111 88.5%			
			Agricultural area		462 118 88.8%			Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vineyards	Grasslands				
<b>Jász-Nagykun-Szolnok</b>	<b>587 789</b> <i>100 %</i>	<b>67 670</b> <i>11.5%</i>	387 360 <i>65.9%</i>	12 687 <i>2.2%</i>	2 011 <i>0.3%</i>	3 008 <i>0.5%</i>	57 052 <i>9.7%</i>	54 505 <i>9.3%</i>	616 <i>0.1%</i>	2 872 <i>0.5%</i>	

**Table 30: Distribution (hectare and %) of the land uses in RRA of Jász-Nagykun-Szolnok County (2003)**

RRA	Land area, total – hectare %	Uncultivated land	Productive land use					472 604 79%			
			Agricultural area		416 532 88%			Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vineyards	Grasslands				
<b>Jász-Nagykun-Szolnok</b>	<b>598 369</b> <i>100 %</i>	<b>125 765</b> <i>21.0%</i>	359 346 <i>60.5%</i>	2 319 <i>0.4%</i>	1 841 <i>0.3%</i>	1 597 <i>0.2%</i>	51 429 <i>8.6%</i>	52 993 <i>8.8%</i>	1 179 <i>1.2%</i>	1 900 <i>0.3%</i>	

**Table 31: Animal stocks (thousands) in the RRA of Jász-Nagykun-Szolnok County (1990, 2000)**

RRA	Cattle stock		Pig stock		Sheep stock		Fowl stock	
	1990	2000	1990	2000	1990	2000	1990	2000
<b>Jász-Nagykun-Szolnok</b>	92	61	330	302	104	63		942

60% of the total area is arable land where primarily wheat, corn and barley is grown. Onion is the most typical vegetable in the region, while orchards focus on producing plums, peaches, cherries and apples. The risk factor of plant cultivation is the weather, with drought as a significant threat, often leading to the thinning out of crops. The factors hindering effective agricultural land use are the following: changes in the condition of water balance, due to frequent damages caused by inland water and the deterioration of the soil structure.

Natural parks, namely the Hortobágyi National Park and the Kőrös-Maros National Park give 5% of the whole territory of Jász-Nagykun-Szolnok County. However, more and more territories have been classified as protected areas and although in view of the natural and cultural values this is a reasonable process, it does not help develop the ability of the region to provide. Beside the agriculture no productive alternative sources of income exist and as a result, the subsistence of the local population is connected to farming.

## Tourism

In the past one and a half decade services connected to tourism have become part of the private sector in Jász-Nagykun-Szolnok County. As the following tables show, the capacity of public accommodation has increased, although only to a small degree. While the number of tourists has grown slightly between 1990 and 2000, the number of nights they spent has radically decreased. As a matter of fact tourism has no significant role in the whole county.

**Table 32: Capacity of public accommodation establishment (number, %) in the RRA of Jász-Nagykun-Szolnok County (1990, 2003)**

RRA	Hotels		Boarding houses		Tourist and youth hostels		Camping sites and bungalows		Total	
	1990	2003	1990	2003	1990	2003	1990	2003	1990	2003
Jász-Nagykun-Szolnok	954	1 696	660	1 222	-	842	6 136	9 074	10 520	12 834

**Table 33: Number of tourists and nights spent at public accommodation establishments (1990, 2000)**

RRA	Number of tourists		Tourist nights	
	1990	2000	1990	2000
Jász-Nagykun-Szolnok	130	139	674	437

## Economic activity

In Jász-Nagykun-Szolnok County changes in economic activity reflect national trends. After the transition at the end of the eighties the phenomenon of unemployment appeared and the number of unemployed increased drastically. Presently more than 5 % of the economically active population is unemployed in the county. At a micro regional level, statistical data from the Tiszafüred Micro Region can be analyzed, since the Mezőtúr Micro Region was created in 2003, so no statistical data is available concerning the latter.

**Table 34: Economic activity (person) in the RRA of Jász-Nagykun-Szolnok County (1980)**

RRA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Jász-Nagykun-Szolnok	205 887	-	205 887	85 903	153 834	445 624

**Table 35: Economic activity (person) in the RRA of Jász-Nagykun-Szolnok County (1990)**

RRA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Jász-Nagykun-Szolnok	181 307	4 591	185 898	105 436	134 249	425 583

**Table 36: Economic activity (person) in the RRA of Jász-Nagykun-Szolnok County (2004)**

RRA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Jász-Nagykun-Szolnok	133 519	22 056	155 575	143 444	116 898	415 917

**Table 37: Economic activity (person) in the LIA of Mezőtúr and Tiszafüred Micro Regions (2001)**

LIA	Employed	Unemployed	Economically active	Economically inactive	Of which: dependents	Total
Tiszafüred	10 162	3 407	13 569	15 263	11 922	40 754
Mezőtúr						

When analyzing the conformation of different industries based on longitudinal data, it becomes clear that the number of employees working in industries belonging to the first and second sectors had decreased significantly. While the number of agricultural employees had plummeted to one fifth in the course of twenty years and by 2001 less than 17% of those formerly employed by the mining industry were still working there, the only significantly developing fields were real estate and business activities. Longitudinal data is not available in the case of LIAs, however the table illustrates the importance of the third sector in both micro regions.

**Table 38: Number of employees employed by industries in the RRA of Jász-Nagykun-Szolnok County (1980, 1990, 2001)**

RRA	Jász-Nagykun-Szolnok		
	1980	1990	2001
Agriculture	54 842	39 539	11 395
Mining	1 669	1 733	287
Manufacturing	59 518	50 985	37 511
Electric energy industry	4 185	4 091	2 311
Construction	14 113	10 958	8 314
Trade	17 884	17 053	17 301
Restaurants	2 405	2 303	3 768
Transport, post, telecommunication	14 915	14 904	8 897
Financial intermediation	1 073	1 507	1 740
Real estate and business activities	2 723	2 885	6 484
Public administration	8 401	10 617	11 258
Education	10 095	10 705	11 513
Health	6 822	8 227	9 000
Other	7 104	5 726	3 740
<b>Total</b>	<b>205 749</b>	<b>181 233</b>	<b>133 519</b>

**Table 39: Number of employees employed by industries in the LIA of Mezőtúr and Tiszafüred Micro Regions (2001)**

LIA	Mezőtúr	Tiszafüred
<b>Total</b>	<b>9 317</b>	<b>10 162</b>
Agriculture	963	1 363
Industry	3 506	3 128
Services	4 848	5 671

The issue of protected areas and natural parks concern both studied counties. As a matter of fact, two significant waves of establishing protected areas can be mentioned. Four of the natural parks have already existed in the seventies, among others the Hortobágy National Park, while since the nineties six further parks have been established. According to the Hungarian classification of protected areas four different categories can be defined. “National parks” have the largest area and the preservation focuses on natural and cultural values. In general the “areas of landscape protection” are smaller and the protection primarily emphasizes natural values, while “nature conservation areas” are very small territories with the role of conservation. The latter category can be divided in two; depending on the importance of a territory, it can be of national or local significance. In the past 30 years the proportion of protected areas has increased, changing the structure of land use.

**Table 40: Protected areas (hectare) of national and local significance in the RRAs**

RRA	Protected areas of national significance									Protected areas of local significance		
	National Parks			Areas of Landscape Protection			Nature conservation areas			Nature conservation areas		
	1977	1990	2001	1977	1990	2001	1977	1990	2001	1977	1990	2001
<b>Jász-Nagykun-Szolnok</b>	8450	8500	17087	2290	8358	6428	10740	3497	2116	17	5035	818
<b>Zala</b>	-	-	21586	1359	14027	1359	263	352	306	239	543	2718.5

## 4. The case studies

### 4.1. Studied cases

#### Zala County – Keszthely Micro Region

The environmental features of Keszthely Micro region are basically determined by the fen of Kis-Balaton that was drained in the late sixties. The proliferation of algae on the Lake Balaton depends of the phosphorus content of the water. The Zala River and other unclean sewage sources, as well as air and precipitation are also factors partly responsible for the spreading algae. In the middle of the eighties the first phase of land rehabilitation was finished and the phosphorus content fell to half of the earlier amount. The land rehabilitation of Kis-Balaton was based on establishing a lake-system in the area. The lake system was meant to ensure the ‘artificial cleaning’ of the Lake Balaton. A multifaceted discourse is going on about the potential consequences of the second phase of land rehabilitation. On one hand, in theory the fen’s vegetation filters the phosphorus and the polluted water, however on the other hand, algae can also feed off mud, so the proliferation of algae could not be prevented by artificial cleaning. The second phase is still debated, as it would mean that the two thousand hectare territory of a fen that is considered unique throughout Europe and provides habitat for a rare bird population would be flooded. This intervention would pose a threat for approximately 230 bird species, from which 29 are regarded as highly endangered species. Although the World Bank has guaranteed the financial background of the investment, the technical execution has not started yet, as some of the ecological consequences had not been looked into. The whole territory of Kis-Balaton is a protected area of national significance, so the intervention would have to be executed in line with the norms of environmental

protection. There are two groups with opposing interests: one emphasizes the flora of the territory, while the other stresses the fauna. The industries that have any kind of connection to the lake or the fen, also participate in the debate. Interest in the region's water management and tourist services can be linked to the Lake, as this is the base of subsistence for anyone running a business in the area.

#### ***Jász-Nagykun-Szolnok County – Mezőtúr and Tiszafüred Micro Region***

The River Tisza was seriously polluted by cyan, followed by significant metal contamination in January 2000, giving way to negative environmental consequences reflected in both the ecosystem and the socio-economic situation of the riverside settlements. The effect on the environment can be studied from a medical and ecological aspect, as well as from the aspect of land use. Although it is forbidden to use cyan in gold mining, not only in Central and Eastern Europe, but also in the countries of the third world, this method is still in use. In northern Romania, due to the bad weather conditions the dam of the cyan reservoir lake broke through and the polluted water contaminated the Tisza and Szamos rivers. In the middle of March the polluted water reached the area of the Tisza Lake and not only the rivers, but their surroundings were polluted as well. The attitude of local inhabitants towards environmental protection has changed due to the ecological disaster. The importance of local tourism has decreased significantly. According to the interviews, returning to traditional land use would have a positive influence on tourism and moreover it would create new job opportunities as well. It is quite clear that thanks to the disaster, environmental protection and the ensuing changes of the land use system have become relevant issues. Ever since changes in land use have been primarily initiated in the areas most endangered by flooding where cultivation is gradually replaced by forestation. The cultivated land is characterized by weak productivity, this one of the reasons why economic diversification became an obligatory element of development strategies. After the above mentioned environmental disaster a number of studies focused on the social, economic and ecological situation of the region. The Environmental Management and Law Association carried out one of the most comprehensive projects called the Tisza Lake Project between 2000 and 2001. The purpose of the project was to analyse the long term and short term consequences of the contamination, to elaborate a landscape rehabilitation programme and outline strategies for the future. In the final report, a complete land protection system was also presented. Following the disaster theoretical knowledge came to play a key role in questions regarding land use, resulting in projects such as the Tisza Lake Project.

#### ***4.2. Actors and knowledge types***

According to the different categories of land use, four types of knowledge can be distinguished: academic, expert, managerial and local knowledge. When analyzing the different knowledge types, including their importance and role, one may note the articulation of different local strategies, for example in the elaboration of development plans. According to our hypothesis, these are processes in which all relevant actors may represent their interests to varying degree.

There are three aspects to the significance of academic knowledge. This knowledge may assist social, economic or political processes or may serve as guidelines according to which certain local conditions are determined. This means that ideally academic knowledge would be of help when evaluating the situation and appraising possibilities and risks. As a result, the third aspect of this type of knowledge is their initiative role, as ideas and a detailed appraisal of the possibilities are often lacking in case of strategy-making. In such cases it is important to boost the creativity of the actors or the locality by raising good initiatives, models,

examples and ideas. The aim is that not only the most general strategic solutions come to light. The most frequent critique of academic knowledge concerns the contradiction between being deeply rooted in theories, but only skin-deep when it comes to practical aspects.

Each sector has experts specialized in different fields. With regard to land use, experts may belong to the areas of agriculture, environmental protection, tourism or other services. They have basic knowledge of one field, often focusing on one of this field's special aspects, making their knowledge deeper, but also narrower at the same time.

The knowledge of management experts is quite theoretical. It is based on theoretical approaches, schemes, improving models from the EU or Hungary and structuring competencies, so that its basis is not only the lexical, but also the experienced knowledge of the Hungarian country. They often have the role of contact person between local actors, inhabitants, producers, NGOs and state offices or bureaucracy. The quality of this knowledge depends on the experience that goes with it. Furthermore, one of the most essential elements of this knowledge is based on adequately specialized education.

Local actors, such as mayors, producers, restaurant owners or investors who have a specific connection to the area, constitute the fourth group with specialized knowledge. Their most important purpose is using the land. The knowledge of these actors usually focuses on local conditions, such as social, economic, political or environmental circumstances that play an essential role in every development strategy.

In the following table all the actors of land use are displayed in the context of the LIA, showing their direct or indirect influence on land use, their objectives, as well as the different types of knowledge they have.

**Table 41: Actors of land use in the context of LIAs of Keszthely Micro Region (KMR) and Tiszafüred Micro Region (TMR) together with Mezőtúr Micro Region (MMR)**

Actors	Influence	Objective	Type of knowledge
Small-scale/Family farmer	Direct	Agricultural development, getting assistance	Expert/local
Large-scale farmer	Direct	Agricultural development, getting assistance	Expert/local
Landowner	Direct	Favorable investment of land use, financial resource	Expert/local
Land renter	Direct	Favorable investment of land use	Expert/local
Environmental activist	Direct	Environmental conservation	Expert/local
Real estate agent	Indirect	Land and real estate marketing	Expert/local
Local government, mayor	Direct	Effective land use structure, financial resource	Local
County Land Offices, District Land Offices	Direct	Land administration	Expert
Rural manager/rural developer	Direct	Effective land use structure	Manager
Scientist	Direct/Indirect	Effective land use structure	Academic

Local educational institutions	Indirect	Effective land use structure	Academic
Local Church	Indirect	Effective land use structure	Local
NGOs	Direct/ Indirect	Effective land use structure	Local

One of the possible approaches to the analysis of land use and its changes is based on analyzing the actors, their roles, their dominant interests and strategies. Characteristic groups can be defined according to the struggle for different sources of support and lobbying for different interests. Since the related financial funds are limited, both the operational mechanisms and the development strategies are determined by the results of these struggles. In the field of agriculture, those working as agricultural producers can be distinguished from those working in the administration with only an indirect connection to this field. Large scale producers are to a certain degree in contradiction with smaller producers or family farmers, as they have different demands concerning agricultural policy, assistance or development strategies. While these groups are divided regarding the question of how to make agricultural production more effective, in a wider context they belong to the same lobby group. They form the agrarian lobby in the context of rural development and land use issues. They are usually in conflict with the ones viewing land use from an environmentalist or a biofarmer point of view. In rural areas even less productive land is cultivated, as the principle of economic diversification has not been adopted everywhere yet and due to the lack of alternatives agriculture is the only source of subsistence. The poor quality of land or the protection of special natural values may give rise to not cultivating certain territories. However most of the time it is difficult to reconcile the interests of landscape protection and agricultural land use. The third important group playing a role in land use is formed by the actors of tourism, recreational land use and real estate business. Local population often adjusts to the tourists' needs, providing the services in demand. These areas are usually the most profitable ones, however they are also the ones needing the most investment. Tourists, local and outsider actors of the local service sector and the owners have significant roles in this context. Furthermore, those actors also have to be mentioned whose range of activity includes all sectors, such as NGOs representing the civil society and state institutions representing the bureaucracy.

#### **4. 3. The comparison of cases**

The main differences between the two study areas are the following. Keszthely micro Region focuses on tourism and recreational services and as a result, the land use structure of the region is more diverse. In Keszthely micro-region mass tourism and recreation have the primary impact on land use. The importance of farming is diminishing; this is partially the consequence of low productivity and poor land quality. Local traditional farming has been transformed according to the demands of touristic consumption. The territory of settlements has grown and nowadays, on once arable land grape plantations, national parks or protected areas can be found. The lakeside and the surrounding plots have been dedicated to tourism. Wineries and local food processing industries are mainly based on tourism. Nature protection, the lake's water management and the creation of natural parks have been the focus of development plans regarding the tourist industry and the negative impact of mass tourism has

become a much debated issue. The investments in real estate are directed towards residential areas and agricultural plots only constitute a secondary dimension of economic development. The local governments play a central role in the regulation of land use. They have the right to classify land as agricultural, preserved or construction areas. It is their task to handle conflicts between groups lobbying for nature protection and conservation on one hand and tourism oriented development on the other. The leaders of local governments use their political knowledge to reconcile the two parties. Time to time local governments are involved in development projects as the organizing and coordinating institution and this function implies managerial knowledge. The Georgicon Faculty of Veszprém University in Keszthely provides scientific background for development plans and occasionally for the preparation of proposals. State or local development agencies have managerial knowledge of local land use. Local entrepreneurs (with managerial knowledge) are active mainly in the construction industry. Only a few farmer use local, traditional knowledge in farming.

In Mezőtúr, Tiszafüred micro region tourism does not play such an important role in local economy as in the case of Keszthely. The Hortobágy puszta is a tourist attraction with tourist programs, museums and puszta events that have 200 000 visitors yearly. The Tisza Lake and the city of Tiszafüred are places for tourism and water sports. Altogether land use dedicated to tourism and recreation is much less than in the Keszthely area. Investment in real estate targets arable areas, because land here is one of the most productive in the whole country. Agricultural production is still the predominant form of land use in the micro region; however the importance of farming in local economy and labor force is gradually decreasing. The industrial and agricultural producers use high quality managerial local knowledge, while the small-scale and part-time farmers primarily use local and some managerial knowledge. There is a college in the city of Mezőtúr where the academic staff has scientific knowledge, but their expertise is relied on to a lesser extent in local land use projects than in the case of Georgicon faculty in Keszthely. The nature and land protection is in conflict with the interests of farming.

## **5. Summary**

When analyzing the trends of land use in Hungary in the past thirty years, one can observe a number of changes in the main tendencies. After the transition, the socialist system of agricultural production collapsed and due to privatization and land restitution the forms of land use and land ownership changed radically. While the change of system gave rise to a completely new economic approach, the accession to the European Union has brought a more gradual, but much more radical process of change. Since the accession and even during the pre-accession period environmental protection and the conservation of natural values have played a significant part in policy-making and social discourses. This can be explained by the long-term period of non-sustainable husbandry, the rather rapid consumption of natural resources and the considerable emission of polluted materials. It has become clear that environmental problems cannot be treated separately. The effective treatment of these problems would be the integration of environmental protection in the political and economic discourse. Present-day agriculture has roles other than simple production according to market demand. The countryside can be regarded as not only the site of agricultural production, but also a social territory for living. It cannot be defined exclusively from an agricultural aspect and any kind of economic investment has to taken into account the natural, social and cultural dimensions. In a sustainable economy it is fundamental to find the most adequate functional and sartorial structure that also suits the local environmental conditions. The sustainable land use structure is devised according to the advantages and disadvantages of the given territory,

as none of the economic sectors are capable of changing the conditions of a certain area. We choose to ignore the model of segregation that limits environmental protection to the territory of protected area and lets agricultural production go on without any environmental restrictions. In the socialist era land use and especially agriculture focused on the industrial production. After the transition, during the period of transformation this approach was replaced by the EU-conform one and a National Agri-Environmental Program was published in the nineties. Parallel with this process the importance of alternative knowledge increased and a much more complex discourse was started on land use.

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## Land Use Management in Poland

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### 1. Introduction

The CORASON project research is carried out in Poland in two Regional Research Areas [RRAs]. Malopolska region (RRA1) is situated in the south of the country, bordering Slovakia. It is a voivodship with a large rural population and specific features of mountainous areas. In contrast, the Lodzkie region (RRA2) is situated in the centre of Poland. Due to its location the region is a transit and junction area. The choice of these two RRAs, having dissimilar historical and cultural backgrounds, as well as different natural conditions, will allow us as we hope to present the widest possible scope of land use management issues in Poland.

In Poland, many regions require overall structural readjustment. It refers also to the region of Lodz, which used to be the centre of the country's textile industry. Therefore, the region is a so-called problematic one. On the other hand, the necessity for multifunctional stimulation is also pointed out, especially as for the ecological development of rural areas, including organic farming, which is competitive on regional level. The expansion of large cities is becoming an increasingly common phenomenon in Poland, particularly in the Lodzkie and Malopolskie regions. The phenomenon is currently quite dynamic. Moreover, a frequently dispersed suburban infrastructure enters into attractive landscapes of high natural value, causing irreversible changes in the functioning of the natural systems... The attractiveness of these terrains surrounded by vast forest areas is the reason for investors' special interest in the possible exploitation of such areas for building purposes. Many large forest areas have been locked in by a tight ring of seasonal resort and residential buildings, leading to various and, in principle, harmful impacts on the natural environment. Uncontrolled urbanization leads to increasing isolation of protected areas, an increase of invasions by non-native species, and pollution of the environment (especially water). In many cases there appear new settlements, very loosely tied to the local population, inhabited by newcomers drawn to the place by its natural attractiveness. In choosing the Nowosolna municipality as LIA's2, we were to a large degree motivated by the fact that 54% of its area lies within the borders of the Landscape Park of Lodz Heights. Simultaneously, its location is in the close vicinity of a large city (Lodz) as well as the A-1 highway construction project, which is currently entering the realization phase; both generate extremely strong factors contributing to a growing interest in matters of land use management among all interested categories of actors.

Raciechowice gmina- Local Implementation Area 1 is situated in the southeast part of Malopolska region, 40 km from Krakow. This gmina has a typically agricultural character,

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with almost no industry. It is known for its well-developed orchards and has a long tradition in such products.

Malopolska and Lodzkie regions are two of Poland's 16 administrative units called voivodships [województwa]. This is the top level of local administration, consisting of the smaller units called powiats [powiaty] and gminas [gminy]. This three-level administrative division of the country was introduced by the administrative reform of 1 January, 1999. During the period 1975-1998 Poland was divided into 49 smaller voivodships and there was no powiats level.

This change has had a very important influence on the content of this report. Due to the lack of comparable data since 1980, it is very difficult to give a detailed picture of the historical trends in RRAs. For that reason, primary attention was given to the descriptive presentation of the long-term changes and the concrete numbers are included where it was possible to find the suitable data.

## **2. Land use management in the RRA context**

According to the latest data, the total area of agricultural land in Poland in 2002 was 31 268.5 ha. Arable farm land constitutes the majority (i.e. 54%) of this total, 29.1% of it occurs as forests, and 16.9% falls into the category described by the Central Statistical Office as "the remaining land". Our attention was drawn to the fact that the last category also included ha of arable land not used for agricultural purposes (including 937 000 ha being private property but not constituting agricultural farms) a part of which constitutes areas which do not have agricultural production, such as recreational or building grounds. The results of the General Agricultural Census 2002 indicate considerable changes in land use have occurred in Poland during the last six years (i.e. since 1996, when the previous census was conducted). The area of land belonging to agricultural farms has decreased by 6.9% (1.5 million ha), and within this shift the area of arable land itself has decreased by 5.5% (982,500 ha), whereas the area of land which falls within categories other than agricultural farms has increased. The above data indicate a considerable decline of land used as agricultural farms and reflect a systematic process of the transfer of agricultural land to building and recreational areas, as well as to non-farming activity. The magnitude of this change is also indicated by the growing reduction in the total number of agricultural farms (by 4.3%) and changes in the structure of agricultural farms (i.e. the rising share of the smallest areas with arable land up to 5 ha - from 70.2% to 72.4% - as well as of bigger farms over 20 ha - from 2.8 to 4.1%).

### **2.1. Description of the RRA1: Malopolska region**

Malopolskie voivodship covers 15189 km<sup>2</sup> (since the last change of administrative borders in January 2003), which is about 5% of the country's surface area. The voivodship's population is 3 217 000 (data for December 2003) which is 8.37% of Poland's population (fourth highest in the country). The population density is 212 persons per sq. km; the second highest in the country (just behind the voivodship of Silesia). The country's average population density is 124 persons per sq km.

The urban population in the region is 49.9% of the total population, which is significantly less than the 61.8% urbanisation indicator for the whole country. Malopolska's urbanisation indicator has been going down since 1995 (when it was 50.8%) despite the fact that several localities were given town rights. This is mainly because of the migration from urban into rural areas and the negative natural increase of population in urban areas.

Rural areas were inhabited by 1629 900 people which gives Malopolska region the second largest rural community in Poland. In the years 1988–2002 (between the last two National Censuses) the rural population increased 6.88%, whereas the urban population increased only 2.61%. In the same period, the numbers for the whole country were, respectively, 0.57% and + 1.88%. One can observe in Malopolska a stable tendency for a growing rural population, in contrast to the rest of Poland. Additionally, rural areas are characterized by their exceptionally high population density of 119 persons per sq. km. That is over two times more than the country's average (50 persons per sq km)

The urban network in Malopolska consists currently of 55 towns and cities. Most of them are small towns, having up to 10 thousand inhabitants (27 localities). The region's capital, and biggest city, is Krakow, inhabited by 706 000 people, which makes it the third largest city in Poland. Other large cities are Tarnów (with 118 000 inhabitants) and Nowy Sącz (with 90 000).

The Malopolska region's territory is quite compact – 15.1 sq km/ km! It is borders Silesia voivodship (województwo Śląskie) to the west (295 km), Swietokrzyskie voivodship to the north (182 km), Podkarpackie voivodship to the east (80 km) and Slovakia to the south (317 km, this is the only border based on the geographic criteria).

Malopolska has the most diversified geographic surface characteristics in the country. Most of its territory has an upland or mountain character. Over 30% of the area has an elevation more than 500m above sea level and only 9% lies less than 200m above the sea level. With an altitude differential of 2340 meters, the zone of permanent inhabitancy (ekumena) is 1000 meters.

In Malopolska one can find 9 of the 17 main types of natural landscape in Poland and 7 different climatic levels, including the area of Poland, with the highest annual sum of precipitation.

Compared to the rest of the country Malopolska voivodship has quite substantial surface water resources but very limited amounts of subterranean groundwater. Due to the mountainous characteristics of many rivers and streams, rapid fluctuations in water levels and floods occur frequently in many areas. The flood wave culminates in the Vistula (Wisla) river valley and endangers the city of Krakow and its surrounding territory. It is estimated that 48% of the region is the especially threatened by flooding.

The main transportation structure of Malopolska voivodship is the A4 motorway (between Krakow and Katowice) and interregional road #7 (from Gdansk to Warsaw to Krakow to the country's southern border), as well as road number #4 in the east-west direction (from Wrocław to Przemyśl).

In terms of population density, the Malopolska region is much diversified. The lowest indicator is for the gmina of Uście Gorlickie, at 22 persons per sq. km., whereas the highest is for the town of Andrychów, in the east of the region, at 2286 persons per sq. km. What is interesting is that Andrychów has a higher population density than Krakow, the region's capital; this was observed for the first time in the year 2000. The areas of the highest population density lie around the three biggest cities (Krakow, Tarnów, and Nowy Sącz) and in the western and central parts of the region. Areas of the lowest population density are concentrated in the northern parts of the region (gminas of the Vistula river belt) and in the mountainous areas to the south.

Malopolska's economic activity accounts for 7.4% of the country's GDP. The structure of its economic activities is rather dysfunctional and needs to be transformed. 34% of the total working population works in the first sector (agriculture, forestry and fisheries), while 25% is employed in the second sector (industry and construction), and over 40% is employed in the third sector (services).

## Land use issues and patterns

The total geodesic surface of Małopolska is 1519 thousand hectares. From that, agricultural land comprises 943.7 thousand hectares (62.1%), Forest land 457 thousand hectares (30.1%), Built-up land and urbanised land 74.7 thousand hectares (4.9%), water 23 thousand hectares (1.5%) and wastelands 8.7 thousand hectares (0.6%).

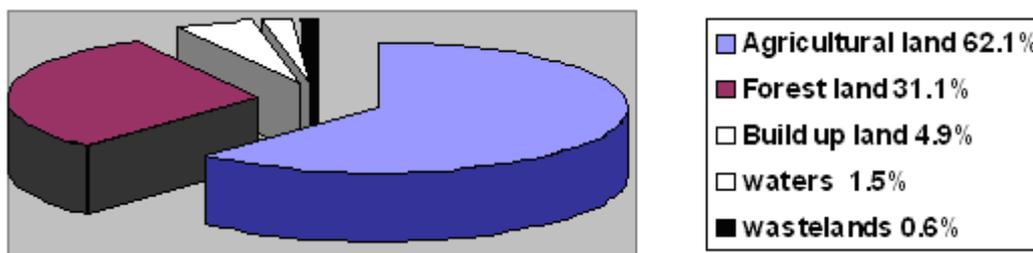
(see Graph 1: Land use distribution in Malopolska Region. Data for 2004)

Agricultural and forest land that was excluded from agricultural and forest production in 2003 was 177 hectares (8.3% less than the year before]. From that number, 63% was turned into build-up land, 14% was used by the mining industry, and 10% for industrial and communication purposes.

**Table 1: The Structure of Agricultural Land in Malopolska Region**

Type of land	Surface by % age		
	1998	2002	2003
Arable land	72.3	66.5	65.0
Orchard	2.6	1.8	1.7
Meadow	15.9	25.2	26.4
Pasture	9.2	6.5	6.9

**Graph 1: Land use distribution in Malopolska Region. Data for 2004**



In total area of agricultural land, arable land covers 65%, meadows and pastures (green utilities) 33%, and orchards 1.7%. During recent years the area of agricultural land decreased by 14.7%. That was mainly due to the decrease in arable land. Orchards area stayed approximately at the same level, whereas the area of “green utilities” increased significantly.

Małopolska region has a very unfavourable agrarian structure. Over 97% of agricultural land is privately owned and there are 373 700 farms. The main problem is farm size – on average, only 2.6 hectares (6.6 ha in Poland), of which only 2.1 hectares is agriculturally used. Over 90% of farms are smaller than 5 hectares, and farms of the relatively optimal size of 15-20 ha represent only 0.2% of Małopolska farms. The negative factor is the large number of plots that are spread over the large area. This structure is rather static since only 1 or 2 farms per hundred are changing their size each year. In many areas farm plots are even further divided into smaller parts.

This is one of the main challenges of land use management in the region. Economic realities require the urgent transformation of the agrarian structure as a key condition of

successful development of the Agricultural sector, but attempts to do that have not brought positive results. The most popular tool which has been used to improve the agrarian structure was the land consolidation programs. Such programs, funded by the state government in the 1990s and which are now a part of EU structural policy, turned out to be unsuccessful in Maloposka. During the last decade only a few such programs were implemented, all on a very limited scale. Some attempts triggered strong conflict in local communities and had to be suspended (the most radical example being in the Lipnica Wielka area in the Podhale sub-region). There are many reasons for this. Most importantly, the particular agrarian structure is strongly influenced by historical factors and a local tradition. Also, physical factors play a crucial role as geographic conditions of mountain areas favour small plots. The problems with changing the agrarian structure are more deeply examined in section 3.2.1- context analysis in LIA1.

Conflicts concerning land use management also stem from another aspect of spatial planning. This issue is linked to the policy of nature/environment protection and waste management. Since the Malopolska region has the largest share of the legally protected areas in the country, in total surface (58%), problems concerning nature protection are significantly influencing spatial policy. Controversies are occurring in the mountain areas (e.g. in the Tatra Mountains National Park) where both local communities and external investors are aiming to develop the tourism infrastructure. But also in the Krakow vicinity there are problems in this matter concerning the Scenic Park of Jurassic Valleys. Situated in a suburban area, this park is a very attractive location for residential estates, so it has been under great pressure by developers and private investors. Local inhabitants, motivated by high valuations of their land are demanding that authorities allow more intensive settlement.

Similar problems are connected with waste management. The siting of waste dumps is always a very sensitive issue and often triggers controversies in local communities. Spatial policy has to deal with these challenges which are sometimes very difficult. The example of the successful practice in this matter is described as the case study in section 4.

According to the results of our research the next significant problem for spatial policy at the voivodship level is the lack of coordination and clear division of powers between different administrative levels. As was stated earlier, the Conception of the Country's Spatial Policy has a very general character and "there is a long way from it into the gmina's level". The Regional Plan that should be a mediator between these levels has no legal force to be efficient enough. The law on Spatial Planning points to negotiations with gminas as the way for regional government to influence local planning. But in reality this is a very weak instrument for organising the spatial order. What is more, some aspects of regional spatial planning are controlled by national arrangements. This is the case with the so-called 'special zones' which have military or international significance. In Malopolska this regulation concerns, for example, the historic area of the former Nazi death camp of Auschwitz. As it is situated within the city of Oswiecim, the development of urban infrastructure in the city was causing some serious problems and conflicts between the local community, local business and the Auschwitz museum. A special law for the protection of the area of the former Nazi death camp introduced strict rules pertaining to spatial order in that location. Both voivodship and gmina authorities must obey these regulations.

Another example of problematic issues with spatial planning is the case of transportation investments. According to the new law regarding "National Roads and Motorways" decisions about the siting of newly built roads can be taken outside the normal procedures of spatial planning. In practice, the local governments have nothing to say in such matters and the exclusive responsibility belongs to the General Directorate of Roads and

Motorways. Regulations that were aimed to smooth the path for new investments are causing uncertainty and conflicts within the local communities. They are also a significant obstacle when creating regional and local spatial plans, as the future motorways are mapped out only very inexplicitly. (A similar problem with a planned railway line is described in section 3.2.2. – study of policy implementation in LIA1.)

## **Description of the RRA2: Lodzkie region**

1. Lodz Region is situated in the centre of Poland. It has a compact, circular shape, with the city of Łódź, the region's capital, in the centre. Due to its location, the region is a transit and junction area.
2. Moreover, the region's location is important for European north-south and east-west links. Its importance as a transit area may become an advantage in challenging other competitive regions in Poland and abroad.
3. The forest cover of the region is 20.4% (whereas the national average is 28.1%) and is one of the lowest in Poland. Most of the region's area has been significantly anthropogenically altered.
4. The region covers an area of 18,219 km<sup>2</sup> (ninth biggest region in Poland) which makes it a region of average size. The population density is 143 people per km<sup>2</sup> (4<sup>th</sup> densest region in Poland) – see **Table 2**. The level of urban development is high, at 65%, thus exceeding the national average. The settlement network is of high density (3.5 km<sup>2</sup> per place, whereas the rate for the whole country is 5.4 km<sup>2</sup>).
5. The population of the Łódź region is 2,607.4 thousand people (as of the end of 2002), the sixth most populous region in the country. The demography of the population is unfavourable due to negative population growth (the lowest rate in Poland) at –3.2 per mille and a negative migration balance which creates a significant outflow of people. Demographic projection indicates that by 2020 the number of people in the region will have decreased by 154 thousand in comparison with 1998. Moreover, the age structure of the population will have changed significantly. The population will be ageing and so (in comparison with 1998) the number of people of pre-working age will have fallen by more than 17.9%, the number of people of working age will have dropped by more than 10% whereas the number of people of retirement age will have increased from 16.8% to 23.2% by 2020. The greatest outflow of population from the region will occur in the city of Łódź.
6. The level of education among the regional population is similar to the national average. About 9.2% of the people have a university degree (lower than the national average). The phenomenon of a bigger share of young people continuing their secondary and higher education does not have any impact on the education level in the region as a lot of educated people are emigrating in search of a job.
7. The value of the gross domestic product for the Łódź region in 2002 was 9.5% lower than the national average, in the 8<sup>th</sup> position in the country. In the same year a 21.6% increase for GDP per capita was recorded, in comparison with 1999.
8. Agrarian structure
  - In 2002 there were nearly 209.5 thousand farms in the region, including private agricultural farms of more than 1 ha, which constituted 78.7% of the total number of farms.

- As for the structure of farms there are many small farms of 1 to 5 ha and they account for 39.5% of all farms. 33.3% of the farms cover areas of 5 to 15 ha and only 5.9% occupy areas of more than 15 ha.
- An average farm in the region covers an area of 7.9 ha and this is a typical farm size for central Poland; it is slightly smaller than the national average of 8.6 ha, but much smaller than an average farm in western or northern Poland.

**Table 2: Distribution (%) of the land uses in the RRA, 2002**

Total (absolute) km2	18219
Agricultural land	72.4%
Forests and wooded area	20.9%
Water	0.7%
Minerals	0.2%
Transport land	2.8%
Residential land	1.7%
Ecological land	0%
Wasteland	0,9%
Miscellaneous	0.4%

Source: Head Office of Geodesy and Cartography

#### **Strengths of rural areas:**

- high level of animal production (when compared to the national average),
- areas of highly concentrated vegetable and fruit production,
- environmentally sensitive areas.

#### **Weaknesses of rural areas:**

- a large and growing percentage of people employed in agriculture (their number increased from 31.3% in 1999 to 33.2% in 2002),
- relatively high level of unemployment (including “hidden” unemployment),
- low activity in search for other sources of income than agriculture,
- low level of education among inhabitants of rural areas,
- low level of self-organisation of farmers,
- poor quality and high acidity of soil,
- high level of dispersion of farms,
- unfavourable agrarian structure of private farms in agriculture.

#### **Opportunities** for development of rural areas are perceived to be as follows:

- improved ecological awareness among society,
- promotion and investment in renewable energy resources (including development of heat engineering based on geothermal water),
- favourable environmental conditions for development of ecotourism and tourism for inhabitants of urban areas,
- subsidies for rural areas from national and EU resources, including environmentally sensitive areas,
- Development of the manufacture of high quality foodstuffs and prospects for land consolidation.

The necessity for multifunctional stimulation is also noted, especially for ecological development of rural areas, including organic farming, which is competitive on a regional

level. It should improve the economic and social situation in rural areas as well as the condition of its environment.

## **2.2. Institutional framework for Land Use Management in RRA 1&2**

In Poland the spatial/land use plans are prepared at three levels: local, provincial and national. The Government Center for Strategic Studies prepares the concept of spatial planning, taking into account the objectives contained in the national development strategies and government strategic documents. The settlements contained in the province plan have to be introduced to the local plan established by the gminas.

The land use planning system is decentralised and power is given to the local administration. It is a so-called self-governmental model. At the national level spatial policy is coordinated by three separate ministries: Internal Affairs and Administration, Ministry of Economy, and Ministry of Environment. The basic document in land use matters is the Conception of the Country's Spatial Policy, periodically revised by the Council of Ministries. This is a rather general study, having mainly a strategic character, and is intended to shape the spatial policy at the lowest levels.

At the voivodship level there is a Division of Spatial Policy, which is a part of the Marshal's Office that coordinates issues of land use management. Additionally, there is a separate Office of Regional Geodesy which also plays an important role in land use management. It is noteworthy that in Malopolska the Division of Spatial Planning is located within a larger division of the Marshal's Office called the Department of Nature Protection and Rural Development. That organisational connection is stressing the close linkages between the spatial policy and problems of rural development. This allows for better cooperation between teams of officials (as shown in the results of our interviews).

At the powiat level there are separate administrative units responsible for Landscape design and buildings supervision, but there is no spatial plan for the powiat area. Many powiat governments create studies and analysis on spatial planning matter but they have no legal force.

At the gmina level several units deal with land use management and spatial policy. The organisational structure differs throughout the gminas. In some gminas there is one special department within the local government, in others responsibility is shared between many officials working in separate offices.

According to the new law, the local plan of spatial/land use planning is the chief document for planning in the gminas. It provides, for example, the basis for issuing a permit to build. The spatial policy of the municipality is determined by the study of conditions and directions for spatial planning. Also according to the law, the study and the local plan have to be consistent. The rank of either of these documents is different however – the local spatial plan is an act of the local law, while the study has no such authority. Establishing goals and principles for territory management were classified among the tasks of the municipality and are a manifestation of its independence in planning management.

## **2.3 Policy framework for land use management in the region**

Throughout more than 40 years of the post-war period, environmental protection was regulated by The Act on the Protection of Nature of 1949. At the beginning of the 1990s, after the systemic transformation, a new act regarding the protection of nature was passed (the Act on the Protection of Nature of 16 October 1991). In that period new regulations were created concerning nearly all areas of life in Poland. New acts concerning the protection of environment, forestry, spatial economy and building law came into being at that time. As it

later turned out the majority of these acts had a short life, as most of them were significantly amended soon after their passing and completely new acts were issued after about 10 years (the protection of nature - 2004, the law of the protection of environment - 2001, spatial/land use planning - 2003). It could be stated that during the period 1990-2005 such changes (e.g. in the area of spatial planning) occurred in a very unstable legal situation, making perspective planning and rational working rather difficult.

One of the examples of instability of the regulations in this area was the suspension of nearly all hitherto existing local plans by The Act on Spatial Planning of 27 March 2003. Many municipalities, primarily for economic reasons, had failed to prepare new plans until that time. This has obviously complicated space management, especially at present, during a phase of dynamic investment transactions observed in the country.

Shaping regional spatial policy is one of the main tasks of the regional government. The main tool used to implement that policy is the Regional Land Use Plan (Plan Zagospodarowania Przetrzennego Województwa), which is the act passed in the regional legislative (Sejmik Wojewódzki). According to the new law on Spatial Planning, which came into effect in 2003, the Regional Land Use Plan must address:

- Basic elements of the settlement network, transportation and infrastructural connections.
- The system of legally protected areas (protection of nature, environment, landscape, and cultural heritage)
- Localisation of the “Public aim investments, having beyond-local significance”
- Problematic areas with rules of their governance, metropolitan areas
- Restricted areas, areas endangered by floods

The Regional Land Use Plan is created on the basis of the Regional Strategy of Spatial policy which is an analytical study presenting the main problems, assumptions and aims of land use management. The plan should also incorporate the conclusions presented in the Conception of Country’s Spatial Policy. Regional Land Use Plan is to determine the spatial aspects of the regional development policy. It is the document through which the main elements of the development strategy are to be reflected in the local planning. Recently, Poland has also been developing its trans-border cooperation, also on the issues of spatial planning. In 1995, a common study of the directions of spatial policy along the Polish-German border was undertaken. Similar attempts were initiated for the other border areas. In Malopolska, work on common arrangements with Slovakia is in a very early stage, but the Regional Spatial Plan and Strategy includes the problems of trans-border cooperation.

Despite these important goals, the Regional Plan has no direct legal power, so the Local Spatial Plans, created at the gmina level, do not have to follow its regulations. In fact, these Local Spatial Plans are given the dominant position in the Polish system of spatial policy. The gmina governments are responsible for creating the detailed spatial plans which constitute the base for the individual siting decisions

### 3. Land use changes and processes in the LIAs context

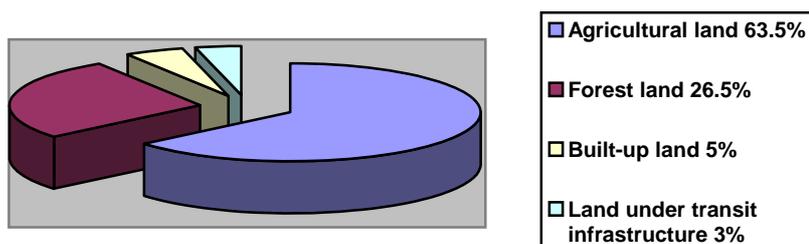
#### 3.1.1. Description and land use changes – gmina Raciechowice

Raciechowice gmina - Local Implementation Area 1 - is situated in the southeast part of Malopolska region, 40 km from Krakow. The nearest urban centre is in the town of Dobczyce, north of the gmina. The LIA's total area is 61 sq. km., which is 1.9% of the region's surface area. The population density is currently about 97 persons per sq. km. The agricultural land indicator is 0.72 ha per person, and the forest indicator is 26%. The southern part of the gmina belongs to the Beskid Wyspowy Mountains and the northern part to the Pogorze Wisniowske upland. The highest point is at Grodzisko hill – 618 meters above sea level, and the lowest is in the Krzyworzeka river valley – 250 meters above sea level.

This gmina has a typically agricultural character, with almost no industry. It is known for its well developed orchard production and long traditions in this matter.

The distribution of land uses in this LIA is as follows: agricultural land comprises 3885 hectares [63.5 %], and forest land covers 1600 hectares [26.5%]. Of the remaining area, around 5% is built-up land and 3% is land used for the transportation infrastructure.

**Graph 2: Distribution of land uses in LIA1]**



The distribution of the agricultural land is as follows:

- Arable land 58.5%
- Orchards 25%
- Meadows 5%
- Pastures 16.5%

Most of the land in the gmina is privately owned (90% of agricultural land and 76% of forest land). There are 1328 individual farms, of an average size of 4.4 hectares (3.3 excluding forests). Small farms of up to 2 hectares constitute 38% of the total number, of which nearly half are smaller than 1 hectare. The precise farm structure is shown in Table 2.

**Table 2: Farm structure in LIA1**

Raciechowice	total	Surface in hectares							
		0 - 1	1-2	2-3	3-5	5-7	7-10	10-15	15-20
Number of farms	1328	219	295	297	367	119	40	10	1

The important change in land ownership structure over the last three decades is a serious decline in other than private forms of ownership. In the 1980s, there were 2 large

farms in Raciechowice gmina: the agricultural cooperative “Grodzisko,” with 68 ha of land and agri-food combine “Iglopol”, with 87 ha. Together these farms employed 200 people and managed over 3% of the gmina’s surface. After the transitions of 1989 the state-owned “Iglopol” went bankrupt but the cooperative is still existing, although in a very limited form. Most of its grounds were partitioned and privatised. Part was communalised by the local government. The remaining land is managed by the State Agency of the Agricultural Ownership (Agencja Własności Rolnej Skarbu Państwa) with the goal being eventual sale of the land. The percentage of forest land owned by State Forests Organisational Entity (currently 26%) has remained relatively stable.

The distribution of crops on arable land within the borders of LIA1 is dominated by cereals (mainly wheat, rye, oats), at 60%, and potatoes, at 15%. It should be mentioned that one of the main types of agricultural production remains orcharding. This explains why such a large percentage of land is used for fruit-farming (25% in gmina / 1.7% voivodship average). Raciechowice gmina is the biggest centre of fruit production in the whole Krakow area. It annually produces up to 20 thousand tonnes of different fruits; most of it being apples, with plums, pears and red and black currants in addition. In several villages the necessary agricultural infrastructure (e.g. fruit storage facilities) already exists, while in others it is constantly developing.

Another important branch of agriculture is animal production. There are three main groups of livestock, concentrated mostly in several specialised farms: poultry, pigs and cattle (including Polish red cow breeding). The dynamics of this animal production are shown in Table 3.

One can observe a decrease in the number of livestock over that period (with poultry as an exception). The most dramatic reductions occurred in sheep breeding (due to the breakdown in wool prices) and horses (due to the mechanisation of agriculture).

The road network in Raciechowice gmina is based on voivodship road 963 (class “M” –main road) from Dobczyce to Kasina Wielka (running north-south) and the powiat roads 18 223 (class “M”; running east-west) and 18 227 (class “C”- collective road). That main network is complemented by local roads. The total length of roads within the gmina borders is 106.9 km, which gives a road density indicator of 1.75 km./sq. km. and a demographic road density indicator of 17.52 km./1000 inhabitants. The current road network remains mostly unchanged from the 1980s. During the last 20 years, existing roads have only been renovated or resurfaced.

The population of Raciechowice gmina is currently 5942 inhabitants. The dynamics of population growth during the last 3 decades are shown in Table 4 and Graph 3. During the last five years a negative migration balance can be observed in LIA1. The gender structure remained relatively stable over that period. In 2004, males constituted 50.3%, females 49.7 %. The gender indicator (females per 100 males) was 99. The current population density is 97 persons/sq. km. The dynamics of population density are shown in Table 5.

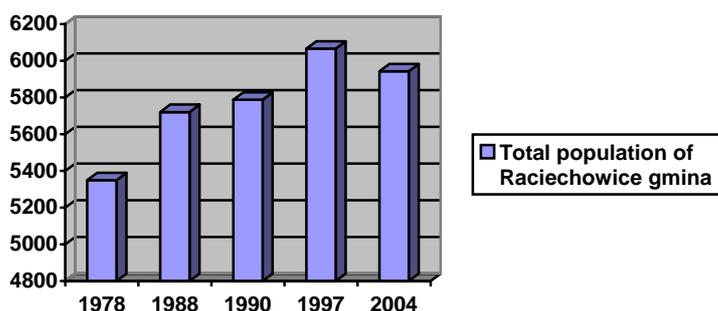
**Table 3: Population density in Raciechowice gmina**

Year	1978	1988	1990	1997	2004
Population density persons/ sq. km.	87	93	94	99	97

**Table 4: Population in Raciechowice gmina**

Year	1978	1988	1990	1997	2004
Total population	5350	5721	5788	6066	5942

**Graph 3: Population growth in Raciechowice gmina**



### 3.1.2 Description and land use changes LIA 2– gmina Nowosolna

Nowosolna gmina – Local Implementation Area is located in the middle of Lodz region, close to Lodz (to the east) LIA’s total area is. 54 km<sup>2</sup>.

**Table 3: Surface and population density in the LIA**

LIA 2	Surface (square Km)	Population density 1988	Population density 2001
Nowosolna	54		56

As of 31 December, 2003 LIA 2’s population was 3439. During the period of 1996 - 2003 a strong positive migration balance can be observed (from 2537 in 1996 up to 3439 people in 2003, i.e. growth=35%!), in comparison with the previous year, the number of people increased by 4.3%.

As for the structure of the gmina population by economic age groups, people of working age accounted for 62.1% in 2003, people of pre-working age and post-working age accounted for 23.1% and 14.8%, respectively. In 2003 there were 61 people of non-working age for 100 people of working age. The ratio for women (70) was higher than for men (53).

The National Population and Housing Census of 2002 indicates that, among the LIA’s inhabitants aged 13 and over, 931 people (34.4%) had completed primary education (Polish rural areas overall - 39.8%), 598 people (22.1%) had completed secondary education (rural areas overall – 21.3%), 591 people (21.9%) had completed basic vocational education (rural areas overall 27.8%) and 257 people (9.5%) had a higher education degree (rural areas overall - above 4%) - higher education.

The results of this 2002 census also showed that 1535 persons in the gmina were economically active, more than half of those being men (54.7%), whereas 1048 persons were considered economically passive, with women accounting for 59.5% of that group. The census showed 68 economically passive persons for every 100 economically active persons. The rate for women was 90, higher than for men (there were 50 economically passive men for every 100 economically active men).

The census results indicate the total employment rate (defined as a share of employed persons in the total number of people of a given category) was 51.2%. The employment rate for men was 56.6% and it was higher than the employment rate for women by 1.6 percentage point. People with higher education constituted the largest group of the employed and the employment rate for them was 81.1% whereas the smallest employed group (comprising 28.9% of the population) included people with completed and uncompleted primary education or without school education.

Census 2002 indicates that the unemployment rate in Nowosolna LIA was 13.4%. People with higher education were least threatened by unemployment (with an unemployment rate of 2.8%), whereas people with complete and incomplete primary education or without any school education were most liable to become unemployed (19.1%). Gmina Nowosolna is a very good example of the process of intensive de-agrarisation of agricultural production space. The analysis was conducted primarily at the gmina level but wherever it was necessary and possible it was reduced to the level of sołectwo, district or region. Data used below come from a variety of sources, both existing and created, and they are outcomes of statistical analyses and interviews with experts.

More often than farms in other gminas of the former Lodz voivodship, farms in Nowosolna gmina produced food mainly or exclusively for individual needs, thus, the number of individual farms active on the commodity exchange continually falls

Individual family farms prevail in the gmina. The year 1996 was assumed as the point of reference because of the full data of the General Agricultural Census from this year.

**Area structure of individual farms in 1996, by division into Nowosolna gmina and the country**

	1-2ha	2-5ha	5-10ha	10 and more
Nowosolna	17.9	35.5	35.3	11.3
Country	22.6	32.7	25.5	19.2

Source: Central Statistical Office 1996 (General Agricultural Census)

We would like to highlight the shares of the smallest farms (in the gmina and in the country) and under-representation of larger farms in the *gmina* area structure. However, the analysis of quantitative changes of agricultural farms in the gmina delivers truly surprising outcomes.

We observed a considerably intense growth process of the number of rural farms in the analysed period (1996 – 408 farms, 1999 – 755 farms, 2001 – 784 and in 2003 – 764 farms) Since this was not accompanied by the growth of land resources in the gmina it had to be linked to increasing fragmentation of the existing farms.

**Dynamics of the number of individual agricultural farms in the period 1996-2003 according to the area groups (%), Nowosolna Gmina**

	1-2ha	2-5ha	5-10ha	over 10ha
1996	17.9	35.5	35.3	11.3
1999	31	37.6	23.1	8.3
2001	34.9	38	20.8	6.3
2003	76.7		18.1	5.2

Source: Office of Gmina Nowosolna

However, the dynamic growth of the total number of farms was not proportional in particular area groups. The percentage share of the number of smaller farms among the total number of farms doubled in the analyzed period. At the same time, the percentage shares of bigger farms, starting from the group of over 5 ha, decreased considerably. We would like to clearly emphasise that this does not mean a decline in the absolute number of these farms. Their number is even slightly higher than in the initial moment of the analysis.

The tendencies indicated above, polarizing the agrarian structure, have a chance to occur as a result of the meeting of the buyer with the offerer. Usually, as it seems, farmers should be involved here, and in the analysed gmina this is the case to a considerable extent.

Due to a lack of relevant data we will not specify to what exact degree. However, the above conclusions suggest that the majority of land purchasers present in the market have not run a rural farm so far. According to the explanation of one of the respondents, "Some farmers divide land and sell parcels. Here farms are rather broken up and when people from Lodz buy parcels they want 2 ha – I don't know if they want to open businesses or smaller fees for [insurance] KRUS because of a rural farm? The number of *paper farms* increases" (R1). Another owner elaborates on this theme further: "...more and more people quit farming; land is fragmented, poor quality. People who cultivate larger pieces of land lease it from their neighbours, those who are not interested in farming [i.e. running a farm] – work in a city. Farms with worse soil were divided into parcels for children (after changing the status of the farming land), a part was sold to fulfill some important needs. In the seventies especially when the elderly people were giving up land to the Treasury of the State in exchange for a pension, others who had money were buying it cheaply and have now sold it for building parcels. Now they also sell the so-called 'father land' – worse land - to the gmina, which builds houses there or sells it to those who want to build private houses, most often from Lodz."(R2). The quantitative analysis provided the data to confirm the above opinions. The decade of the 90s was the time of heightened activity on the land market.

The analysis of land market transactions in the *gmina* of Nowosolna during the previous decade confirms these hypotheses. It should be underlined that there is a strong increase trend with its apogee at the number of transactions in the year 1999 and a considerable decrease in the latest period. Some inhabitants link this characteristic freezing to restrictive requirements of the Landscape Park of Lodz Highlands: "it brings about negative associations for the inhabitants of this region – the terrain, the park, and the weekend business previously existed, too. But now, because of the Plan there are only restrictions and limitations, no benefits. Inhabitants' decisions referring to managing their property were limited – the ban to sell [land] for building sites."(R1). A closer analysis of purchase and sale of land using a spatial approach shows their significant quantitative differentiation. Transactions in the most attractive parts of the *gmina* (from the point of view of landscape and standard of living) prevailed: in Kalonka, Kopanka, and Grabina

**Table 4: Basic data of agriculture in LIA in 2002**

Average area of agricultural land in farm in ha	4.0
Agricultural land in % of area of farm	91.5
Arable land in % of area of farm	81.8
Orchards in % of area of farm	1.8
Meadows in % of area of farm	5.1
Pastures in % of area of farm	2.8
Forests in % of area of farm	2.7
Farms managing only the agricultural activity in % from all farms	55.9
Farms managing the agricultural and non-agricultural activity in % from all farms	11.6

The conclusion is as follows: the analysed rural *gmina* is changing in the character of its resources to a considerable degree and at a rapid pace. The number of farms depending exclusively or mainly on farming income are continues to shrink in Nowosolna *gmina*, and, at the same time, there is more and more non-cultivated land. A considerable amount of land has been sold to locals or newcomers but *de facto* agricultural functions and production development opportunities should encourage farmers to apply for measures from agro-environmental programs and to fulfill the tasks of landscape protectors. In individual cases, ecological farms are expected to appear; in a larger number, agro-tourist farms (but it should

be remembered that they involve a difficult skill of linking agricultural functions with customer service functions). In this situation the residential-housing functions (including the settlement ones), which were developing dynamically in the 90s, gain significant and multidimensional meaning (i.e. economic, social, and cultural).

## 3.2. Explicative factors

### 3.2.1. Context

The main feature of the spatial settlement system in Raciechowice gmina is dispersion of both housing and business estates. Out of 15 villages, only in a few can one distinguish a visible centre. Loose and dispersed patterns of settlement have a long tradition, as they have occurred since the establishment of the particular villages. The main reasons for this are diversified geographical conditions, fragmentation of plots and the well-developed road network. Paradoxically, the large number of roads and the strong orcharding sector (fruit-farming can be successful even on relatively small plots) tend to preserve the dispersed settlement structure.

There is an interesting tendency in the number of building permits issued in the years 1992-1998. In the period 1992-1995 the number of permits granted for housing purposes (115) was more than 3 times higher than those granted for business purposes (33). In the following period – 1996-1998 - more permits were given for business purposes (53) than for housing. This reflects that the housing needs of the local community were temporarily satisfied and, additionally, that the gmina has experienced an economic revival. The described tendency has also been visible recently. In general, there is a positive correlation between the number of building permits in the particular villages and their location by the main roads. Smaller and more remote villages are experiencing building stagnation.

Raciechowice gmina has a problem with the agrarian structure since, much as it is the case within the entire voivodship, and the plots are predominantly very small. As was mentioned earlier, this arrangement of the land structure is strongly influenced by the local history and culture. Both the rules according to which the villages were established and the habits of rural communities (patterns of inheritance, high cultural value of land, strong emotional tie with land), favour the fragmented structure of plots. Additionally, the experiences of the communist period, when the state tried to force land consolidation and private ownership was politically discouraged makes the farmers very distrustful of programs initiated by authorities. Finally, the rugged physical conditions of mountain areas effectively discourage the unification of agrarian structure. For these reasons, no successful land consolidation program has been initiated in the gmina. Local government efforts at understanding these difficulties are focusing more on ensuring farmers better standards of living within the realities of the existing structure.

In choosing **the Nowosolna gmina** as the LIA we were to a large degree motivated by the fact that 54% of its area lies within the borders of the Landscape Park of Lodz Heights. Landscape parks are often defined as "laboratories of sustainable development" (Kistowski 2004). This form of nature protection has a history of over twenty-five years in Poland. According to the present regulations "The landscape park covers the area which is protected due to its natural, historical and cultural values as well as the landscape value in order to preserve and popularize the values in conditions of sustainable development". At the same time, "farming land, forests and other real estate within the borders of the landscape park continue to be subject to economic exploitation".

Simultaneously, its location in the close vicinity of a large city (Lodz), as well as the A-1 highway building project entering the construction phase just now, generate extremely

strong factors contributing to a growing interest in the matters of land use management among all interested categories of actors. The local population, newcomers, agricultural farm owners, landscape park management, owners of agricultural land aiming to change its use designation (from agricultural or even recreational to building), local authorities aiming to achieve changing developmental goals (among which, at the beginning of the 1990s the dynamic economic development played the most important role while, at present, larger and larger meaning is attributed to sustainable development) create an extremely diverse assortment of inputs for influencing the shape of agrarian structures and approaches to land use management.

### **3.2.2. Policy implementation**

As it was presented in the description of the spatial policy framework that exists in Poland, the central position in the system is given to the Local Spatial Plans created at the gmina level. This is meant to be a holistic and at the same time possibly detailed base for shaping the spatial order according to local realities. But in practice, these realities turned out to be more complex than the law on Spatial Planning assumed. In Raciechowice gmina the spatial policy is implemented without a valid Local Spatial Plan, and this is not an exception. Moreover, gminas having an updated and valid spatial plan are exceptional. Nationwide, only about 30% of the surface area is covered by valid Local Spatial Plans. In Malopolska region, this indicator is even lower and is estimated at 16%. The main cause of this state of affairs is a lack of strict deadlines obligating gminas to update the existing plans to make them valid. The creation of the new local plan is a very costly procedure (it requires not only several studies and types of expertise, but also funds for potential compensation, in the event that private ownership would be restricted). The local governments prefer to reduce these expenditures by updating spatial plans only for parts of the area and spending money on other purposes. Some gminas initiated works on the new Local Spatial Plan; others are trying to postpone this for “better times”.

In this situation local spatial policy is implemented predominantly “without the plan”. Of course it does not mean that there are no rules or visions of spatial order. In the case of Raciechowice gmina the foundation is the old Local Spatial Plan from 1992. In 1998 the gmina prepared a document called “The Study of The Directions of Spatial Policy” that will be used in creation of the future Local Plan. The current land use management issues are being solved with the use of the individual decisions on “conditions of building investment” [Decyzja o warunkach zabudowy]. So far the spatial needs of the local community can be satisfied in this way. It is possible because most new investments are private houses or simpler and more straightforward business practices (mainly retail and services). In gminas in the Malopolska region having a predominantly rural character, such a pattern of economic development is widespread. The local government of LIA1 decided to capitalize on it and in 1994 officially declared Raciechowice to be an “ecological gmina,” which means that the gmina does not want to attract any problematic type of business.

This example shows the clear connections between the adapted economic strategy and a spatial policy. Although local authorities allow the possibility of creating a new spatial plan if “a significant investor would appear” this remains rather unlikely in the very near future, since the official strategy promotes agriculture and rural tourism.

There are also effects on local land use management, caused by the rules of economic policy, decided at the higher level. For instance, the problem of the agrarian structure in the

Raciechowice gmina is influenced by the national and European vision of rural policy. The regulations of CAP, introduced after Poland entered the EU, can, in the view of many experts, help to reduce the economic burden of the fragmented structure of plots. Promotion of the multifunctional rural economy and development of ecological agriculture will allow farmers to support their families despite the relatively small plots. Others spotting a chance for a profitable farm business will try to expand their grounds. At the same time, some farmers might become more willing to sell their land as they will be able to find another source of income in their villages.

But these trends are to occur in the long term; in the short term, the CAP elements tend to petrify the current state of affairs. The introduction of direct payments gave indigent farmers' families a significant source of income linked to the land they own. This will likely encourage them to keep even very small plots.

It is a general problem of external factors influencing the local spatial policy. In some cases they are linked to different fields but their effects determine the land use management very strongly. The issue of transportation investments was described in the context of the section regarding regional spatial policy. In LIA1 distortions of spatial policy are being caused by the plans for a new railway route that is to go through the gmina's territory. Plans for that line were formulated originally at the end of the XIX century and since then are present in the state's investments agenda. In the 1970s and 1980s the preparations were very advanced, so the special land reserve was made along the planned route. The problem was that the potential siting was determined only very broadly so the local spatial plans could not include the detailed arrangements. In Raciechowice gmina there were three different variants of the planned line so the reserve had to be quite large. The use of that land was restricted and each new investment was to be negotiated with the State Railway Company. After the transition of 1989 the plans for the new route were suspended due to a lack of funds. But the special regulations of the land reserve were still incorporated into the local spatial plan. In recent years the work for the idea underwent a new variant of the mark-up for the track route. However, the local government has no direct influence on the decisions in that matter, as they are taken "beyond the reach of gmina". Moreover, with no valid local spatial plan in Raciechowice gmina, these arrangements can not be properly reflected at the level of local spatial policy. Potential investors and current owners are merely informed where the future railway tracks could possibly be located. It is obvious that such a situation is distorting the land use management and causing uncertainty within the local community.

The agricultural land of Nowosolna gmina has been an area of substantial interest, especially regarding the use designation of the land (agricultural, recreational, building, or industrial), since the early 1990s. On the one hand this is related to the enhanced protection of the land, which since 1996 has lied within the territory of Landscape Park and, on the other hand, to the extremely strong demand for land from the city residents that had been growing in the 1990s. According to the law, the local plan for spatial planning is the chief document for planning in the municipality. It is e.g. the basis for issuing a building permit. The spatial/land use policy of the gmina is determined by the study of conditions and directions of spatial/land use planning. According to the new law, the study and the local plan have to be consistent. The rank of either of these documents is, however, different – the local land use/spatial plan is an act of local law, while the study does not possess such a character. Establishing use designation and principles of territory management were classified among the tasks of the municipality and are a manifestation of its independence in planning management. In the situation when a local plan has not been established for a given area, decisions about the building and spatial planning conditions can be issued. The decision about the conditions for building can be issued if several requirements are fulfilled, i.e. at least one

of the neighboring allotments must have a construction which allows for determining the architectural form of the building and the spatial plan of the terrain. Only urban planners and authorized architects can be commissioned by the municipality to prepare projects of such decisions. Unfortunately, the municipality often fails to fulfill the duty of content-related evaluation of these projects (e.g. from the point of view of maintenance of traditional agricultural scenery), "automatically" passing them on for negotiation to relevant supra-local institutions (the voivodship board of province and district).

### **3.2.3. Governance**

The idea of the Polish spatial policy system is to ensure the possibility for broad public involvement in the process of shaping the spatial order. The basic rule is that all types of local spatial plans (at voivodship and gmina level) have to be accepted by the local council. Public control is possible as well in the designing phase, as a prototype of the plan has to be presented for public scrutiny for 21 days and groups or individual inhabitants have the right to lodge a protest.

Polish law also gives the right to consult spatial plans to organisations whose statute includes activities related to nature protection. These regulations are often used in situations of road investments when organisations of the "Greenpeace type" are trying to influence new motorway projects (e.g. changing the proposed route of the road). In rural areas such organisations are rather uncommon so they do not typically get involved in the "everyday" spatial policy of rural gminas.

In practice, public involvement is even greater in light of the lack of Local Spatial Plan in gmina, as the policy is then implemented on the basis of the individual decisions ("decisions on conditions of building investment"); the spatial order is shaped according to the social demand. It is a kind of "policy of interaction" where authorities simply react to the proposals of inhabitants. What is more, "the significant investor" is able to change the functional designation of the particular area or even persuade the local government to create a new local spatial plan. The hitherto existing plans for spatial/land use planning in municipalities have lost their validity. The majority of gminas have not managed to prepare new ones yet. This makes land use management very difficult and limited. In the process of spatial planning there is a legal duty to consult the inhabitants and owners of the areas concerned about the plan. After the plan is prepared, it is displayed in the municipality office for public examination for a few weeks. In the past, interest in this document was minor. The land market functioned in a very limited form. Not many people knew that the plan was displayed for the public although the information about it was publicized. The feeling of influence over land use management and its relationship to individual well-being was often illusory. The situation has undergone an essential change at present, especially where a high demand for farmland and palpable disappointment with farming intersect.

Liberalization of building law regulations, for example those concerning possibilities of legalizing unauthorized building sites or excluding some categories of objects from the obligation to obtain building permission, is an essential element in deciding about the formation of the spatial order. According to the regulations in reference to unauthorized building, an order for deconstruction may only be issued if the object was built in a place prohibited by the local spatial/land use plan or if it is incompatible with the aesthetic theme of the surrounding architecture. If, however, it does not violate these conditions, legalization is possible after collecting necessary documents and making the legalization payment. Such a

legal situation (with the general lack of local land use plans) may encourage many investors to take "shortcuts," which is definitely more expensive often allows investing on very attractive terrains. It is thus no surprise that there were not any programs for land consolidation carried out in many gminas. There were, however, in some municipalities, situations where local governments purchased agricultural land on speculation: land was bought and consolidated before the plan itself was changed. After the change of the spatial plan the land was sold at a huge profit. "However, the problem of the ethical nature arises here whether the local government can act that way, using the ignorance of its citizens."(dr A. Nowakowska, expert)

From the perspective of one acting for environment protection, the growing independence of the local government in many cases limits the possibility for realization of public tasks at the supra-local level. The recent changes in regulations led to considerable growth in the local government's role in decision-making on the subject of realizing a specific public aim – the protection of nature. An example of such changes is the influence of local government on protection plans for protected areas (e.g. a landscape park, or even a national park). According to the law before 2004, the local government was the decision-maker in reference to nature protection projects, on the basis of the Nature Protection Act of 1991. It was possible for the governor - in a case of important social purpose - despite a negative decision of the local government – to introduce protective regulations (e.g. by establishment of a plan for the protection of nature). The new act on environmental protection places the responsibility on bodies preparing the project of the plan to coordinate its content by referring to the existing protection plan of the local government. The same procedure, of consultation of the plan of the municipality, is required in the case of creating a landscape park, changing its borders or its liquidation. Local governments therefore received a very strong instrument which enabled them to block regulations that are inconvenient for the local authorities, particularly relating to spatial planning. The change of legal regulations in this area in recent years is most likely one of the causes of a drastic reduction in the number of newly established protected areas. In the years 1999-2002 only one new landscape park was established, whereas in 1998 as many as 11 were set up. (Kistowski 2004)

## **4. The study cases**

### **4.1. Study case 1: Raciechowice (LIA1)**

The case study described in this section is an example of how innovative practices in the field of ecology can positively influence land use management issues, helping to resolve difficult problems in the latter dimension. What is more, these practices are directly linked to the idea of rural sustainable development, promoting better use of natural resources and an environmentally-friendly economy.

Beginning in the 1960s, waste management in Raciechowice gmina was centered on the waste dump located in the neighbouring Dobczyce area. But as its storage capacity began to diminish in the 1980s, it became a burning issue to find a location for Raciechowice gmina's own waste dump. Because of natural conditions, such ecologically controversial investments are not allowed in most of the gmina's area so the potential possibilities were very limited. It was finally decided that a provisional land reserve would be made in the Mierzen village surroundings for the purpose of a future dumping ground. That decision triggered many protests from the local community as it caused a radical decrease in land values and restricted space for village development. For many years it was a significant

problem of the gmina's spatial policy. Although the creation of a waste dump has never been started, just the threat of its establishment was deterring potential land buyers and newcomers. In 1995 three neighbouring gminas - Raciechowice, Dobczyce and Wisniowa - signed an agreement for a common waste management policy. The central element of that agreement was the introduction of selective waste collection. The idea was to recycle the largest possible part of the waste stream and thus lower the quantity of waste that needed to be stored.

The project was funded by the Voivodship Fund of Environmental Protection and started in 1996. In the first phase, the aim was to mobilise and inform the local community. Several informational meetings were held in each village and special training sessions took place in the local schools. The assumption that children and young people, who are more ecologically aware, will promote the new initiative in their families, turned out to be very accurate, and the project successful. In a short time a new system of waste collection was accepted by the majority of the community and the gmina's inhabitants learned to use the colourful bags, each for a different kind of waste. A survey carried out by a Jagiellonian University sociologist showed that the residents of the gmina are very positive about the idea of segregation and recycling of their household waste.

The result of the program was that almost 40% of the household waste is recovered, which significantly reduces the quantity transported to the Dobczyce dump. This allows conservation of its remaining capacity and the prolongation of its utilization period. It is a great benefit for Raciechowice gmina as the new waste dump is no longer necessary. The land that was set aside and designated as a reserve can now be brought back to a normal use. The LIA1 gained not only an ecological waste collection system but also solved one of the major problems of its spatial policy.

The program was the initiative of the local government, designed by utilizing both managerial and scientific knowledge. But its implementation would not be possible without significant contributions from the local community. Personal involvement of the community leaders, teachers from the local school and the organisation of Voluntary Fire Brigades was the base of the success. All actions were coordinated by the local government and supported by voivodship authorities. The cooperation of the lay and managerial/scientific knowledge allowed to overcome the mentality barrier, as rural communities are quite conservative and rather distrustful towards new practices.

#### **4.2. Study case 2: Urban pressure on rural areas (LIA2)**

Nowosolna gmina has been an area of very substantial interest in agricultural land, especially interest in the use designation of land (agricultural, recreational, building, industrial), since the early 1990s. This is related on the one hand to enhanced protection of the land, which since 1996 has lied within the territory of Landscape Park and, on the other hand, to the extremely strong demand for land from the city residents which has been growing during the 1990s (see chart). The origin of this interest - as the municipality mayor reminds us - is connected to the event of "1986, when the authorities of the city of Lodz decided to shift the borders of the city. Discussions were begun with the inhabitants; the national authorities could make the decision irrespective of the local population's opinion. The municipality itself could only give an opinion. Inhabitants collected signatures that they did not want to be annexed to Lodz, but this gave only a limited result. There was a plan to enlarge the city of Lodz by five villages, only two successfully avoided it. The municipalities of Kalonki and Kopanki, largely consisting of elderly people, managed to not be annexed by the city. However, a municipality which previously had 6000 occupants shrank by about 1/3 of its territory and half its population. The inspiration to protest the annexation into the city came from local communities. The chairmen of the village council collected inhabitants' signatures

on a petition to the central authorities against the annexation of their villages to Lodz. They feared a rise in taxation, they wanted to have the local authority, and they did not want the dumping site located in their territory to be controlled by the city”.

In the years 1991-1994 changes were introduced into the local's spatial/land use plan. The inhabitants of the two villages that avoided annexation into Lodz, Kopanki and Kalonki, wanted their land to have a residential building designation under the new plan. The municipality mayor underlines the fact that ¼ of these properties were previously bought by people from outside the municipality. The water-pipe system and bus line connections with the city already existed in these areas. The number of farmers continually fell as a result of intensive sale of land. At present, only 2-3 farmers continue agricultural use of land. The paradox here is that the prevailing motivation for the immigration of the newcomers' population was the desire to live in the countryside but still close to the city. The other equally important motivation was the desire to live close to nature on the terrain of a formally confirmed natural setting, that is, on the territory of the Landscape Park which was about to be established. Yet, also in this case, consequences unforeseen by the majority of people appeared. Together with the establishment of the park there the policy to stop dividing land into numerous small parcels started to be implemented, though - as the mayor notices - the land had already been largely divided and it had lost its rural farming character. In the years 1995-96 the gas-pipe system was set up and this triggered a demand for more residential houses to be built. “The rural land became more expensive and the division of land was done according to the spatial planning law of 1994. This way we lost two villages, which became the residential houses building site. Even when not lying within the city borders of Lodz they gained an urban character.” The mayor adds, “85% of occupants wanted transformation of these lands.”

Despite the dissatisfaction with the establishment of the park, the occupants did not protest, they did not collect signatures on petitions. 10 years after the Park was established permanent residents are still not glad about it but, nevertheless, when they sell their land they underline that that it is located on the territory of the Landscape Park of Lodz Heights. They expect a higher price due to the location of the land but they do not agree with the limitations regulating the division or designation of land imposed by the park management. Presently, the process of constructing a new municipality spatial plan is continuing and it is already in a very advanced stage. This is a very wide-ranging project covering the whole municipal area. We have analyzed the phase of social consultations. Among the postulates made in reference to the plan, 80% related to the change from agricultural or recreational designation of the land into the building designation. However, as the municipality mayor underlines - not the industrial designation: “People do not want industrial investments. They'd rather prefer to be unemployed than have a workplace right next to them. We have the entrepreneurship zone just outside the park, near the park, some 100 ha. People do not want it, when the local plan was being set up, they wanted to limit this zone to the minimum. Out of the proposed 300 ha of the industrial zone area, there might be 50 ha left for investments of environmentally-friendly industries only. These are mostly the occupants who immigrated a dozen or so years ago and bought land which was destined for industrial use, who do not want this industry today.” Thus, the biggest followers of the Landscape Park of Lodzkie Hills (that is, the laboratory of sustainable development) appear to be the newcomers, with their NGO called *On the Hills*. This is the third paradox!

## 5. Conclusion

Spatial policy and land management in Poland are based predominantly on expert and managerial knowledge. It is mainly scientific knowledge that is used to create the local plans and strategies (architects, rural planners, experts on nature protection, etc.) and managerial knowledge to coordinate and implement the policy. On one side the landscape park has become an important element in the system of land preservation. It is a valuable scientific laboratory and it serves the general purpose of ecological education. The popularity of the terrains of the park grows mostly for tourist and recreational reasons. Also, among the local residents and administration, a consciousness of the area's value is growing. Generally, local governments respect the limitation related to the ban on situating sites which are dangerous for the environment on the protected area. They take into account critical opinions voiced more and more often by the original population of the settlements located in the park, referring to wrong spatial policy of some municipalities leading to the loss of the land's "rural character" as well as creating environmental threats (caused e.g. by the lack of a sanitary sewage system). Simultaneously, however, there also appear new threats caused by popularization and promotion of this area, new threats connected primarily with intensifying urbanization. Despite the dissatisfaction with the establishment of the park, the occupants did not protest, they did not collect signatures on petitions. Ten years after the Park was established, permanent occupants are still not glad about it but when they sell their land they underline that that it is located on the territory of the Landscape Park of Lodz Heights. They expect a higher price due to the location of the land but they do not agree with the limitations regulating the division or destination of land imposed by the Park management. Parallel: people do not want industrial investments as well! We have to note the process of a changing values system. Researchers frequently point to the accuracy of using the perspective of land and farm for describing the process of transformations. Let us remind readers here that whereas at the foundation of the system of values in traditional societies lay a view that land should be absolutely possessed to be able to live and work on, today the value of land and work has been altered in a fundamental way.

In a summarizing commentary the author wishes to stress:

- continuity and change of particular indices characterizing normative dimensions of farming;
- obtaining through the factor analysis two dimensions describing farmers' subjective convictions about the peasant micro-cosmos. The first dimension has been called an axiological perspective, and the second - according to the author - is described well by the Weberian formula of formal rationality.

The analysis of quantitative distributions reveals a minority group of farmers sharing the traditional peasant axiology and a majority group of farmers largely questioning traditional values. An important symptom of a changing normative order in the farming community is a change in attitude regarding land. It loses its sole utilitarian value and becomes both a commodity, in which capital can be simply invested, and also an asset which can be exploited ruthlessly for profit.

According to Zygmunt Bauman, "Experience, which supplies a raw material for sociological ascertainment, is the experience of ordinary people acquired in everyday life. [...] A great deal of knowledge is needed to live in an environment of other people and the name of this knowledge is just common sense" (Bauman, 1996, p.16). Hence, we could ask here – travestying Bauman – how much and what type of knowledge do we need to function in rsd? The above way of reasoning draws the researcher's attention also to the weight of social process in knowledge formation. Accepting the definition of attitude formulated by Stefan

Nowak - "A given man's attitudes towards a certain object are all relatively durable dispositions towards evaluating this object and responding emotionally towards it and possibly also accompanying them emotional-evaluating dispositions towards relatively durable convictions about nature and properties of this object and relatively durable dispositions as regards behaviour towards this object" (1973:23) - we recognize that knowledge should correspond to a cognitive component of an attitude. When determining resources for people's knowledge (awareness) about certain natural and social determinants of the state of rsd, our attention will be focused primarily on the level of individually, psychologically understood convictions.. However, when studying individual, private convictions of particular individuals we will be taking into account relationships between this sphere of subjective knowledge and the sphere of inter-subjective knowledge, that is, '... socially generated, socially transmitted and socially confirmed, more-or-less systematized sets of convictions, cognitive categories and values, which are common for all members of a given community (or a given group) and whose community is mutually realized or, at least, assumed,' and the sphere of objective reality "... understood not in absolute terms but as a correlate (and, thus, also partly as a product) of practical human activities changing historically. What is important here is this fragment of the physical natural reality, which constitutes a natural field of activity for a certain group, which has been familiarized and mastered, as well as utilized for satisfying human needs" (Ziółkowski, 1989: 50-51). Consequently, when analyzing convictions composing individual knowledge we will also be searching for an answer to a very important – according to us – question concerning their placement in the social structure, i.e. for a closer definition of social aggregations or categories sharing given convictions.

According to Prof. Olaczek (University of Lodz) only old people still possess traditional, local knowledge which is a bit flavoured with sentiment and emotions and thus provokes some suspicion. However, a considerable qualitative change in the awareness among old and young generations has occurred in their approach to nature and ecology.

Today nobody is chasing toads, owls, bats and even snakes or vipers which used to be a popular habit. The protection of stork nests on electricity poles has spread widely. Landscape parks have contributed immensely to enhance social awareness as they pursue such schemes as protection of bumblebees or old fruit tree varieties on the spot, among people. Not only do farmers become aware of the value of old orchards but also keep a nursery of old varieties and provide seedlings for those who are willing to cultivate those trees. Farmers react to such activities positively.

However, lay knowledge is in many aspects also an important factor that shapes spatial issues. For example, the local tradition and culture determine the agrarian structure. The small and scattered plots are favouring more extensive agriculture and helping to preserve the biodiversity that in effect fosters rural sustainable development. The practices of selective waste collection, described as a case study in the previous section, can be a pattern to follow for the rest of the region, as it helped to solve a significant problem of local spatial policy – the "sensitive" issue of waste dumps.

## Appendix

**Table 6: Distribution of livestock units in LIA1 (Raciechowice)**

	Year 1988	Year 1996
Cattle	2 880	2 183
Pigs	4 200	3 380
Sheep	850	41
Horses	315	142
Poultry	24 300	24 765

**Table 5: Distribution (%) and variation of crops in LIA2**

	Cereals in % of sown area	Potatoes in % of sown area	Industrial crops in % of sown area	Fruit trees in % of agricultural land	Fruit bushes and berry plantations in % of agri- cultural land
2002	83.1	8.0	0.8	1.2	0.7

**Table 6: Distribution and variation of livestock units in LIA 2 (in heads)**

	Cattle	Pigs	Poultry
2002	751	2629	388

**Table 7: Dynamics of permits issued to construct buildings (first and second homes) in the area of Nowosolna gmina in the period 1991-1999 by division into people registered within the territory of gmina (locals) and those registered beyond it (newcomers) LIA 2**

Year	Locals	%	Newcomers	%	Total
1991	7	43.8	9	56.3	16
1992	6	30.0	14	70.0	20
1993	6	28.6	15	71.4	21
1994	15	34.9	28	65.1	43
1995	16	32.0	34	68.0	50
1996	8	15.4	44	84.6	52
1997	4	12.5	28	87.5	32
1998	17	19.1	72	80.9	89
1999	17	13.7	107	86.3	124
Total	96	21.5	351	78.5	447

# Nature Protection and Biodiversity in the Czech Republic

Eva Kučerová<sup>9</sup> – Adéla Ševčíková<sup>10</sup>

## 1. Introduction

The deterioration of the environment at the end of 1980s, which occurred in the Czech Republic as a consequence of central planning, ignoring the principles of sustainability, evading the democratic decision-making process and the absence of the legal and institution framework for environment protection, was stopped in the 1990s. However, new issues are emerging with the ongoing economic transformation and the integration of the Czech Republic into the EU and many important changes occurred in all areas, including environment.

The first part of the text aims at describing of the basic features of nature protection with regard to the political changes, which contributed to the re-orientation towards nature protection. We put emphasis on the administrative, legislative and technical changes in the environmental issues and the impact of the non-centralised economy, the newly structured industry and agriculture and their important actors and civil society impacts.

The second and third parts concern the regional and local level (in two selected regions) present two differential cases in the environmentally diverse regions. The region Ústí nad Labem is an environmentally disturbed region by coal mining, but on the other hand, including valuable biotopes and protected landscape areas. The South Bohemia Region is not so much impacted by the industrial pollution as the Ústí nad Labem region and we have found the community taking care of the landscape through the national projects there.

The first part is based mainly on the data analysis and the second and third ones on the data analyses and interviews with key actors for each case study. We have used the gathered data to understand the project realisation with the consequent problems and relation of the key actors towards the project and also the relationship among the involved actors.

## 2. Context analysis

The political changes in the 90s and adaptation to the EU administrative and legal system are reflected in the basic national documents and environmental protection following the changes. The policy re-oriented from the 90s in the Czech Republic towards environment problems has recorded some positive as well as negative trends. A two-edged development is apparent in the nature and landscape protection, biodiversity and other connected problems in the agricultural and industrial sector (including mining), tourism (including environmental services).

The evidence of the EU rules reflection and adoption is amended version (entered into force in 2004) of the crucial national document, the Act No. 114/1992, in which there is

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regulated the establishing, monitoring, administration, controlling over the protected landscape with regard to the national (National Parks, Protected Landscape areas etc.) and European (the localities involved in the list Natura 2000) environmentally important territories and the strengthened role of the decentralised institutions as regional agencies, administrative, representatives of the local communities, NGO and other lobbying groups.

From the *administrative* point of view, the nature and landscape protection in the Czech Republic was managed during the Communism era under the umbrella of the Ministry of Culture. The administrative body of the Ministry of Culture was its research and organising centre (named the State Institute of Cultural and Landscape Protection) established in 1958. The State Institute of Cultural and Landscape Protection, following the Act No. 40 about the state nature protection, entered into force in 1956, and provided the expert analyses and other necessary documentations related to landscape protection for the Ministry of Culture. There existed regional departments of the State Institute of Cultural and Landscape Protection for every region, which more or less corresponding with the present regions at the level NUTS 3, and they supplied the superior administrative of the National Parks and the Protected Landscape Areas.

The conversion to the EU administrative and legal system is reflected in the basic national documents and the following changes in the early 90s. The milestone for the administrative body in landscape protection in the Czech Republic was establishing of the Ministry of Environment in 1990. Practically, the State Institute of Cultural and Landscape Protection was converted into the “new” administrative institution – the Czech Institute of Landscape Protection<sup>11</sup>, established in 1991, which also incorporated the former Regional Institutes of Cultural and Landscape Protection. The body was divided into two subjects: 1. The Czech Institute of Landscape Protection, which administrates the Land Protected Areas and the National Parks and caves (open for public), and 2. The Agency for Nature Conservation and Landscape Protection of the Czech Republic which provides services for state administrative bodies.

The following table shows the contemporary administration structure regarding 1. central (national level) institutions, 2. decentralised working stations (regional levels) for monitoring and evaluating of the specific environmental problems in the differentiated regions (the Territorial Departments do not correspond with the NUTS 2 or the NUTS 3 regional administration) and 3. the previously existing and newly (from 1990ies.) established expert organisations (including the Administrations of National Parks).

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<sup>11</sup> The Agency for Nature Conservation and Landscape Protection of the Czech Republic (ANCLP) has a specific position, because the ANCLP has the role of an advisory body for the Czech government. The ANCLP as well as universities and scientific institutions is partially financed by the state (operational costs) and partially financed through projects. In the 90s, there were established several research institutions focused on the environmental issues (environmental topics were neglected in the public administration, agriculture, science etc.): courses focused on the environmental questions (i.e. social ecology, ecology), departments or research institutions operating under university umbrella.

**Table 1: The administrative structure of environmental protection in the Czech Republic**

National level	Regional level	Expert organisations
<p><b>Cabinet of the Minister</b></p> <ul style="list-style-type: none"> <li>• Department of Control and Complaints</li> <li>• Department of Government and Parliament Agendas</li> <li>• Department of Public Relations</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#"><u>State Environmental Fund of the Czech Republic</u></a></li> </ul>
<p><b>Office of the Ministry</b></p> <ul style="list-style-type: none"> <li>• Protocol Department</li> <li>• Budgetary Department</li> <li>• Internal Administration Dept.</li> <li>• Department of Informatics</li> <li>• Personnel and Organisational Department</li> </ul>		
<p><b>Section of Environmental Policy</b></p> <ul style="list-style-type: none"> <li>• Strategy Department</li> <li>• Environmental Economics Dep.</li> <li>• Department of Statistics</li> <li>• Environmental Risks Department</li> <li>• Department of Integrated Financing</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#"><u>Czech Environmental Institute</u></a></li> </ul>
<p><b>Section of Legislation and State Administration</b></p> <ul style="list-style-type: none"> <li>• Secretariat of the Special (Appeals) Commission</li> <li>• Legislative Department</li> <li>• Legal and State Administration Management Department</li> </ul>	<p><b>Territorial Departments</b></p> <ul style="list-style-type: none"> <li>• TD of the Central Bohemia and the Capital of Prague</li> <li>• České Budějovice TD</li> <li>• Plzeň TD</li> <li>• Liberec TD</li> <li>• Olomouc TD</li> <li>• Brno TD</li> <li>• Hradec Králové TD</li> <li>1. Ostrava TD</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#"><u>Czech Environmental Inspection Agency</u></a></li> </ul>
<p><b>Section of Nature Protection and Landscape</b></p> <ul style="list-style-type: none"> <li>• Nature Protection Department</li> <li>• Forest Protection Department</li> <li>• Department of Geology</li> <li>• Landscape Ecology Department</li> <li>• Water Protection Department</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#"><u>Agency of Nature Protection and Landscape Conservation of the Czech Republic</u></a></li> <li>• <a href="#"><u>Czech Geological Institute</u></a></li> <li>• <a href="#"><u>Geofund of the Czech Republic</u></a></li> <li>• <a href="#"><u>Administration of Protected Landscape Areas of the Czech R.</u></a></li> <li>• <a href="#"><u>Administration of the Krkonoše NP</u></a></li> <li>• <a href="#"><u>Administration of the Šumava National Park and Protected Landscape Area</u></a></li> <li>• <a href="#"><u>Administration of the Podyjí NP</u></a></li> <li>• <a href="#"><u>Administration of the České Švýcarsko National Park</u></a></li> <li>• <a href="#"><u>Research Institute of Ornamental Gardening</u></a></li> <li>• <a href="#"><u>T. G. Masaryk Water Management Research Institute</u></a></li> </ul>
<p><b>Section of Technical Protection of the Environment</b></p> <ul style="list-style-type: none"> <li>• Environmental Impact Assessment Department</li> <li>• Waste Management Department</li> <li>• Environmental Damage Department</li> <li>• Air Protection Department</li> </ul>		<ul style="list-style-type: none"> <li>• <a href="#"><u>Czech Hydrometeorological Institute</u></a></li> </ul>
<p><b>Section of International Relations</b></p> <ul style="list-style-type: none"> <li>• Department of European Integration</li> <li>• Global Relations Department</li> <li>• Foreign Protocol Department</li> </ul>		

**The new political system launched in the 1990s and later on the period of the pre-accession and accession process to the EU prompted the administrative and societal changes, which bring about new claims for the capacity and the way of activities of the NGOs representatives as important actors in the (previously centrally planned) nature protection.<sup>12</sup>**

Regarding some signs of civil society in the *Czech ecological activities before 1989*, we cannot speak about any radical and open confrontation with the national governance. However, the long time existing ecological movement (for example the Brontosaurus, which was officially accepted), was originally established as an protest in 1974, during the further years, this protest movement melted into the “politically correct” organisation oriented on young people, organising trips and camps in the natural environment and teaching them to protect nature in he everyday activities.

*At present, the situation of civil associations* is not subjected to the central power. Their activities are regulated in the frame of the Act No. 227/1997 Coll. on foundations and foundation funds. There are about several hundreds NGOs actively participating in the monitoring, reflecting and intervening (through public discussions, presentations etc.) into the environmental issues. There are some organisations operating on the national level, and on the other side, small organisations operating on the regional and/or local level, some of them were even established and are focused to deal with one particular specific problem. Some of them adopted the fundraising function, which is usually realised as a kind of competition with a financial compensation for winners. The budget of the NGOs programmes is rather small compared to the national or the EU funds, but it might be a significant support for municipalities, associations etc. The main role in the Czech rural areas is probably played by the organisation called the Society for the Renewal of Countryside, which was established in 1993 to reinforce the position of rural communities, to contribute to the renewal of the local

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<sup>12</sup> In the Czech Republic, there were established in last 15 years several hundreds (more than 500 are officially registered) NGOs focused on the environmental issues on the local, regional and national level. With respect to the historical changes (changing regimes i the 1989 and newly emerging NGOs and other organisation focused on the environmental issues), we represent the NGOs in two categories – NGOs established after 1989 and before.

The most important and famous ecological NGOs established after 1989 are the Arnika (Arnica), the Hnutí Duha (Rainbow Movement) and the Děti země (Children of the Earth).

The activities of the **Arnika** organisation ares based on three programmes to protect the wetland and river ecosystems, the protection of nature against the toxin substances dissemination and the support of public participation in the decision making. Their strategy is to create a wide members platform.

**The Rainbow movement** has the main goal to protect nature against the industrial projects impacts and protection of the people who are living in the endangered areas.

**The Children of the Earth** are oriented on eco-education, the support of public participation on the decision-making and publishing journals and books about environmental issues. The target groups for them are citizens, students and firms.

It is historically the oldest ecological NGO, established before 1989:

**The Czech Union for Nature Conservation (ČSOP)** is the largest environmental non-governmental organization in the Czech Republic. Since its establishment in 1979, the ČSOP has brought together people interested in nature conservation and environmental issues as well as the cultural heritage preservation.

**The Brontosaurus Movement** (Hnutí Brontosaurus) was established in 1974 and was supervised by the Socialist Youth Association (Svaz socialistické mládeže) in co-operation with young researchers from the Czech Academy of Sciences. However, the association was under the Communist Party control and its members tended to “apolitical” activities concerning the environmental issue. The official main goal was/is education, but practically it means taking care of nature in practical activities (cleaning forests, organising camps for children, trips to the nature etc.)

Of an important influence, there is also the multi-national organisation Greenpeace, and on the political stage, there exists the Green Party (Strana Zelených), which has not been hitherto represented in the Czech Parliament, but got over 3% of the votes in the last elections.

cultural life, to prompt the economy and life prosperity in rural areas. The society organises many educational courses, arranges competitions for rural communities and also it has launched and organises the Renewal of the Countryside Programme, where the villages compete for funds in several categories and one of them, the Green Ferret, is focused on environmental protection.

The privatisation and land ownership revision in the 90s has basically changed the land property structure (see Figure 2), consequently, the re-structuralisation in the agricultural and industrial sectors and also the public opinion on environmental issues has been changed.

Even if there is increasing the interest in the environment management systems, the extent of the negative environmental impacts of *industry* is still significant in certain regions (the Ostrava-Karviná agglomeration or the Ústí nad Labem region). The change in *agricultural* sector is characterised by the decreasing negative environmental impacts (especially in the terms of the consumption of fertilisers), but on the other side, there still exists an intensive impact on air and water pollution. The expected trend is seen in the development of environmentally friendly organic farming.

The *public opinion* on environmental issues is deeply impacted by the environmentally oriented non-governmental organisations. In early 90s, there occurred several clashes between ecological activists and the subjects who wanted to “easily consume” the nature regardless of any landscape and nature protection. There were some typical cases of private companies (sometimes state or with state participation) who wanted to mine mineral resources or to build factories and/or other high-polluting facilities for their entrepreneurship activities and which outwardly presented only the positive economical externalities (decreasing unemployment, investments), however, in most of these projects great ecological damages could be expected.

**Table 2: The structure of registered farmers and agricultural companies**

	1995			2000		
	number	arable land (ha)	arable land (%)	number	arable land (ha)	arable land (%)
<b>Individual farmers</b>	20 820	822 518	23.2	24 053	934 137	25.8
<b>Business companies total</b>	1 196	995 815	28.1	1 726	1 578 881	43.7
<b>In that: Limited liability companies</b>	945	714 358	20.2	1 171	783 707	21.7
<b>Joint-stock companies</b>	223	268 899	7.6	519	779 707	21.6
<b>Co-operatives</b>	1 105	1 665 724	47.0	723	1 059 444	29.3
<b>Other</b>	94	59 979	1.7	138	42 358	1.2
<b>TOTAL</b>	23 215	3 544 036	100,0	26 640	3 614 820	100,0

Source: Czech Ministry of Agriculture

**The landscape and environment protection is build in the frame of the most important Act No. 114/1992, which ensures territorial protection with the emphasis on the institutionalisation of protected areas.**

The territories under certain conservation conditions are recorded in the National List of Protected Areas that is compiled by the Agency for Nature Conservation and Landscape Protection of the Czech Republic. We categorise protected areas into two groups. The first group involves large- size protected area such as National Parks (2% of the national area) and Protected Landscape Areas (13% of the national area), and the small- size protected areas involved other interspersed areas (in total, they cover less than 2% of the Czech Republic territory).

**Table 3: Numbers and area of the protected areas in the Czech Republic**

Protected areas	Czech Republic	
	Total number	ths. ha
<b>Large protected areas</b>		
National parks	4	119
Protected landscape areas	24	1040
<b>Small protected areas</b>		
National nature monuments	102	2.7
National nature reserves	110	28
Nature monuments	1180	27
Nature reserves	750	34
<b>Total</b>	<b>2170</b>	<b>1250.7</b>

Source: Agency of Nature Protection and Landscape Conservation of the Czech Republic, Administration of the Protected Landscape Areas of the Czech Republic

**National Parks (NP)** – naturally and ecologically most valuable areas that are of a larger territory. So far, there are 4 national parks in the Czech Republic: the Bohemia Forest (68 520 ha), the Dyje Valley (6 300 ha), the Czech Switzerland (7 900 ha) and the Giant Mountains 36 300). Only the last one mentioned was established in 60s, the others originated much later in 90s. The law declares them and the area of each of them is divided usually into three zones according to the level of conservation. All national parks have a protective zone.

**Protected Landscape Areas (PLAs)** – protected areas of a larger territory; they represent the cultural landscape, influenced and for a long time managed by man. The protection is managed according to four levels of protection. There are 24 PLAs in the Czech Republic, which cover 13.2% of its territory. Most of them (4/5) were established from the 50s to early 80s.

**Small size specially protected areas** represent the **National Nature Reserves** – the protection of rare ecosystems on the national level; the **National Nature Monuments** – the protection of one or more significant phenomena (both categories are designated, managed and guaranteed by the Ministry of Environment); and the **Nature Reserves and Nature Monuments**, which are small territories of a regional or local significance (the regional bodies or the PLA/NP Administrations ensure the management).

All protected areas are declared by the state as unique territories from the biological, environmental, historical, cultural and esthetical perspective and the state and non-state organised experts support their protection. The main purpose is not simply to preserve, but to maintain the unique character of these areas, although urban dwellers (in the last decade) intensively consume the space. The unique territories are on the national level included into (during the last decade increasing) all categories of the protected areas and on the European

level, there are some territories supposed (from 2005) to be involved in the Natura 2000 (the list elaborated in 2004) and the Bird Species Protection (the list elaborated by 2002)<sup>13</sup>.

**Table 4: Development of the protected areas in the Czech Republic**

	National parks			Protected landscape area			FFH (Natura 2000)			Bird Species Protection		
	1980	1990	2000	1980	1990	2000	1980	1990	2004	1980	1990	2002
Number	1	1	4	18	20	24	-----			-----		
Area ha	36 300	36 300	119 500	920 532	945 767	1 042 517	-----			-----		
									864			42
									724 173			665 842

Source: Agency of Nature Protection and Landscape Conservation of the Czech Republic; www.natura2000.cz

### Biodiversity

The State Environmental Policy of the Czech Republic defined biological diversity as the diversity of life in all its forms, levels and combinations, including the diversity of ecosystems, species and genetic diversity.

In the Czech Republic, there exist about 43 000 animal species and 5 000 plants species. By the legislation, the protection of endangered species is set by the Regulation No.395/1992 Coll., including the list of endangered animals, plants and other species (see Table 5).

**Table 5: List of endangered species in the Czech Republic**

	Critically endangered species	Strongly endangered species	Endangered species	Total
Plants	247	143	92	<b>482</b>
Fungi	26	13	6	<b>45</b>
<b>Plants total</b>	<b>273</b>	<b>156</b>	<b>98</b>	<b>527</b>
<i>Fish</i>	6	3	10	<b>19</b>
<i>Amphibians</i>	7	7	4	<b>18</b>
<i>Reptiles</i>	4	5	1	<b>10</b>
<i>Birds</i>	35	58	30	<b>123</b>
<i>Mammals</i>	8	12	10	<b>30</b>
Vertebrate total	60	85	55	<b>200</b>
Invertebrate total	33	22	36	<b>91</b>
<b>Animals total</b>	<b>93</b>	<b>107</b>	<b>91</b>	<b>291</b>

Source: Regulation 395/1992 Coll.

Intensification of agricultural production, as well as by the failure to cultivate and abandonment of agricultural areas<sup>14</sup>; urbanisation and the increasing building of transport infrastructure endanger the biodiversity in the Czech Republic.

Many areas characterised by the high biodiversity (lake reed beds, hedgerows, hedges etc.) are disappearing. The autochthonous species of plants and animals are seriously affected by the invasive species, which are either intentionally planted or spread spontaneously.

<sup>13</sup> There is a strong clash between the representatives (experts) of the ministries (mainly the Ministry of Industry and Trade) and the environmentalists. The Ministry of Industry and Trade has an economic approach to the extension of protected areas. From the point of view of the Ministry, the extension of the NATURA areas hinders the economic development of the Czech Republic general. The experts for environmental issues oppose that with the opinion that no economic project will be restricted by the NATURA, if it is "environmentally friendly". The environmentalists concede that the realised technological projects in the areas included in the NATURA are more costs demanding.

<sup>14</sup> In the Czech Republic, there are about 3 millions landowners and as many of them acquired land in the restitution process, they are not farmers and have no idea how to take care of land (Hudečková, H.-Lošťák. M.)

**Table 6: The level of biodiversity in the Czech Republic**

<b>Endangered species</b>	<b>1990 (%)</b>	<b>1994 (%)</b>	<b>1998 (%)</b>	<b>1999 (%)</b>	<b>2000 (%)</b>	<b>2002 (%)</b>
<b>Mammals</b>	<b>59</b>	35	35	35	<b>35</b>	29
<b>Birds</b>	<b>52</b>	49	57	37	<b>57</b>	48
<b>Fish</b>	<b>61</b>	28	28	28	<b>28</b>	62
<b>Reptiles</b>	<b>91</b>		100	100	<b>100</b>	73
<b>Amphibians</b>	<b>95</b>	95	95	95	<b>95</b>	76
<b>Vascular plants</b>	<b>59</b>	45	45	45	<b>45</b>	61

Source: State Environmental Policy of the Czech Republic

**Table 7: Programmes in the Czech Republic**

Analysis criteria	Goals	Initiator, formulation	Scale, target area	Approach	Human Resources, target groups	Funding	Budget	Active in South Bohemia	Active in Usti n/L.
<b>Countryside conservation programme</b>	Protection of the countryside, mainly protected areas	ME	all areas where realised projects to protect nature		owners and leasers of land	national budget	max 100%		
<b>Revitalisation of river systems programme</b>	support of nature renewal and use of natural water sources	ME	all areas where realised projects to protect nature	support of biodiversity; optimal water resources arrangement	owners of land, owners of water building/ construction, river manager (state or non-state), NGO's	national budget	max 100%		
<b>Natural environment care programme</b>	Support of nature and countryside protection	ME (administrative manager: SEF)	protected areas or areas mentioned in regional development program	forest, parks and particular important trees renewal and protection	entrepreneurs, state companies, co-operations, natural persons	national budget	max 80%		
<b>Programme of Forest stabilisation in the Jizerské hory and Ještěd</b>	stability of forest in the Jizerské hory area	ME	Selected region: the Jizerské hory	increasing of ecological stability in forest impacted by air pollution; increasing of species biodiversity; territorial difference to have optimal condition for ski areas	entrepreneurs, Administration of Protected Landscape Area of the Czech Republic, Agency for Nature Conservation and Landscape Protection of the Czech Republic, natural persons	national budget	max 100%	none	none
<b>Support of NGOs</b>	nature protection, environmental education,	ME	Czech Republic		NGOs	National	max 70%	none	
<b>HRDP – agro-environmental programs</b>	rural development and support of multifunctional agriculture	MA	all registered agricultural land	conservation of land, decreasing of intensive agricultural production	entrepreneurs, farmers, land owners, land owner associations, project agencies				
<b>Programme Infrastructure 3.1 a 3.4.</b>	improvement of air protection, waste and water management	EU (administrative manager: ME)	all NUTS 2 regions, excluding region Prague	improvement of environmental infrastructure and increasing of biodiversity of rivers	entrepreneurs, NGOs, representatives of municipality, regions (NUTS 3)	EU, national	max 80% EU and max 10% national		
<b>Program Agriculture</b>	rural development and support of competitiveness of agricultural production, protection and improvement of environment	EU (administrative Manager: MA)	all NUTS 2 regions, excluding region Prague	improvement of agricultural production and marketing strategies, development and adaptation of rural areas, professional education, support of landscape diversification	entrepreneurs, farmers, land owners, land owner associations, project agencies	EU	max 100 % for non-profit projects, max 50% for profit projects		
<b>Program LIFE – NATURE</b>	complex protection of areas included in the Natura 2000	EU	areas included in the Natura 2000	protection of important nature localities (preparation of plans, selling out of important land..)	entrepreneurs, agencies, research institutes, NGOs, representatives of cities, regions	EU	max 75%		

References:

State Environmental Policy of the Czech Republic 2004-2010. Prague, 2004.

ME – Ministry of Environment

MA – Ministry of Agriculture

SEF - State Environmental Fund of the Czech Republic

### 3. Case studies

#### 3.1. REGION ÚSTÍ NAD LABEM



**Area:** 5 335 km<sup>2</sup> (6.8 % of the Czech Republic)

**Population:** 820 000 (8 % of the inhabitants of the Czech Republic)

**Population density:** 153.6 inhabitants per 1 km<sup>2</sup> (CR average is 129 inhabitants per 1 km<sup>2</sup>)

**Neighbours:** Saxony (Germany), the Liberec Region, the Karlovy Vary Region, the Central Bohemia Region

The Region **Ústí nad Labem** is situated in the Northwest of the Czech Republic, along the border with the Federal Republic of Germany. Along the border with Germany, the Krušné hory, the Labské pískovce and the Lužické hory mountain ranges enclose the area. The Southeast of the region consists of flatland, from which there rises the České Středohoří. The majority of the region belongs to the Elbe drainage area, which is the most important waterway in the Czech Republic and which enables water transport among the Czech cities situated on the Labe (Elbe) and Vltava rivers and places in Germany, as well as the North Sea port Hamburg.

According to the statistical data, the area of the Ústí nad Labem region is divided to seven townships with 354 municipalities. Considering the population, the Ústí nad Labem region with more than 800 thousands inhabitants in 2002 is placed on the fifth position in the Czech Republic. The population density is higher than the state average (the area of 5,335 km<sup>2</sup> represents 6.8% of the Czech Republic overall area).

Rich mineral resources, especially the lignite coal-fields and the **power and chemical industries** connected with the coal-fields give the region its industrial importance. The economical activities, in the last decades aimed especially at coal mining, power industry and chemistry, in past had and still have a negative influence on the environment. Structural changes during the last years caused the decrease of the number of jobs in the industry. The sector of services was not able to offer enough job possibilities, which resulted in the increased rate of unemployment. **Agriculture** in the region is mainly famous for the vegetables and hops growing.

**Table 8: Land use structure in the Ústí nad Labem Region**

	Total area		Built on area		Forests		Agricultural land	
	km <sup>2</sup>	%	km <sup>2</sup>	%	km <sup>2</sup>	%	km <sup>2</sup>	%
<b>1980</b>	5 335	100	88	1,7	1 571	29	2 912	55
<b>1990</b>	5 335	100	89	1,7	1 572	29	2 798	52
<b>2000</b>	5 335	100	95	1,8	1 585	30	2 786	52

Source: Czech Statistical Office

**Transport** is a important issue due to the high concentration of industrial zones and also important international connections: namely the E 55 motorway connecting the North and South of Europe and the reconstruction of the D 8 highway. One part of the construction of the D8 has become complicated due to the clash of the economic and environmental approaches. Its position on the main transport axis from Berlin through Prague to Vienna (the road and railway corridor) and the Elbe river route represents for the future significant factors for the economic development of the Ústí nad Labem Region (the allocation of capital, industrial and commercial activities).

The Ústí nad Labem Region is called the "*Black Triangle*" region, because of the environmental problems which arose from the high concentration of industry (a large mining area, chemical factories complexes, power plants etc.) However, even if the Northwest part of the region is typical by the intensive industrial production, the Southeast part of region is characterised by intensive agricultural production (hops, vegetables) and it has a high potential for tourism.

***The main problems with regard to the nature protection:***

- High concentration of important pollution sources in the region, intensive production of emissions and air pollution
- High concentration of chemical industry
- Increasing automobile transport in the agglomerations without the complex solution of the problems (the motorway D8, the speedway R7, town-thoroughfare)
- Deficient soil protection from erosion by land-use planning
- Deficient co-ordination of building of the industrial zones.

In the Ústí nad Labem Region, there are five **large protected areas** (4 Protected Landscape Areas and 1 National Park České Švýcarsko). The Protected Landscape Area České Středohoří is the second largest protected area of its category in the Czech Republic. Its overall size is 1,063 km<sup>2</sup>. The Southern part of the territory of the Protected Landscape Area České Středohoří (the districts Louny, Litoměřice, Most) has very dry, exothermic natural conditions (low precipitation, Southern orientation of slopes, alkaline minerals, rich soils). The more mountainous Northern part is more aforested and the precipitation levels are twice as high as in the lowlands.

**Table 9: Landscape Protected Areas structure in the Ústí nad Labem Region**

Protected areas	Ústí nad Labem Region	
	Total number	ths. ha
<b>Large protected areas</b>		
National Parks	1	7.9
Protected Landscape Areas	4	193.5
<b>Small protected areas</b>		
National Nature Monuments	13	0.1
National Nature Reserves	11	0.8
Nature Monuments	61	0.8
Nature Reserves	52	1,4
<b>Total</b>	<b>142</b>	<b>204.5</b>

Source: Agency of Nature Protection and Landscape Conservation of the Czech Republic, Administration of the Protected Landscape Areas of the Czech Republic

An island of the natural dry grasslands, the "steppe" vegetation, was naturally created in the southern part of the Protected Landscape Area České Středohoří. It is now one of the most important localities from the nature conservation point of view. It has been developed here gradually since the flora (26 listed endangered species) and fauna reach their Western or Northern limit here (the Helictotrichon species, the Stipa species etc.). Nine species of the entomofauna and 26 plant species depend on the grassland type and its management. Some of the localities are legally protected as the national nature reserves, the nature reserves, the EECONET, the Protected Landscape Area, and some are proposed as biogenetic reserves (the Council of Europe).

As a secondary effect, there were also negative changes of the steppe ecosystems - old biomass accumulation, the biodiversity decline (of both plant and insect species) and a sharp decline of the unique entomofauna species are the most visible changes of dry grasslands.

**Table 10: Development of the Protected Areas and the Landscape Conservation in the Ústí nad Labem Region**

North Bohemia Region	National Parks			Protected Landscape Area			FFH			Bird Species Protection		
	1980	1990	2000	1980	1990	2000	1980	1990	2004	1980	1990	2002
Number	0	0	1	4	4	4				68		
Area ha	0	0	7 900	193 500	193 500	193 500	-			40 000	-	

Source: Agency of Nature Protection and Landscape Conservation of the Czech Republic; www.natura2000.cz

The project-preparation process has an increasing tendency in the Ústí nad Labem Region during the last years. There are several projects (Note: the data available from 2003) on the national level – **(1) the Countryside Conservation Program** including 39 projects offering the support in summary of about 5.5 million CZK. Most of the projects are oriented on the improvement of conditions for the important biotopes and the support of recessive plant and animal species and their communities. **(2) the Programme of River Systems Revitalisation** including 9 projects offering the support in summary of about 17.7 million CZK. The majority of projects is oriented on the construction of fish ways. The other projects are aimed at the ecological education and interregional co-operation between the Czech and German partners (see the following table).

**Table 11: Programs in the region Ústí nad Labem**

Analysis criteria	Goals	Initiator, formulation	Scale, target area	Approach	Human resources, target groups	Funding	Budget
Programme/ Projects							
<b>Ecological education development programme</b>	ecological education	Administration of the Ústí nad Labem Region	Ústí nad Labem Region	support of projects for nature protection, SD (nature trail, springs)	NGOs, church, municipalities, schools	region	max 80%
<b>INTERREG IIIA (+ Saxony)</b>	nature protection, decrease of pollutant emission, development of renewable energy source, border networks	EU (administration: regional)	border region	Cross-border co-operation	NGOs, municipalities, SMEs, agriculture and forest entrepreneurs, universities	EU	max 75%
<b>Renewal of Countryside Programme</b>	rural development, renewal of local traditions, strengthening local identity, cultural potential	NGO: Society for the Renewal of Countryside (Ministry for Regional Development participation)	Rural areas in Ústí Region	Support projects based on the rural endogenous development	Municipalities, NGOs	NGOs (partial contribution of Ministry of Regional Development and/or the EU)	max 100%

Source: www.strukturalni-fondy.cz, Administration of the Usti nad Labem Region

### 3.1.1. CASE STUDY IN THE ÚSTÍ NAD LABEM REGION

Because the Ústí nad Labem Region is environmentally very heterogeneous, there would be many case studies suitable for the WP Nature protection and biodiversity. Finally, we have chosen the problem of the so-called “Kubačka”. Kubačka is a hill situated in the České Středohoří, on the Southeast from town Ústí nad Labem. The Kubačka hill was found to be a valuable biotope where the experts identified five endangered animal species (mainly reptiles) and three endangered plant species.

The project of the highway D8, connecting Prague with Berlin, was created already in the 1960s. The highway construction is planned and realised under the umbrella of the state (namely the Central Office of Roads and Highways Reconstruction). The problem “Kubačka” escalated, when ecological activists paid attention to the planned highway construction crossing the valuable biotope on the Kubačka hill. Consequently, there were offered two basic alternatives – the original state plan to build the highway regardless of existing biotopes (to build the “classical” surface road) and the ecological proposal to construct the environment-friendly, tunnel leading through hill. In the complicated decision-making, there were involved several actors.

We have identified (and interviewed) the key actors as follows:

- **The state** represented by the Central Office of Roads and Highways Reconstruction including its team of experts, mainly civil engineers, who had to convince the public to accept the state alternative.
- **Representatives of the villages** to which the highway would help by the alleviation of the hitherto intensive traffic through their community territory, and on the other side, the representatives of the villages which the highway would burden by unfavourable environmental conditions
- **Politics**, namely the regional politics who fight against the ecologists and the senator who supports the alternative ecologists
- **NGOs representatives**
  - **Representatives of ecological associations:** there were two important co-operating associations – one of them the regional association (the Friends of Nature), second, the non-regional ecological association (Children of the Earth). The latter has impact on all regions in the Czech Republic. They are focused on the highway and motorway reconstruction and for the Kubačka case, there was delegated an expert who should mediate between the local people and the regional politics
  - **Representative of the villages association**, the so-called INTEGRO association, which was established during the last years with the purpose of co-operation of the municipalities in the EU project-making process.
- **Farmers**
- **Local people** living in the impacted villages
- **Media**, the regional as well as national newspapers.

We have investigated the key actors position and the relationships among them from *two perspectives* – (1) *the community level* (to know how the representatives of villages and the local people reflect the problem) and (2) *the intervention into the community life* (to know how the regional and national actors intervene into the problem and what kind of relationship is between them).

In the Kubačka case, there emerged the core relation between two dominant actors – the state Central Office of Roads and Highways Reconstruction, which offered for the locals

the expert study promising a fast, economically favourable construction and promised to compensate for ecological losses caused by the reconstruction (tree plantation, connection to the highway); and environmental associations, which offered also expert studies, but from the locals viewpoint, they are bringing “only” the information about negative externalities, which could be brought about when the state alternative is realised. In the investigated communities, the state-representing organisation is evaluated as a stabile (because state!) authority with a clear perspective based on the (formal!) expert studies, while the ecological organisations are reflected as a non-trustworthy group of people who do not contribute to the solution of the problems, but who present a non- expert contribution to the community life.

The representatives of the villages had to evaluate the pros and cons to get clear attitudes towards the offered alternatives and to decide, which they will support. They could use for their decision- making mainly the experts knowledge and the common knowledge of the locals.

We have distinguished two approaches – (1) fighting alone and (2) protecting the community members. In both cases, the local people as well as the representations respect the state project and do not see many reasons to intervene through the civil society instruments (the local people reflection as well as the ecological association activities are not respected, but reflected as an obstruction to the highway construction). First, the “fighting alone” approach is characterised by the economically oriented rationality. On the empirical level, it means acceptance of the highway construction in the locality and adopting of the strategy to get the most advantages possible from project. The result in the investigated village was a direct connection (the exit) to the highway; however, the ministry would have to get an administrative exception regarding an exit construction in the nature protected area. The effort to get the connection to the highway corresponds with the local strategy: to use the environment capacity to realise a small-scale tourism for foreign tourists (mainly Germans). For this purpose, the local representatives have bought in co-operation with the association INTEGRO some land in the protected area, including the biggest hill in the České středohoří, to organised events for tourists there in future (meteorological observations, a museum etc.). Consequently, some farmers plan to reorient their activities at offering services for tourists (accommodation, agri/eco-tourism etc.) and to buy particular “strategic plots”.

There were also villages, which would not “profit” from the project and had no chance to get any specific advantage from it. The representatives of such a village adopted the strategy “to protect the community members”. In comparison to the first strategy, this is not based on the “economic calculation” very much, but rather aims to reflect the public opinion (there was organised a kind of local referendum to know the public opinion of the locals) and to follow it in decision-making.

In both cases, the representatives of villages accepted the state project without any radical reservations and on the other side; they refused the knowledge suggested by the ecological associations.

Concerning the media, there was not a direct link from the locals to the media (the local people, even the representatives of villages did not evolve any effort to use the media), but a strong link existed between the media and ecological activists. While the communication and co-operation between ecological associations and the national journals was working well, the relation between the regional media and ecological associations was problematic.

### 3.2 SOUTH BOHEMIAN REGION



**Area:** 10 055 km<sup>2</sup> (12,8 % of the Czech Republic)  
**Population:** 625 000 (6 % of inhabitants of the Czech Republic)  
**Population density:** 62.1 inhabitants per km<sup>2</sup> (129 inhabitants per km<sup>2</sup> is average in Czechia)  
**Neighbours:** Bavaria (Germany), the Pilsen Region, the Central Bohemia Region, the Vysocina Region

**The South Bohemia Region** is an administrative unit of the Czech Republic, located mostly in the Southern part of its historical region of Bohemia, with a small part in Southwest Moravia. Its capital is České Budějovice. The South Bohemia region represents, geographically, a quite closed unit. The core of the unit is the South Bohemian basin. The Southwest borders with the Šumava mountains, the Northwest borders with the Brdy highlands, the North with the Central Bohemian Granite Highlands, the East with the Bohemian-Moravian Highlands and to the Southeast, it borders with the Novohradské Mountains. The South Bohemian basin consists of two smaller basins called the Českobudějovická kotlina and the Třeboňská kotlina.

The South Bohemian region population amounts to approximately 625 000 people, which represents the density of approximately 62.6 inhabitants per 1 km<sup>2</sup>, the lowest population density the Czech Republic regions. The Czech average is about 129 inhabitants per 1 km<sup>2</sup>. In five biggest towns, there lives more than one third of the South Bohemians. On the other hand, the smallest villages up to 200 inhabitants represent approximately 40% of the total number of villages but have only 4.5 % of the region's population.

The region spreads on the area of 10 055 km<sup>2</sup>, which is 12.8 % of the Czech Republic total area. The region is the second largest region in the Czech Republic. One third of the area is covered with forests, 4 % are covered with water areas. In the past, more than 7 000 ponds were built here. Their overall area today reaches more than 30,000 hectares.

**Figure 12: Landscape structure in the South Bohemia Region**

South Bohemian Region	Total area		Built up area		Forests		Agricultural land	
	km <sup>2</sup>	%	km <sup>2</sup>	%	km <sup>2</sup>	%	km <sup>2</sup>	%
<b>1980</b>	10 055	100	-	-	3 564	35	5 084	51
<b>1990</b>	10 055	100	101	1,0	3 730	37	4 961	49
<b>2000</b>	10 057	100	105	1,0	3 740	37	4 962	49

Source: Own calculation according to the Czech Ministry of Environment, the Agency of Nature Protection and Landscape Conservation of the Czech Republic, [www.strukturalni-fondy.cz](http://www.strukturalni-fondy.cz)

The South Bohemia region is not an area rich with raw materials and there are almost no sources of energy materials. However, the South Bohemian region is a “green” region, there are several environmentally important problems, the impact of which reaches even over the regional/national border:

The three most important problems in the South Bohemian region are the following<sup>15</sup>:

- The planned highway D3 (I/3 E55) between Prague and Linz.

<sup>15</sup> However, the technological project Temelín Nuclear Plant was a publicly discussed project on the national as well as international level. Even if the Temelín is one of the most significant projects from the environmental point of view, we did not choose it for the case study, because the public discussion was more interesting for the Austrians than for the Czechs and the case would have been interesting to investigate several years earlier before when there were discussed the reasons whether to activate or not the nuclear power plant.

- Large invasion of bark beetles in the National Park Šumava (there is a strong conflict between the ecologists and the National Park management and also the involved German and Austrians experts who have a different approach to solving of the problem).
- The nuclear power plant Temelín (there is a strong conflict between the ecologists, local people, the local and non-local NGOs -not only ecological ones!-, the representatives of municipalities and Austrian NGOs and other authorities).

The region is characterised more by the recreational nature zones than industrial zones. The intensity of the landscape protection can be illustrated by the number of protected land areas: the largest Czech National Park Šumava (area 685 km<sup>2</sup>, crosses over two regions, the České Budějovice and Pilsen region), the protected landscape areas Šumava (area 999 km<sup>2</sup>- including the West Bohemian part), Treboňsko (703 km<sup>2</sup>), Blanský les (217 km<sup>2</sup>) and further 297 smaller protected natural formations.

**Table 13: Landscape Protection Areas structure in the South Bohemia Region**

<i>Protected areas</i>	<b>South Bohemian Region</b>	
	Total number	ths. ha
<b>Large protected areas</b>		
National Parks	1	69
Protected Landscape Areas	3	185.7
<b>Small protected areas</b>		
National Nature Monuments	10	0.5
National Nature Reserves	12	3.1
Nature Monuments	178	5
Nature Reserves	93	4.6
<b>Total</b>	<b>297</b>	<b>267.9</b>

Source: the Agency of Nature Protection and Landscape Conservation of the Czech Republic, the Administration of Protected Landscape Areas of the Czech Republic

We have to pay attention also to the exceptional *cultural and historical sights* in the region. The historical centres of České Budějovice and Český Krumlov are among the most favourable Czech historical place. Český Krumlov is even included in the UNESCO list as a municipal protected reservation. The historical and cultural sights are situated in urban (for example the Hluboká castle) as well as rural areas (folk architecture, so called “rustic baroque” in the Holašovice village, which is also in the UNESCO list since 1998).

*Geographically*, the Šumava Mountains extend from South Bohemia to Austria and Bavaria in Germany and they form a natural border between the Czech Republic, Germany and Austria. The Šumava is a very densely forested area with the altitude of about 600-1400 metres. The forest there is one of the oldest in Europe, and the mountains are eroded into round forms with few rocky parts. Typical for the Šumava Mountains are plateaus at about 1000-1200m with a relatively harsh climate and many peat bogs. The Šumava river system forms the division the so-called Black Sea and the North Sea water areas.

As a border region, the Šumava has had a complicated history. In the 20<sup>th</sup> century, it was a part of the Iron Curtain and large areas of it were stripped of human settlement. Even before that, the settlement was sparse and for centuries, the forests dominated over human dwellings and pathways. These unique circumstances led to the preservation of the unspoilt nature and forest ecosystems relatively unaffected by human activity.

**Table 14: The development of landscape protection in the South Bohemian Region**

South Bohemia Region	National Parks			Protected Landscape Area			FFH			Bird Species Protection		
	1980	1990	2000	1980	1990	2000	1980	1990	2004	1980	1990	2002
Number	0	0	1	2	3	3				76		
Area ha	0	0	69 000	164 480	185 715	185 715	-			-		
										161 635		
										206 037		

Source: Agency of Nature Protection and Landscape Conservation of the Czech Republic [www.natura2000.cz](http://www.natura2000.cz)

***There are the following main problems with regard to the nature protection:***

- Many small municipalities and recreation areas are without the waste water cleaning system, as well as some bigger towns
- Increasing intensity of automobile transport
- Negative health of state of the broad-leaved and coniferous forests
- Land use – increasing amount of building in the free nature (landscape)
- Slow grassing of agricultural land in the areas endangered by soil erosion.

In the South Bohemian Region, there are several running projects on the national level – **(1) the Countryside Conservation Program** including 73 projects supplying in summary about 7.2 million CZK, most of the projects are oriented on the improvement of conditions for the important biotopes and support of the recessive plan and animal species and their communities; **(2) The Program of River Systems Revitalisation** including 19 project supplying in summary about 43 million CZK (almost 1.5 mil. EURO). The majority of projects are oriented on the construction of fish ways. The number of projects and also the amount of money supplied increased between the years 2002 and 2003 and this trend can be expected also for the next years. Other projects are included in the Regional Development Program and they are concerning the flood prevention and renewal of water infrastructure. There also exists the European initiative INTERREG IIIA<sup>16</sup> based on the cross-border co-operation between the Czech and German/Austrian partners (see the following table).

<sup>16</sup> Cross-border cooperation between the neighbouring regions aims at developing of the cross-border social and economic centres through common development strategies. Most municipalities (or municipality association) or/and NGOs design, apply and implement projects, which are common in the South Bohemia and the bordering Austrian region. Mostly the projects are concerning environmental issues, educational, experience exchanges. As an example, we can mention the invasion of bark beetles in the National Park Šumava mentioned above, because successful solving of the problem calls for coordinated approaches.



Analysis criteria	Goals	Initiator, formulation	Scale, target area	Approach	Human resources, target groups	Funding	Budget
<b>Countryside formation, support of biodiversity</b>	project formulation to draw-down of the national financial sources (1.-2. national Programme)	administration of South Bohemian Region	South Bohemian Region			regional	max 200.000 CZK (= ca 6.660EUR)
<b>Regional Development program</b>	flood prevention	administration of the South Bohemian Region	South Bohemian Region	flood control (protect)	NGOs, municipality, humanitarian organisation, natural persons,	regional	Max 1.000.000 CZK (= ca 33.333 EUR)
<b>Regional Development Program</b>	cleaning of waste water in municipalities until 2000 inhabitants	administration of the South Bohemian Region	South Bohemian Region	support of construction and renewal of water infrastructure	municipality under 2000 inhabitants	regional	
<b>INTERREG IIIA (+ Austria)</b>	preservation of nature sources, expansion of nature and national parks and their cross board connection	3 NUTS3 regions (South Bohemian Region, Vysocina, South Moravia)	South Bohemian Region	Cross board co-operation	NGOs, municipality, church, region administration, business chamber	EU, national	max 75%
<b>Renewal of the Countryside Program</b>	rural development, renewal of local traditions, strengthening local identity, cultural potential	NGO: Society for Renewal Countryside (Ministry for Regional Development participation)	Rural areas in the South Bohemian Region	Support projects based on the rural endogenous development	Municipalities, NGOs	NGO (partially contribution of the Ministry of Regional Development and/or the EU)	max 100%

Source: www.strukturalni-fondy.cz, Administration of the South Bohemia Region

### 3.1.1. CASE STUDY IN THE SOUTH BOHEMIA REGION

The case study is concentrated on the village Svatý Jan nad Malší and the neighbouring areas. The village is situated in the Southwest direction from the regional centre České Budějovice (producing the Budweiser beer) and about 30 km from the famous cultural centre – Český Krumlov (a favourite destination of foreigner visitors, not only Austrians). In the village, there are living about 300 inhabitants. According to the statistical data, there are in business 50 entrepreneurs who closely co-operate with the municipality and several local associations, one of which is focused on an environmental issue (the Rosa foundation – a South Bohemia organisation for ecological information and activities<sup>17</sup>).

Nowadays, there are running several *national programs/projects* concerning nature protection – (1) *the Countryside Conservation Program*; (2) *the Program for Small-Scale Hydrological and Ecological Projects*. A Bird Species Protection area was suggested in the list of the Natura 2000. The representatives of the village work in close co-operation with the Society for the Renewal of Countryside and they used to submit there their program, too. The Svatý Jan nad Malší village has an advantage in the project-preparation process, because they were pioneers in the re-orientation from the central state subsidies system to the novel redistributive system based on the projects. Generally, the mayor operates with a strong social capital to prompt the village development through project activities. Due to his success, he keeps a strong position in the village, which spares him conflicts with the locals.

We have investigated two projects and their consequences. The first project is rather a technological one. It regards building of a communal heating plant, which exploits the secondary/alternative environmental sources (it operates on biomass!). It provides central heating for several houses in the village (for example the local school, local pub etc.). The project was started in 1997.

The starting point for project was in late 90s, when there started problems regarding the dysfunction of the former (classical, environmentally not friendly) heating system. The decision to orient on the different (ecological) heating was inspired by a member of the local ecological organisation Rosa. The Rosa association used their active membership in the association Růže (where there are included about 20 villages of the region) and mediate the co-operation between the association Růže and the Svatý Jan nad Malší village. In the frame of the Růže association, they received information about the challenge to be involved into a pilot project of ecological heating reconstruction. The project managers needed one case of heating system in a small village to test the small-decentralised buildings. The representatives of the village accepted the idea of the project and realised it. Later, the mayor decided to extend the heating system still further. Hence, the application for the second phase in the Phare CBC with support of the Renewal of the Countryside Program was launched. They had successfully applied for about 40 thousand EURO.

The second project is oriented more on the local traditions, but with regard to nature. In the late 90s, the representatives of village decided to renew and actively take care of the lime-trees (the *Tilia Cordata* is Czech national tree) in the central meeting point in the village. The meeting point- the village green - has a strong historical importance in the village – in the middle of it stands the traditional St. John (Jan) of Nepomuk statue surrounded by several lime- trees. In co-operation with the State Institute of Cultural and Landscape Protection, the central place with the statue of St. John was put on the list of the Important Landscape Components (it corresponds to the small scale protected areas).

The status of the Important Landscape Element means for the village a higher responsibility and also some administrative and additional financial costs (because of the

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<sup>17</sup> Most of members of the ROSA are volunteers who adopt environmental protection as a hobby. The management of the ROSA organisation includes experts from universities, research institutions etc. Eco-Counselling Network, which is another NGO, provides another source of (managerial and political) experience/knowledge for them. The Rosa is a member of this advisory NGO.

experts needed for the maintenance of the place), but from the other side, it can help the village to be more attractive for tourists. From the mayor's point of view, they have, due to the cultural traditions and natural conditions (cyclo-trails and near-by tourist centres) the perfect starting point to become one of the most attractive "rural tourist centres" in the South Bohemia Region, however, they have to develop more in field of technological reconstructions to reached the standard level of the facilities for visitors.

We have identified the key actors as follows:

- **State**, namely the **regional administration** (NUTS 3 administrative centre) that administers some of the projects.
- **Representatives of the village**, mainly the mayor with his stable position in the village of a man who has a clear vision of sustainable development of the locality in future.
- **NGO representatives**
  - **Representatives of the associations** - the regional ecological association Rosa plays the main role in rural development, however, its activities are mainly educational and oriented on young people. Local leader of the association was the innovator who suggested all projects concerning nature protection to be realised and the representatives of the village respected all his recommendations, applied for the projects and consequently realised them. Second very important for the success of the village was the civil association Society for the Renewal of Countryside, which organises a competition among the villages with a financial compensation for winners (the village Svatý Jan nad Malší won it in the environment-oriented category called the Green Ferret in 2002) and operates with the Renewal of the Countryside Program (Svatý Jan nad Malší was successful in getting some financial support for the project of the ecological central heating system construction).
  - **Representatives of the villages association**, so-called Růže, where the village Svatý Jan nad Malší is a member and got many useful information for the development projects.
- **Universities** (so-called regional university in České Budějovice as well as the Technical University Prague) played an important role in two projects, because they provided expert studies (free of charge): (1) the effectiveness analysis of the ecological central heating system and (2) the architectural design on houses in the central place of the village.
- **Natives of the village** - there are still some links to people who were born in the village and now live in he Capital of, Prague. Most of them help locality development from their present positions (for example an art-historian who composed a travelling exhibition programme including an exhibition hall in the village).

#### 4. Comparative analysis

In the report, we have selected and analysed two selected case studies in two regions. From the perspective of nature and nature protection, we have chosen rather controversial regions – the Ústí nad Labem region is a heterogeneous one, because there are areas impacted by the industrial production side by side with environmentally valuable areas; it is more homogenous from the nature viewpoint (there are large landscape protected areas and forests), this region is more oriented on the tourist industry. For this reason, we started to call the regions the “Black Region” (the Ústí nad Labem Region) and the “Green Region” (the South Bohemia Region)

**Table 4.1: Actors and the utilised knowledge in the South Bohemia Region**

Actor	Knowledge form	Activity prompting the rural development/nature protection
Local government	Managerial Political Traditional/local	Strong co-operation with NGOs (national and local)
Ecological association	Traditional/local Expert	Transformation of useful information
Růže – Association of villages	Managerial Expert	Association is a rich source of information
Society for the Renewal of Countryside	Managerial Expert	Association is a rich source of information and its Program can be also a source of money (project)
Universities (regional and non-regional)	Scientific	There is a close co-operation based on gathering of the empirical data and the realised (useful) studies
Natives of the village living in cities	Expert Managerial	Contribution is based on strong personal links and is fortuitous

**Table 4.2: Actors and the utilised used knowledge in the Ústí nad Labem Region**

Actor	Knowledge form	Activity prompt rural development/nature protection
State (Central Office of Roads and Highways Reconstruction)	Expert Managerial	Respect to nature protection is limited by the financial and technical conditions of construction
Local government	Managerial Traditional/local	Respect to nature protection respected the central decision making
Ecological associations	Expert, Political, Managerial	Using all kind of knowledge to protect nature (except local)
Integro – Association of villages	Managerial Expert	Contribute to any kind of project regardless of the nature protection link
Farmers	Traditional/local Managerial	In co-operation with the local government, the regional association re-orientes towards a more environment-friendly farming

However, we do not want to evaluate the position of regions, we could only say that the “Black Region” economy will be rather based on industry (not industrial tourism as some other industrial regions in the Czech Republic – for example the Vítkovice factory efforts to be included in the UNESCO list) and the “Green Region” is more oriented on tourism. Regarding the pronounced differentiations in the approach of the selected cases/regions, we have found that in the “Black Region”, nature protection is taken rather rationally as an

instrument of economic development of the rural community (we will protect it if it brings as certain profit) and in “Green Region”, the approach to nature protection is “emotional”, coming from being deeply embedded in the locality, it is supported by the strong local identity (nature is our common wealth, which we have to protect).

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# Nature Conservation and Biodiversity in Hungary

Boldizsár Megyesi<sup>18</sup> – Imre Kovách<sup>19</sup>

## 1. Introduction

In the first part of the report we present changes of the legislative framework of nature conservation in Hungary in the last fifty years. Now the Directorates of the National Parks are the first instance authorities. They cover the whole territory of the country. Although in Hungary nature conservation started almost a century while land protection started only sixty years ago, and it became widespread only in the eighties. Now 10% of the country is under nature conservation, but in the future it will reach about 20% in the frame of the Natura 2000.

In the second part we present the nature conservation in the LIAs, with special attention on the Life-Nature projects. We examine how different actors use their scientific, traditional–local, or expert knowledge to manage the projects, and to fit the legal prescriptions on the protection of the natural and cultural heritage. It is very important, that the National Parks realised that they have to study not only the natural values and cultural heritage, and present the result of these researches, but also the traditional knowledge forms, the almost disappeared part of the local knowledge on farming practices.

The studies on form of knowledge have found an important and interesting difference between the two research areas. Although in both LIAs there are famous universities (or at least in the neighbourhood) the cooperation among the scientific knowledge producers; the Universities and the National Park Directorates is not sufficient. The Hortobágy National Park uses managerial knowledge to integrate neighbouring farmers and this way they manage largest land unit of organic cultivation in Hungary, which serves also nature conservation objectives, economic security of the farmers, well being of the inhabitants and implies rural development. The Balaton Upland National Park did not use such managerial knowledge for encouraging farmers to convert traditional farming into organic and this also does not help selling the products, although it also has the same scientific knowledge.

## 2. The National Level

While environment protection aims to maintain the environment in a form suitable for men, the aim of nature-conservation is to protect, maintain, handle, and if it is necessary also to recover the living and non-living parts of natural environment. In Hungary the Act 1996/LIII regulates nature conservation. Nature conservation means on one hand the general conservation of the whole ecosphere, which involves any kind of natural values, like the landscape, habitat or each part of nature. On the other hand nature conservation also means the protection of natural areas and species, which are protected also by other laws. The nature conservation has two basic concepts: natural value and natural area. Natural values are the natural resources and the non-living parts of the nature, the biosphere, the plant- and animal species, caves and ponds. Natural areas are characterized by near-nature state; these could be landscapes, habitats, or biomes.

In Hungary the law protects all springs, moors, saline, and sodic lakes, ponds, sinkholes, caves, earthworks, and the so-called “kunhalom” (these objects were burial mounds probably,

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made thousand years ago by ancient habitants of the Carpathian-basin). There are four types of protected natural areas: Natural Reminiscences, Nature Conservation Areas, Landscape Protection Regions and National Parks. The first two have both national and local significance, while Landscape Protection Areas and National Parks have national significance. Hungary signed several international agreements on nature conservation, like the Bern Agreement, the Ramsaar Agreement on Bird Protection, the Bonn Agreement on the Protection of wild-life, or the Washington Agreement on the trade of wild-animals etc. According to these agreements there are some protected areas of international significance, which could be found in the territory of National Parks.

The Directorates of the National Parks control nature conservation. The territorial authority of the Directorates is different from the administrative territorial boundaries, so the selected research areas are not only under the authority of one Directorate. On the national level the Office for Nature Conservation controls the area. The office is an under-secretariat of the Ministry for Environment Protection and it is responsible for the professional control of nature conservation.

**Table 1: The distribution of protected area of national significance in Hungary**

in 1000 hectares	Protected areas of national significance									Protected areas of local significance		
	National Parks			Landscapes Protection regions			Nature conservation areas			Nature conservation areas		
	1977	1990	2001	1977	1990	2001	1977	1990	2001	1977	1990	2001
Hungary (ha)	121,4	146,6	517,6	125,3	413,4	380,7	27,1	35,1	27,2	7,3	34,7	36,7
Pieces	3	4	9	12	28	38	75	110	142		878	1225

**Table 2: The changing of protected area of national significance in Hungary**

	1947	1967	1977	1990	2001
In 1000 hectares	2,287	7,316	273,8	595,1	925,5
Pieces	13	50	90	142	189

The history of nature conservation started in 1939 in Hungary. At this time the extent of nature conservation areas was very small. The first boom of nature conservation was in the seventies; the second and third (now finishing) period of extension of nature-protected areas could be followed from the tables above. Although the average size of a National Park is over 50000 hectares, and also the average size of Landscape Protection Area is above 10000 hectares, these areas are divided in parts and the average size of a nature conservation area is between 3000-7000. According to the statement of the Ministry after the EU accession new areas are to be signed in the framework of Natura 2000. Thus, the proportion of protected area will reach twenty percent of the territory of Hungary. This work is still not finished, so the data of the Natura 2000 territories is not available.

### **On the designation of nature conservation areas**

In Hungary anyone could make a proposal on the designation of a nature conservation area, although according to the experts' opinion 95% of the proposals are arriving from the Nature Protection authorities, so this proposals are based on scientific, expert knowledge. The staff of regional administration is managing the process of designation. The protected areas of national significance have to be designated by the regionally competent Directorate of National Park. It is examining the reasonability of protecting the given area, the consequences of it, and whether it is possible (financially, and physically) to protect the area. During these examination and preparation for conservation the Directorate has to consult with the

interested actors; the proposer, the owner of the territory and the interested authorities. The Directorate must designate the area as protected, and it has to inform the real-estate-registry also.

### On biodiversity

In Hungary the biodiversity faces similar problems as in whole Europe. In a quite small area a many different biotopes exist, and these biotopes are in danger because of the human activity. Although there are relatively fewer motorways in Hungary, than in Western Europe, their number is continuously growing, so the connection among the population of certain species is getting more and more problematic. The population density of an area is sometimes independent from the biodiversity of the area. For example in Jász-Nagykun-Szolnok County the population density is low, but because of intensive agriculture there are very few natural areas, and habitats for wildlife, except of course the area of the National Park of Hortobágy, and the Landscape Protection Area along the River Tisza.

The number of extinct or disappeared species in Hungary is as follows (data of the Hungarian Red book of Endangered Species):

**Table 4: Plant species in the Hungarian Red Book of Endangered Species**

Plants	Extinct or vanished	Endangered	Vulnerable	Rare	Total
Angiosperm	35	401	114	384	573
Gymnosperm	-	-	-	2	2
Other <sup>20</sup>	5	33	52	65	155
<b>Total</b>	40	73	166	451	730

The total number of plant species is around 2700. The number of protected species is similar to the number of endangered species, so – according to the opinion of experts the protection of plant species is solved for a long time.

**Table 5: Animal species in the Hungarian Red Book of Endangered Species**

Animals	Extinct or vanished	Endangered	Vulnerable	Rare	Total
Mammals	5	7	7	1	20
Birds	13	21	40	9	83
Other <sup>21</sup>	-	5	1	1	7
<b>Total</b>	18	33	47	11	730

The total already described number of animal species in Hungary is around 32000, (the total number is about 40000), but the estimations are really uncertain. Most of the protected species are vertebrates. All the reptiles and amphibians, and most of the birds are under protection. There is debate on the protection of species that vanished from Hungary in the last centuries but now seems to return, like the Carpathian bear, the wolf or the lynx. According to the opinion of the experts of nature conservation the presence of these animals is very important, so the law should protect them.

One of the most important problems of the nature conservation in Hungary is that a lot of protected land is in private property and while till the nineties it was managed by one state farm or collectives, after the transition period lots of small-scale farms started to cultivate the lands, and also a lot of smaller shoot companies arisen. Thus the National Park Directorates has to deal with a lot of severally interested actor. Since 1995 the state has tried to buy or

<sup>20</sup> Others: Scolopendriums, Sphagnidea

<sup>21</sup> Others: Reptiles, Amphibians, Fishes

expropriate all the nature conservation areas. Only one fifth of the nature conservation territories are in the property of the nature conservation authority.

Theoretically the National Parks should not do scientific work. They may work together with research institutes and universities and then they share their results. The Directorates are nature conservation authorities, and National Parks are controlling the areas, organising tourism and education, farming, if it is necessary, protecting the land and manage restoration. Our experiences gained in the LIAs show that the National Park Directorates and the National Parks are co-operating, leading the scientific work, on one hand because they have the possibility to access the areas, at the other hand because they are highly interested in the results, as they need them to manage restoration or even for active protection of species.

Hungary has a National Nature Conservation Plan, but according the expert's opinion in some aspects it is too detailed (like a text or course book), in other aspects they are superficial. There is a lack of exact, commensurable numbers, plans. The important and irrelevant aims are mixed, the fulfilment of the goals is usually impossible to control (for example: special attention should be paid on the cooperation of the nature conservation and the traffic to protect amphibians). The plan missed to list the areas, lands, which should be protected in the next twenty years, and to propose a system to create the inventory of the natural values. Although the National Nature Conservation Plan missed to create such an inventory the National Parks started to point out the new nature conservation areas for the NATURA 2000 program.

In the report we will examine the effects of the NATURA 2000 project, the situation of the LIFE projects in the Hortobágy National Park. We also examine the effects of the Rural Developmental programs of the Hungarian government.

The NATURA 2000 and the LIFE projects on nature conservation are well-known all over Europe. The LIFE project of the Hortobágy National Park on landscape rehabilitation started in 2002, before the EU accession.

The National Rural Development Plan (previously called: National Agri-environmental Plan) was created according to the similar programs of the European Union. This has several measures and schemes. The most important and popular measures are: organic and integrated farm scheme, the live-stock measure and the organic grassland scheme. Another popular and widespread measure is the so-called High Natural Value Areas. It seems that the agri-environmental program made these farming methods more and more popular, although there are data only about the grooving of land cultivated by organic farms. The amount of organically cultivated land is continuously growing, but there is no function-like connection between the growing of subsidies, and the amounts of land cultivated according to the prescription of organic farming. Several universities, high schools and research institutes have research on agri-environment issues, but they do not share their results either among each other or with the farmers.

**Table 6: characteristics of programmes**

Analysis criteria	Goals	Initiator, formulation	Scale, target area	Approach	Funding	Budget	Human resources
Program/Project							
LIFE 2002-2005	Nature-conservation	International	Part of the HNP	Newer	EU	70% EU-Life; 18% MEW <sup>22</sup> ; 12% HNP <sup>23</sup>	Employee of the HNP
LIFE 2004-2008	Nature-conservation	International	Part of the HNP	Newer	EU	70% EU-Life; 33% HNP	Employee of the HNP
National Rural Developmental Plan	Agri-environment	National		Newer	HunGov		
Regional Operative Program	Cultural tourism	National	HNP	Traditional	HunGov <sup>24</sup>		Employee of the HNP
The Improved Version of the Vásárhelyi Plan	River control	National	Tiszafüred micro-region	Traditional	HunGov		Research institutes

### 3. The case studies

#### **Jász-Nagykun-Szolnok county**

Jász-Nagykun-Szolnok County can be found in the middle of the Hungarian Great Plain, the area of the county is 5582 square kilometre, and it has more than 421 thousand inhabitants, but the number of inhabitants is decreasing since the beginning of the late seventies. The county has several middle-size towns and bigger villages, but the population density is quite low. The county is absolutely plain; the climate is dry. It is like the well-known Hungarian Puszta. The soils are really heterogeneous, some parts are very good plough lands, arable farms use these, other parts are dry, sometimes sodic soils, and grass-lands. These are used since centuries for animal husbandry. The towns in the county were famous for their mill-industry, and the neighbouring Debrecen had its richness from animal husbandry based on the grasslands of Hortobágy, and partly on the grain production of the county. Of course by now the economy of the county changed.

In WP 3 we are analysing the land use changes of the RRAs so here we present only the most important characteristics. The proportion of uncultivated land reached 21% of the whole territory of the county, while the proportion of arable land fell by 5% to 60.5%. The proportion of nature conservation areas did not grow as rapidly as in other parts of Hungary because the first National Park of Hungary was established in 1973 in the county, at Hortobágy; it gained its name after the region: Hortobágy National Park.

We present the distribution of productive land in the Annex.

<sup>22</sup> MEW – Hungarian Ministry of Environment and Water management

<sup>23</sup> HNP – Hortobágy National Park

<sup>24</sup> HunGov – Hungarian Government the Regional Operative Program is the part of the National Developmental Plan.

**Table 7: The distribution of protected area in Jász-Nagykun-Szolnok county**

RRA	Protected areas of national significance									Protected areas of local significance		
	National Parks			Landscapes Protection regions			Nature conservation areas			Nature conservation areas		
	1977	1990	2001	1977	1990	2001	1977	1990	2001	1977	1990	2001
JNSz <sup>25</sup>	8450	8500	17087	2290	8358	6428	10740	3497	2116	17	5035	818,0
	1	1	2	1	1	2	?	?	?	-	-	34

From the point of view of nature conservation the most important change in land use is the creation of the so-called Tisza lake, which is an artificial lake created by a dam on the river Tisza. Now it has a great nature conservation and tourist importance. This segment of the river Tisza held numerous varieties of wetlands habitats before creating the Tisza-lake. The catchment area of the river was very extensive here with a lot of deadarms, oxbow-lakes, accompanied with original softwood gallery forests. Wet meadows dominating the landscape disappeared almost entirely after banking up the reservoir. After creating the lake the diversity of the landscape decreased but a unique water world was born which recalls the landscape before the canalisation of the river. The area of the Tisza-lake step by step became the part of the National Park and a Ramsar site as well. Now two thirds of the whole Bird Reserve are protected.

Another characteristic habitat of the National Park is the steppe grassland. The National Park established Nature Trails with information boards and look-out towers on several sites of the Park. Walking along this trail one can find all the plant communities typical for the alkaline grassland of Hortobágy, and also the so called kunhalom – these type of mounds were build three-four thousand years ago all over in the Eastern European Plain. These were used for cultic and burial purposes and served as guarding spots.

One of the selected projects is situated near this trail. Alkaline steppes of the project area were damaged by the intensive agriculture practice of the fifties with building of grassland irrigation systems and rice-systems. This unused and abandoned infrastructure has fragmented the native grassland, altered the characteristic surface micro-topography of the area and forms an obstacle to local run-off. As natural processes (surface water movements) maintaining originally the alkaline steppes and marshes are blocked by these structures, continuous degradation proceeds. The water management installations of unused paddies and irrigation systems are very good hiding-places for foxes and the dike systems offer good place for burrows. On the project area the fox is the most significant factor responsible for low reproductive success of Great Bustard.

The project aims are to eliminate those artificial factors causing degradation, hereby to restore the biological diversity of grasslands, ephemeral waters and marshes. This is the only possibility to ensure long-term conservation of flora and fauna of this priority habitat type.

The project affects 8000 ha of the Hortobágy National Park area on the southern grasslands (partly Ramsar Sites). The project implementation includes the elimination of the dike and canal systems and building of some water management structures for nature conservation management purposes. The Hortobágy National Park Directorate gained the project in 2002, and in three years the project will end.

The Hortobágy National Park has started also another Life project, the Egyek-Pusztakócs Life Nature Project 2004-2008, together with the Department of Evolutionary Zoology and Human Biology at the University of Debrecen. The project aims to restore grasslands and protect the marshes already rehabilitated. Specific aims are to establish ecological corridors and buffer zones in key areas by land purchase and by transforming ca. 700 ha arable lands into loess steppe grasslands or salt steppes to reduce fragmentation and chemical infiltration. The project also aims

<sup>25</sup> Jász-Nagykun-Szolnok County

to create wooded areas, forests in key areas to prevent chemical infiltration and provide nesting sites for birds.

Another complex objective of the Egyek-Pusztakócs Life Project is to use the ancient husbandry traditions of the region to protect the landscape, the habitats, biotopes and plant-communities. They plan to purchase and convert two goose farms to sheep-farming, and to use Hungarian grey cattle to graze unmanaged native grasslands.

**Table 8: Nature conservation areas in Tiszafüred micro-region**

RRA	Protected areas of national significance									Protected areas of local significance		
	National Parks			Landscapes Protection regions			Nature conservation areas			Nature conservation areas		
	1977	1990	2001	1977	1990	2001	1977	1990	2001	1977	1990	2001
Tiszafüred	-	?	6824,6	-	~3500	708,5	-	?	180,4	?	7	393
			1			1						

The Life projects can be elaborated only by thorough researches and studies. The Hortobágy National Park has some experts to do these works and the cooperation with the University of Debrecen is casual, may be the cooperation in the frame of the Egyek-Pusztakócs Life Nature Project 2004-2008 will continue. There is another form of cooperation; a lecture held by the nature conservation guards of the Hortobágy National Park. On these lecture the guards are presenting the tourism possibilities of the Landscape Protection Areas, and the National Park for the students of the Department of Applied Ecology. These types of cooperation are not sufficient.

As we wrote above, the National Park is using the traditional husbandry methods to maintain the grasslands. The Directorate established the Hortobágyi Természetvédelmi és Génmegőrző Kht. – Nature and Gene Conservation Company of Public Utility of Hortobágy, which is farming on more than 15000 hectares on the territory of the Hortobágy National Park using organic methods and benefiting from the subsidies of the National Agri-environmental Program. The company is farming on 2000 hectare arable land, and integrating another 600 hectares. This is the biggest continuous organically cultivated area of Hungary and Europe according to the statements of the Company. Organic farming helps to realize the aims of nature conservation, and the gene conservation activity helps to preserve the native domestic animals. The company is using the traditional grazing system; this how it is using the traditional knowledge, which has almost vanished in the last fifty years.

In this aspect the traditional and expert knowledge is cooperating in sustainable rural development and also in nature conservation. The company is integrating the small-scale farmers' agricultural activity, and sharing its knowledge with them. Not only the practical knowledge related to the farming methods, but also helps to sell the products, and gain the subsidies, so it shares the practical and management knowledge as well.

There used to be a conflict between the National Park and the farmers, the former Hortobágy State Farm. The agronomists of the state farm were educated at Agricultural Universities. This kind of education resulted as a knowledge, which usually does not respect either nature conservation, or the traditional farming methods, because these are not productive enough in the short run. We call this kind of knowledge conventional-agriculturalist knowledge. The traditional knowledge, used nowadays in the husbandry of the National Park is from previous times, and mixed with another type of scientific knowledge.

The Hortobágy National Park being the first National Park of Hungary was always a popular tourist destination. Not only for its natural values and beauties, but also because it is part of the Hungarian cultural heritage. The landscape of the steppe – the Puszta, the Hungarian grey cattle, the racka sheep, the shepherds and the famous buildings, like the ancient bridge across the river Hortobágy are all parts of this heritage. But in Hortobágy even the Bird Reserves are destinations.

These areas are nest places for several bird species, and also a rest place for the migratory birds. Beside it, the southern part of the Tisza-lake is a more and more important site of water sports. The National Park try to reinforce the previous two tourist aims, and realised several projects, built trails, looking-out towers, even renovated railways to present the nature values of the National Park to the tourists without disturbing the wild-life.

### Mezőtúr micro-region

So far we were writing about the Tiszafüred Micro-region in Jász-Nagykun-Szolnok County. The other LIA of the county the Mezőtúr Micro-region has totally other possibilities. Mezőtúr Micro-region can be found in the southeast part of the county and it has two important centres: Mezőtúr and Túrkeve. The most important sector of economy is agriculture that is quite stable and productive. The population of the small region is decreasing, however since this micro region has been created not so long ago, we do not have comparative data from the former period. Population decreasing can be found in the whole county as well as in both of the study micro regions and not only in villages but in towns as well.

The micro-region is situated on the border of the Region and partially it belongs under the authority of the Körös-Maros National Park. The two National Parks has to face similar problems. In this micro-region we did not find Life projects, mainly because it is no core-area of the National Parks, but the College of Mezőtúr also has organic farm areas, and also there are several organic farms in the region. Because of the soil and climatic conditions in the micro-region there are a lot of arable land farms. The organic farm of the college is about 160 hectares big and it has both scientific activity and ordinary, market-led organic farming activity. They have no relationship with the neighbouring organic farms; they do not even know them. They do not share their scientific results, and do not help each other neither in marketing nor in acquisition. In Mezőtúr we had the possibility to make interview with a farmer who has never been a member of the cooperative and who was farming continuously as his father, and his grandfather did. Now he is leaving his farm on his grandson, who attended the college. The grandfather used almost only the traditional farming methods and knowledge. Now the grandson is utilizing what he learned, but he does not look for any connection with the farm of the college.

In the Tiszafüred micro-region the experts of the Hortobágy National Park look for the connection, the possible cooperation with the farmers. In the Mezőtúr micro-region the college does not look for cooperation possibilities, so the expert and lay knowledge does not appear together.

The data of the growth and growing of the nature conservation areas shows that there was no nature conservation area in the Mezőtúr micro-region.

**Table 9: Nature conservation areas in Mezőtúr micro-region**

RRA	Protected areas of national significance									Protected areas of local significance		
	National Parks			Landscapes Protection regions			Nature conservation areas			Nature conservation areas		
	1977	1990	2001	1977	1990	2001	1977	1990	2001	1977	1990	2001
Mezőtúr	-	-	4798,0	-	-	-	-	-	-	?	-	7,0

According to our interviews neither the local governments, nor the inhabitants have too much relationship with the nature conservation authority. The local government contacts the National Park Directorate only if the law forces it to do so; in cases of land use planning. There is absolute no cooperation in rural development, we may say that it is almost an unknown issue in this region. Although the college has courses on nature conservation, and some of the professors are making

nature restoration plans in the micro-region, they did not built any connection to neither National Parks.

### Zala County – Keszthely micro-region

Zala County is situated in the Transdanubia, the western part of Hungary, bordered by Croatia and Slovenia from the south, Vas and Veszprém Counties from the northeast, and Somogy County from the east. The county is hilly, has lots of wood-lands, but also important agricultural lands. From east it is connected to the Lake Balaton. The population density is 80 people per square kilometre presently, and the population is declining as all over Hungary.

The Keszthely Micro-region is situated in the east corner of the county, by the shores of the Lake Balaton. On the 505 square kilometre territory the number of inhabitants is over 47000, which is the 15 % of the population of the county. The town of Keszthely is by the Lake Balaton and it is not only the centre of the micro-region, but also an important town among the settlements along the lake. The micro-region has 26 municipalities; most of them are small villages with very few inhabitants.

This micro region can be considered as holding the most frequented economic position in the county. Oppositely of the county tendencies, the number of inhabitants of the micro region is increasing by recently. This phenomenon is due to the tourist importance of the micro region as the Lake Balaton is famous of its recreation area and the town of Hévíz, which is famous for its medical tourism. In comparison with the data of 1980 the population of towns and villages were decreasing, however this process broke after the changing regime on the level of the micro region.

**Table 10: Nature conservation areas in Zala County**

RRA	Protected areas of national significance									Protected areas of local significance		
	National Parks			Landscapes Protection regions			Nature conservation areas			Nature conservation areas		
	1977	1990	2001	1977	1990	2001	1977	1990	2001	1977	1990	2001
Zala	-	-	21586	1359	14027	1359	263	352	306	239	543	2718,5

The terrain of Zala County is extremely diversified, thus the flora of the county is quite various. The natural plant of the county is forest. Generally in the whole county the arable land has low quality, which is accompanied by quite poor water management. Because of these conditions the whole territory is rather poor and closed, thus old agriculture forms, life styles and customs, and even some elements of the traditional folklore survived until the recent past. The oil as the most important mineral resource of Hungary was started to exploit after 1948, which caused significant changes in the face of the natural environment as well as in the life style of the inhabitants. Because of the ruinous exploitation the oil stock of the county is recently being run out. In the county there used to be a fen called Kis-Balaton (Small-Balaton, a pool of the Balaton, which was dried and later revitalised because of environmental reasons) that has rich and rare flora and fauna. However the conditions of the soil never spoil the inhabitants of the county, agriculture was the most important source of subsistence for the local population. The livestock-farming, fruit and vine growing still have important role in the county. The processing industry, which has started to develop in the seventies, is based on the agriculture. Because of the radical changes of the agricultural sector the number of livestock has also decreased. Same problems can be noticed in the field of orchards however the foreign capital - mostly the Austrian invested capital - caused positive influence in the county. These agricultural sectors can be defined as developing fields with suitable circumstances. Analysing the distribution of the land use in Zala County we can point out that after the capitalist transformation in 1989 the relevant processes have transformed. The rate of the productive land use decreased, so the uncultivated areas have grown significantly.

Analysing the distribution of cultivation of the land nuance characteristics can be pictured. Making a comparison between the period of state socialism and the period of post socialism the most important differences are the decreasing rate of forests and the increasing rate of the arable land and grasslands.

We can find relatively less agricultural area as well as relatively less forest while the rate of the protected are is relatively large. This land use distribution partly can explain the problems related to the farming in the county. The high rate of the protected area set limits to the measure of those territories that can be used by agriculture or by woodlands.

One of the most important sources of incomes of the county is tourism. The tourism activity is concentrated in the Keszthely micro-region, mostly on the shores of the Lake Balaton. It causes not only nature conservation, but also environment protection conflicts, as well as conflicts between locals and visitors, locals and municipalities, as in the Rurban research was present it (Rurban D2). Tourism does not build only on summer-guests, but because of the famous spa of Hévíz, inland and foreign tourists are visiting here during the whole year. For the tourists the visitor's centre of the National Park also could be attractive. It is mainly in the Kis-Balaton part, which is a Ramsaar area (see Appendix). Kis-Balaton was once a pool of the Lake Balaton. The Balaton is shallow lake under eutrophization, and two hundred years ago, when the regulation of the waters started, there were plans to dry the whole lake. When the Southern Railway was built the water level was sinking one meter, and Kis-Balaton part became almost dry. In the next century the tourists discovered the lake, and it became a popular holiday resort. The heavy use of plough-land in the catchment area of the Balaton, and the lack of the water filtering by the Kis-Balaton caused that in the next pool of the lake, in the Keszthely-pool the water started to get muddy and slobby, the green-alga appeared. Already in 1931 plans were made to re-establish the Kis-Balaton. The first part was finished in 1935, but the second part was completed only in 1992. Since then the ecologists, biologists, and engineers are debating about the effects of the Kis-Balaton. Maybe it does not help filtering, or cleaning the waters arriving from the catchment area to the Lake Balaton, but it created several unique habitats, and biotopes for water-wildlife.

**Table 11: Nature conservation areas in Keszthely micro-region**

RRA	Protected areas of national significance									Protected areas of local significance		
	National Parks			Landscapes Protection regions			Nature conservation areas			Nature conservation areas		
	1977	1990	2001	1977	1990	2001	1977	1990	2001	1977	1990	2001
Keszthely	-	-	16869,9	-	~4500	-	?	8	16	?	22	36,8
	-	-	1	-	2	-	?	2	2	-		

As we showed nature conservation has a very special role in the micro region. The Keszthely micro-region has two very different landscapes. The lake provides one of them. The Kis-Balaton was protected since 1946, but it gained official protection as a Landscape Protection Area only in 1986. It is a Ramsaar Area, an important nest site for bird species, and also an important rest place for migrating birds. The Lake Balaton has very few untouched shores, some of it can be found in this region. Because of the high tourist activity the nature conservation aims may be in danger, as we also pointed it out in a previous research (RURBAN D2).

The Balaton Uplands National Park has two main demonstration areas in the Kis-Balaton district. One of them is a classical bird watching site, with looking-out towers, and information boards. Here the number of tourists is limited. They can welcome two groups daily and 180 in a year, without guiding the area cannot be visited. The other demonstration area is an old farm, a settlement for animal husbandry typical for this region. They are keeping there buffalos (Bubalus

bubalus). This animal is fond of the marshlands and the waters, and it was used as draught animal because of its extreme force, now it has no economic use. This site could be visited any time, there is no limitation. Here the traditional knowledge forms of nature conservation are used, and by encouraging tourism, it is also contribute to rural development.

As we presented in the case of the Hortobágy National Park, the traditional agriculture, based on traditional knowledge forms, and the new scientific results are in contradiction with the conventional agriculture, which is based on the scientific results of the agricultural researches of the seventies, eighties. These conflicts could be described as the conflicts of organic farming and conventional agriculture as well. In the Keszthely micro-region the situation is much different. There was never intensive agriculture in the area of the Kis-Balaton, but in the neighbouring micro-region, in Fonyód micro-region under similar environmental circumstances a big State-farm was farming, the Nagybereki Állami Gazdaság (Nagyberek State Farm). There was intensive beef-farm on the marshland, and it did not respect any nature conservation principles. In the early nineties the farm was privatised. The new owner extensified the production also diversified its activity and now gains money also from hunting. Thus, without aiming to do so, he also helped nature conservation. It also had rural developmental results, but these could be better used.

Of course there are organic farmers in the Keszthely micro-region, but they have no intensive relationship with the National Park, although some of them are grazing the grey cattle on its protected grasslands. The National Park does not play a central role, does not share its scientific knowledge, and does not help to sell the products.

The other area is the Keszthely Mountains. These Mountains became protected in two phases. The beech-grove on the lower basalt cone of Mountain Tátika mixed with 200-210 year old yoke-elms, high ash-trees and common oaks became protected early, in 1953, while the landscape-protection area itself was established in the Keszthely Mountains in 1984. The typical fundamental rock of the area covered almost entirely with woods is the dolomite. Besides the stone booths, various rock formations and canyons can be found, in the row of geological sights. There are several caves under exploration in the eastern limestone areas, including the 'Wonder-berry Cave', which could take pride in stalactites as well. These caves are available only for scientists. The greatest botanical treasures of the area are the eastern doricum and the bear's ear; however one can frequently come across various orchid species.

The Keszthely area of the National Park faces other problems as the Kis-Balaton area. Here the settlements are always "climbing up" the hills, and destroying this way the vineyards, which are the part of the cultural heritage, and also the protected forests, meadows, and grasslands. Also the developmental plans are trying to fit the needs of tourism. The municipalities are building bicycle-ways, environmental protection implementations, or trying to improve the beaches. Nature conservation is very weak in the micro-region.

## Comparative Analysis

The analysis of forms of knowledge in nature protection in the two study areas shows that natural parks play specific role and these governmental institutions are central actors of land protection. The NPs use or incite of using all forms of knowledge as tables 12 and 13 present.

**Table 12: Actors and used knowledge forms in the Tiszafüred-Mezőtúr micro-region**

Actors	Knowledge type	Activity in Rural Development – nature conservation
Hortobágy National Park (HNP)	Scientific/managerial	By nature and cultural conservation facilitates tourism.
Large-scale farmers	Expert (Conventional agriculturalist knowledge)	No cooperation, pressure to soften the rules of nature conservation
Small-scale farmers	Traditional – local	In cooperation with the HNP
University of Debrecen	Scientific	Cooperation with HNP
Local governments	Political	Obligatory connection, because of the official role of the HNP.

**Table 13: Actors and used knowledge forms in the Keszthely micro-region**

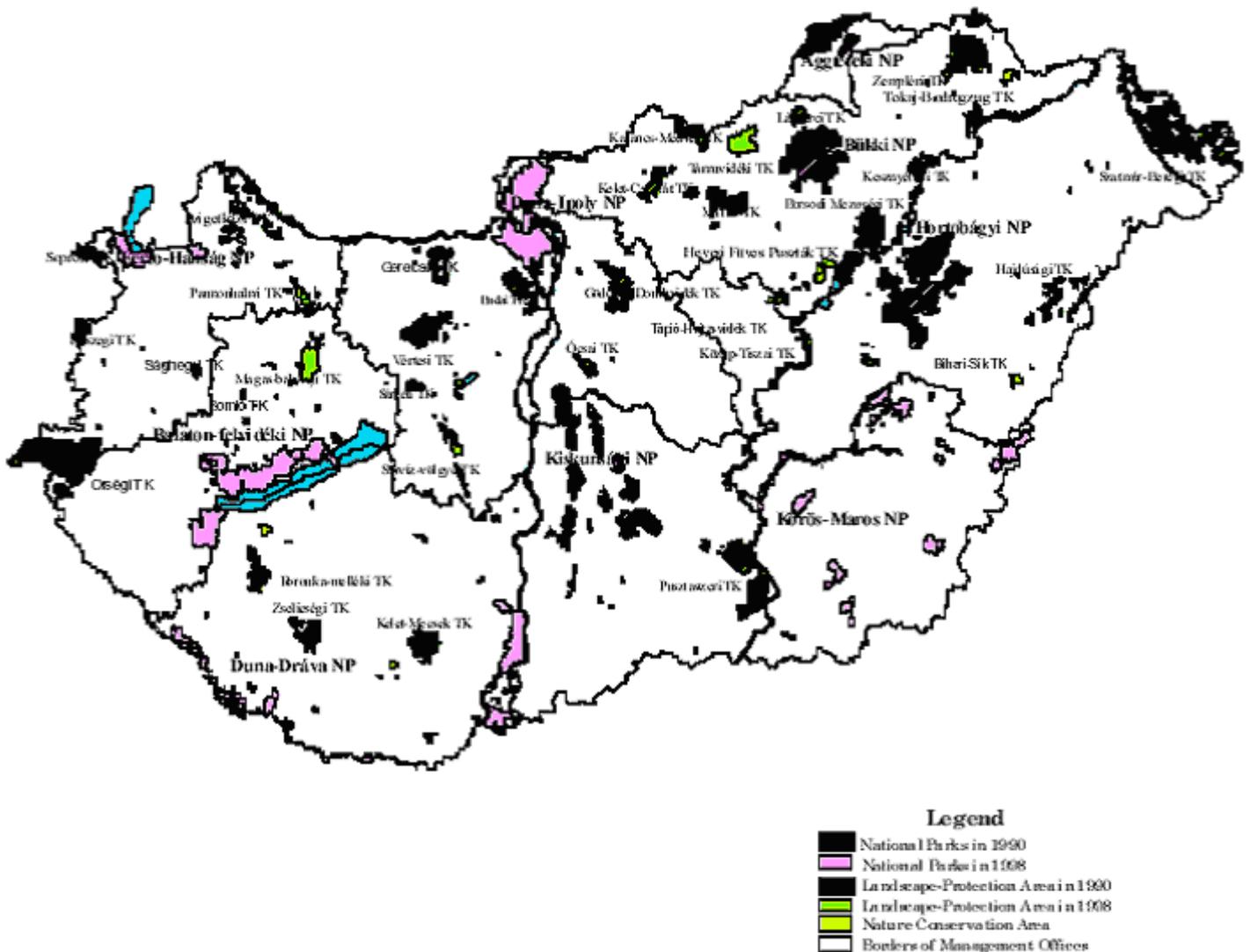
Actors	Knowledge type	Activity in Rural Development – nature conservation
Balaton Uplands National Park (BUNP)	Scientific/managerial	By nature and cultural conservation facilitates tourism.
Large-scale farmers	Expert (Conventional agriculturalist knowledge)	No cooperation, but also no pressure to soften the rules of nature conservation
Small-scale farmers	Traditional – local	No cooperation with the BUNP
Local governments	Political	Obligatory connection, because of the official role of the BUNP

- 1.) The cooperation among the farmers and the National Parks.  
 The Hortobágy National Park integrates traditional farming (Hungarian grey cattle, Racka sheep, Mangalica porker) and different forms of organic farming. The programs of National Park revitalized traditional forms of extensive animal husbandry and same time traditional local knowledge which was practice of peasantry in the first half of the century. The making of rebirth of traditional forms of farming and extensive animal keeping represents a latent conflict between managerial, scientific based “modern” knowledge of agriculturists which was a dominant form of knowledge from sixties to nineties, in the time of industrial agricultural development. In the case of territory of Hortobágy “fordist” managerial knowledge focus intensive land use while traditional local knowledge – present way of farming – assists nature conservation and land protection and same time provides attractive programs for tourism. Traditional form of land use together with nature protection and tourism provides alternative forms of employment and local goods and services are commercialized on niche market. The Local Hortobágy Csárda for example has “grey cattle gulas soup”, or Racka sheep and Mangalica pork dishes. In Keszthely region Balaton Uplands National Park also keep

grey cattle but there is no co-operation between the Park and local farmers. The dominance of National Park in the field of nature protection without strong co-operation refers to historical structure of local farming. Before Land Distribution landlord estates used major part of arable land and privatization of land could not create a viable family farming sector.

- 2.) The cooperation among the municipalities and the NPs:  
The municipalities and National park co-operation is concentrated on long term planning but it is no any synergy in the using of scientific and managerial knowledge. The tourism would be relevant field of cooperation but we have not found any concrete commonly managed and run projects. A guard from Balaton Uplands National Park explained the classical conflict situation between nature protection and mass tourism saying that too many visitors can endanger habitat and protected nature.
- 3.) There is no cooperation among the municipalities and the Universities.
- 4.) The NPs do scientific work also and use scientific knowledge as well managerial knowledge because it co-operation between local universities and natural parks is not sufficient.

Figure 1. Growth of national nature conservation areas between 1990-1998



#### **4. Conclusion**

In the first part of the report we presented how the legislative framework regarding nature conservation has changed in Hungary in the past fifty years. Although efforts towards nature conservation were first made almost a century ago and land protection has been an issue for the past sixty years, widespread debate regarding these questions only started in the eighties. Today 10% of the country is nature conservation and in the future it may reach about 20% thanks to the initiative of Natura 2000.

In the second part we presented nature conservation in the LIAs, especially focusing on Life-Nature projects. We examined how different actors use their scientific, traditional–local, or expert knowledge to manage the projects and comply with legal prescriptions concerning the protection of natural and cultural heritage. It is very important that the National Parks realized that they not only have to study natural values and cultural heritage and present these research results, but they also have to preserve traditional knowledge forms and the local knowledge of farming practices that is on the verge of disappearing.

The studies concerning different knowledge forms have pointed out an important and interesting difference between the two research areas. Although there are famous universities in (or at least nearby) both LIAs, collaboration between scientific knowledge producers, the Universities and the National Park Directorates is not satisfactory. The Hortobágy National Park uses managerial knowledge to integrate nearby farmers and as a result they run the largest organic cultivation farm in Hungary, not only serving the purposes of nature conservation, the economic security of the farmers and the well-being of the inhabitants, but also spurring rural development. The Balaton Upland National Park did not use such managerial knowledge to encourage farmers to change from traditional farming to organic and as a consequence, they could not increase the sales of the region's products, even though they have the same scientific knowledge.

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<http://www.hortobagyikht.hu/index2.html>

## Appendix

### Domestic wetlands of international importance:

Ramsar areas	Area 1996	Area 2001
<b>Hungary</b>	<b>114862</b>	<b>154144</b>
Balaton	59800	59800
Kis-Balaton	14745	14745
From the area of the Hortobágy National Park	19473	23121

### Land use in Hungary (data source: HSO – Statistical yearbook 1987, 1997, 2003) (hectares)

Hungary	Land area, total – hectare	Of which uncultivated land	Of which: Productive land use					2003	7733553		
			Of which agricultural area					1997	8035629		
			Of which agricultural area					1987	8246721		
			Arable land	Garden	Orchard	Vineyard	Grassland	2003	5864687	Forest	Reeds
					1997	6194633					
					1987	6511282					
<b>2003</b>	<b>9303400</b>	<b>1569847</b>	4515477	95982	98310	93283	1061635	1775051	60455	33360	
<b>1997</b>	<b>9303023</b>	<b>1267394</b>	4710836	209244	95578	130874	1848101	1766726	41257	33013	
<b>1987</b>	<b>9303176</b>	<b>1056455</b>	4709323	338335	96524	144861	1222239	1668966	40046	26427	

### Land use in 1980 in Zala County

RRA	Land area, total – hectare %	Of which uncultivated land	Of which: Productive land use					404 358 91.9%			
			Of which agricultural area			237 606 58.7%		Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vineyards	Grasslands				
<b>Zala</b>	<b>440 004 100 %</b>	<b>35 646 8.1%</b>	134 972 30.7%	15 936 3.6%	11 095 2.5%	9 188 2.0%	66 415 15.1%	166 392 37.8%	249 0.06%	111 0.03%	

### Land use in Zala County – 1990

RRA	Land area, total – hectare %	Of which uncultivated land	Of which: Productive land use					400 870 91.1%			
			Of which agricultural area			227 560 56.7%		Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vineyards	Grasslands				
<b>Zala</b>	<b>440 129 100 %</b>	<b>39 259 8.9%</b>	133 427 30.3%	19 719 4.4%	6 614 1.5%	7 419 1.7%	60 381 13.7%	172 140 39.1%	1 059 0.27%	111 0.03%	

### Land use in Zala County – 2003

RRA	Land area, total – hectare %	Of which uncultivated land	Of which: Productive land use					314 205 84%			
			Of which agricultural area			195 936 62.4%		Forest	Reeds	Fish-ponds	
			Arable land %	Gardens	Orchards	Vine-yards	Grass-lands				
Zala	373 957 100 %	59 752 16%	126 317 33.8%	2 648 0.7%	3 022 0.8%	3 585 0.9%	60 364 16.1%	117 961 31.52%	214 0.05%	94 0.03%	

#### Land use in Jász-Nagykun-Szolnok County in 1980

RRA	Land area, total – hectare %	Of which uncultivated land	Of which: Productive land use					521 250 88.7%			
			Of which agricultural area			467 932 89.8%		Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vine-yards	Grass-lands				
Jász-Nagykun-Szolnok	587 789 100 %	66 539 11.3%	385 540 65.6%	12 702 2.1%	2 605 0.4%	3 538 0.6%	63 547 10.8%	50 272 8.5%	1 049 0.1%	1 997 0.3%	

#### Land use in Jász-Nagykun-Szolnok County in 1990

RRA	Land area, total – hectare %	Of which uncultivated land	Of which: Productive land use					520 111 88.5%			
			Of which agricultural area			462 118 88.8%		Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vine-yards	Grass-lands				
Jász-Nagykun-Szolnok	587 789 100 %	67 670 11.5%	387 360 65.9%	12 687 2.2%	2 011 0.3%	3 008 0.5%	57 052 9.7%	54 505 9.3%	616 0.1%	2 872 0.5%	

#### Land use in Jász-Nagykun-Szolnok County in 2003

RRA	Land area, total – hectare %	Of which uncultivated land	Of which: Productive land use					472 604 79%			
			Of which agricultural area			416 532 88%		Forest	Reeds	Fish-ponds	
			Arable land	Gardens	Orchards	Vine-yards	Grass-lands				
Jász-Nagykun-Szolnok	598,369 100 %	125 765 21.0%	359 346 60.5%	2 319 0.4%	1 841 0.3%	1 597 0.2%	51 429 8.6%	52 993 8.8%	1 179 1.2%	1 900 0.3%	

# Nature Protection and Biodiversity in Poland

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## Introduction

This report starts with a context analysis which will be followed by presentations of case studies as well as comparative analyses based on them and conclusions focusing primarily on the role of various types of rural actors and the contributions of natural protection and biodiversity projects to sustainable rural development. However, regarding the context analysis, we feel compelled to point out that – in the case of Poland - the national level is the most proper one for two different, but still interconnected, reasons. The first one lies in the centralist tradition of the Polish state, rooted in the period after World War I when, after over a hundred years of partition, Poland gained its independence, trying at the same time to overcome strong regional diversities resulting from the modernisation which took place in the XIX Century under three different regimes of Germany, Austria and Russia. Such centralist tendencies were even strengthened under the Communist regime after World War II in order to assure a higher level of control over the whole country by political bureaucracy. The second reason, that has to be stressed in this context, lies in the national recognition of the natural environment as national treasures, which is reflected in the Constitution of the Republic of Poland (of April 2, 1997), focusing on the sustainable development and ecological security of the country, as well as the need for every citizen to protect the natural environment.

## Context Analysis: Natural Conditions and Trajectories

The natural environment in Poland has been recognised as one of the richest in Europe, both in the case of animal and plant breeds as well as natural conditions. The central location of Poland in continental Europe has resulted in impacts to various natural and climatic conditions and – as an effect – in a high variety of plant and animal species as well as diversification of landscape. Poland possesses the majority of the few still existing large forest complexes in Europe (for example, the famous Białowieża forest, located on the boundary with Belarus) as well as natural river valleys.

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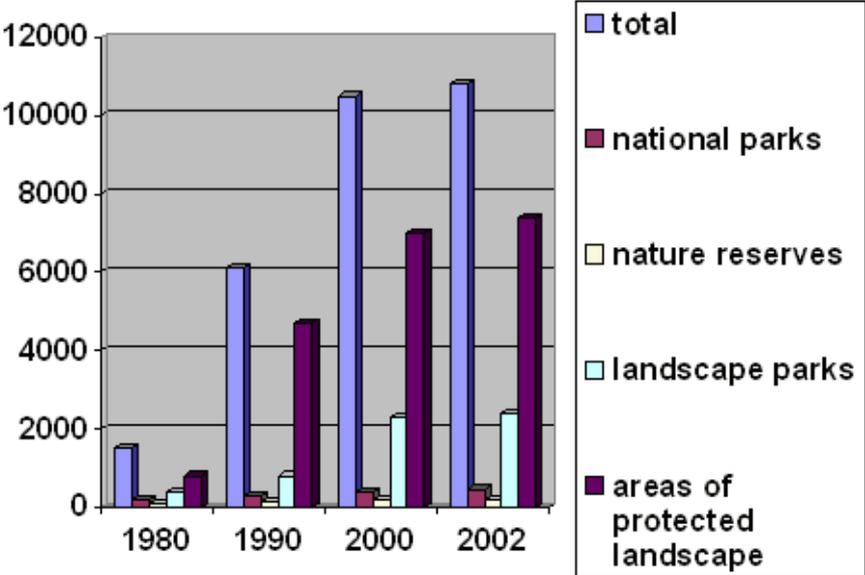
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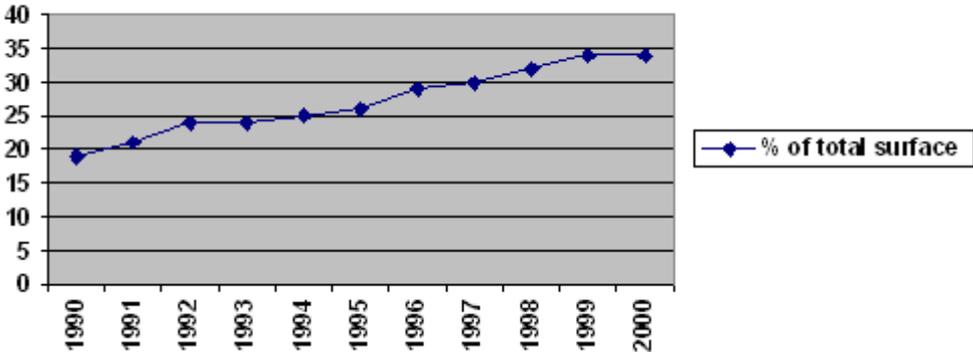
Currently, almost 1/3 of Poland's territory is occupied by various types of protection zones or areas. These zones are comprised of 23 national parks (314 500 ha), 1 368 natural preserves (160 600 ha), 120 landscape parks (248 300 ha) and 342 landscape protected areas (7031 600 ha). Major tendencies are presented in Chart 1:

**Chart 1: Areas of the special nature value, protected by the law in the years 1980 -2002 (in thousands hectares)**



The separate category of natural protection zones has been formed under the European Ecological Network NATURA 2000. Under this project, 365 types of plant areas have been located in Poland (half of them within agricultural areas). Moreover, 500 zones populated by wild species of fauna and flora have been identified in Poland based on directives 74/409/EEC and 92/43/EEC. Poland has suggested the establishment of 420 special protection zones which would occupy roughly 1/5 of the territory of Poland.

**Chart 2: Dynamics of the legally protected areas in Poland**



Significant changes in land-use structure have contained two opposite trends. The first one has been a decline of agricultural areas, while the second one has been an increase in forestry, built-up areas, the transport network and other forms of land use (see table below).

**Table 1: Distribution of land uses in Poland**

Type of land use	1980	1994	2002
Agriculture	18 279 000 ha	18 690 000 ha	18 369 000 ha
Forestry	6 470 000 ha*	8 720 000 ha	9 089 500 ha
Built-up and other	2 302 000 ha	2 599 000 ha	4 055 400 ha

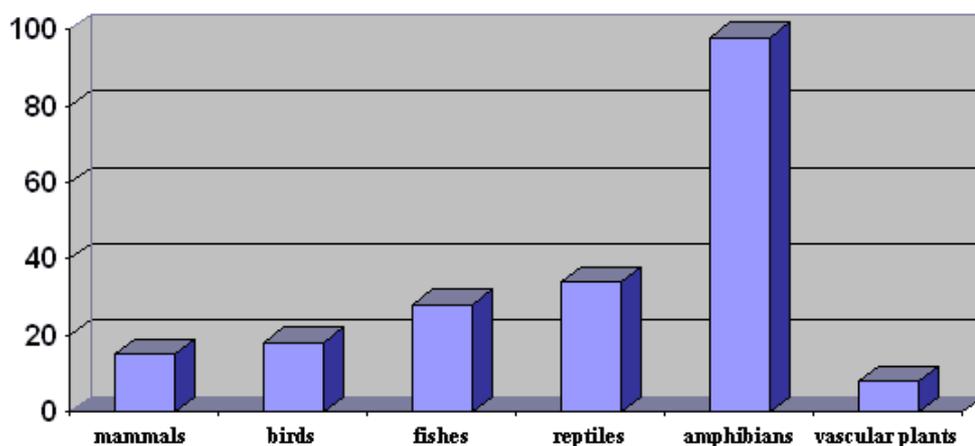
\* in 1945

Source: GUS

The biological diversity that can be observed in Poland seems to be among the richest in Europe. According to the Polish Study of Biological Diversity, the total number of registered species in Poland has been about 72 – 75 thousand. However a significant portion of them have been threatened with extinction resulting from various and diverse factors: namely, a lack of financial assets which might be directed towards protection of the environment, a low level of ecological consciousness among the Polish population generally and the rural population in particular, strong social support for use of natural assets for economic development, changes in property structure mainly due to privatisation of former state farms, urban pressure, increasing tourist activity, the increasing number of cars, intensification of agricultural production (preferences for highly effective plants and animals), short-term thinking among local authorities looking for immediate payoff.

The list, published in the “Polish Red Book of Plants” in 1993, contains almost 1650 plant species characterised by “regressive tendencies,” indicating a declining population. In the last 200 years, 124 plant species have vanished in Poland. Generally speaking, about 10% of existing plant species in Poland has been threatened by extinction. A similar report, called the “Polish Red Book of Animals,” was published for the first time in 1992, in Krakow, by the Centre for Nature and Natural Resources Protection at the Polish Academy of Sciences. Today, the list of vanishing species in Poland numbers around 130. Additionally, more than 1300 are on the list of those with “regressive tendencies”. Such tendencies are spread among various types of animal species. For instance almost all species among amphibia are now characterised as exhibiting “regressive tendencies” (see graph below).

**Chart 3: Percentage share of endangered species within total number of known species.**



## **Context Analysis: Relevant Institutions/Actors and Changes**

### **Ministries and Authorities**

In Poland, the national government has historically been responsible for nature protection policy. The minister for Protection of The Environment, Natural Resources and Forestry has implemented state policies regarding the natural environment. The main focus of state policy is identified as protection of the natural environment and the rational management of forestry, soil and water resources. The minister is supported by two other state agencies, namely: the Main Keeper of Natural Resources, as well as the Inspectorate for Environmental Protection. In each region (*voivodship*) the chief of state administration (*wojewoda*), with the help of the Regional Conservator of Natural Resources is in charge of implementing state policy. Moreover, the directors of national parks who are directly subordinate to the minister are representatives of the National Treasury which administers natural resources. There are also advisory bodies; namely, the State Council for Nature Protection (advisor to the Minister), The Regional Commission for Nature Protection (advisor to the chief of regional state administration) and National Park councils (advisory boards to the directors of national parks). Typically all of these bodies are composed of scientists and activists of various associations, state institutions as well as NGO's.

### **Interest Groups (Farmer Unions, NGO's)**

The emergence of Solidarity in 1980 weakened censorship generally and, as a result, much more comprehensive and extensive information about environmental problems in Poland was released. At the same time, the level of trust about the state agencies abilities to fix various problems in Poland has declined. Therefore, environmental problems have been perceived by a growing number of Poles as a kind of personal threat that has to be resolved by self-organised activities. Paradoxically, the introduction of martial law in Poland during December of 1981 seemed to be a kind of accelerant for the green movement.

In the second half of the 1980s one could observe that along with the growing opposition movement there were also some moves towards (I might humbly recommend that you state at the onset what TYPE of liberalisation, here) liberalisation by the communist government at that time. First of all, the idea of national political unity, the core of the Communist regime ideology in the 1970s and the first half of the 1980s, was weakened. A slightly higher level of free speech was observed in the mass media at that time, although it was still controlled by the Communist party. The phenomenon of so-called "informal legalisation" of various types of independent initiatives should also be noted. The possibility to register some types of associations as well as foundations was also permitted. Around 1989 more than a hundred various green organisations existed in Poland, both those connected to some extent with various state agencies, as well as those which were independent or church-affiliated. The League for the Protection of Nature (*Liga Ochrony Przyrody*), which was protected by Communist authorities, was claimed as the largest one, with more than a million members. The Polish Ecological Club (*Polski Klub Ekologiczny*) appears to have been the largest one among independent green movements, with between 2000 and 4500 members at that time.

Six major goals of the green movement in Poland at that time seemed to be basic ones, namely, a) (changing the public's attitudes and) perception of the natural environment; b) education focusing on environmental problems; c) dissemination of ecological knowledge and

encouraging sensitivity towards ecological problems; d) particular action focusing on specific problems (for example in 1987 the first Healthy Food Association was established in the city of Tarnów, in southern Poland); e) lobbying to force authorities to make decisions in order to change law for the protection of the environment; f) redefining the relationship between humanity and nature (commonly known as the “deep ecology” program).

What seems to be most important in the development of the Polish green movement lies in the significant breakthrough of 1989. The entire activity of the green movement before this might be framed as a type of political opposition. One could observe the beginning of a process of “(...) maturation as well as professionalisation of the green movement in Poland”. Simple protests and demonstrations were followed by more rational strategizing of activity, like positive suggestions and programs for solving challenging problems. Many activities performed by green movements after 1989 have focused on construction of the movement’s infrastructural organisation, some of them with the help of various volunteers from the West. Self-education became one of the major goals of movement activity at that time. Since 1991, strong efforts to coordinate activities performed by various smaller independent organisations has become quite visible. The fifth meeting of the various Polish green groups in Brwinów (near Warsaw) seems to have been the starting point in this process as a result of an unsuccessful protest against a dam on the Dunajec river in the southern part of Poland near the border with Slovakia. The lack of success in that particular event has been perceived by many green activists in Poland as the result a lack of coordination between various organisations.

In 1995 there were at least 700 various organisations, informal groups as well as established foundations, in Poland focusing on environmental problems. If one recalls that in 1989 we could observe only about 135 such structures, the dynamic rise of the green movement in Poland seems to be beyond question. Integral to this rise, one should point to: a) The Polish Ecological Club (with around 5000 members); 2) The League for the Protection of Nature and some other post-Communist organisations; 3) The Federation of Greens; 4) Vegetarian interest groups and groups focusing on animal welfare; 5) various youth organisations (student, scout, etc.); 6) the “deep ecology” movements; 7) very particular, small-focus or sector organisations (for example: The Association for the Protection of Birds or the Association for the Protection of Bats, etc.); 8) various local initiatives; 9) educational organisations; 10) expert associations; 11) various religious, as well as artistic, organisations. Again, the social base of the movements and organisations under consideration here have been quite typical of new social movements. One might observe young people, quite well-educated ones, belonging to the middle class as significant majorities. Farmers interested in healthy food production, as well as so-called “ecological businessmen,” might also be found among members, or at least sympathisers or supporters, of the groups here.

### **Expert Systems (research units, foundations, institutions)**

Expert systems in the area of nature protection and biodiversity have been located mainly in various research units and foundations. Research units have been located both in academic institutions and in special research institutes affiliated with The Ministry for the Protection of Environment, Natural Resources and Forestry or with The Ministry of Agriculture and Rural Development. The National Research Institute of Animal Production could be seen as an example of the latter type. Founded in 1946, with its headquarters in Kraków, the institute was established at the initiative of the rector of Jagiellonian University. Currently, it has four scientific departments and 12 experimental stations in various parts of

Poland. The Institute's mission has been to carry out research in the field of animal sciences with a focus on the current and future production of safe food under animal- and environmentally-friendly conditions, as well as to use animals for biomedical purposes. The Institute has conducted research in five main areas, namely: genetics and breeding of farm animals, feed science and nutrition of farm animals, biotechnological methods of reproduction and immuno- and cytogenetics, technology, ecology and economics of animal production and quality of animal-origin raw materials and products. The Institute has been, and remains, the leading institution in the project of preserving the traditional Polish red cow.

### **Changes in Legislation**

In addition to The Constitution of the Republic of Poland there have been two major legal acts in Poland concerning the issue of nature protection. The first one was established by parliament on October 16, 1991. It focuses on the main goals of nature protection in Poland, namely, the preservation of ecological processes and stability of ecosystems, preservation of biodiversity, preservation of species and ecosystems, education aimed at developing pro-nature attitudes among citizens, etc. On April 27, 2001 this law was supplemented by another parliamentary act called The Law for Nature Protection, which defines the rules of nature protection as well as the rules for using natural resources as a part of a national strategy for sustainable development.

### **Context Analysis: Objectives of national environmental and agricultural policy regarding NCB**

The basic policy plan focusing on nature protection and biodiversity has been established in Poland under the frame of a program called the agro-environmental project which is a part of PROW (Plan for the Development of Rural Areas). The basic aim of this project is to connect protection of nature and biodiversity with the proper development of farming in order to: a) promote agricultural production which meets the standards for protection of the natural environment, b) preserve natural or semi-natural biodiversity, including the preservation of genetic assets in agriculture, c) preserve and reconstruct the agricultural landscape in order to protect the natural environment as well as the landscape and cultural legacy of rural areas, and, d) raise ecological awareness and consciousness among the rural population. Farmers who decide to participate in the project get a yearly payment from the government (The Ministry of Agriculture and Rural Development [MRiRW]), via The Agency for the Restructuring and Modernisation of Agriculture [ARiMR]). They must participate in the project for at least five years.

The project mentioned above is composed of seven packages, namely, sustainable agriculture (in priority zones), ecological agriculture (throughout the entire country), preservation of extensive-use grasslands (priority zones), preservation of extensive-use pastures (priority zones), preservation of soils and water (entire country), buffer zones (entire country), as well as preservation of local breeds of domestic animals (entire country). These packages have been implemented in the whole country or – as it was stressed above – in the “priority zones” that are characterised by specific problems of nature protection and/or the high quality of natural conditions there. 69 such zones have been established in Poland, covering almost one third of the country (see the introductory information above regarding the protection areas in Poland). The average size for the priority zones is 160 000 ha with the

average percentage of agricultural land comprising each territory being almost 55%. The precise criteria for choosing the priority zones includes: a) national park, national preserve, landscape park and special protection area due to NATURA 2000 regulations, b) threatened by natural environment devastation and soil erosion, c) a traditional agricultural landscape, a diversified agrarian structure, regional peculiarities in lowland and mountain areas, d) protection from specialisation and industrialisation of agricultural production, e) preservation of the landscape's biodiversity and legacies of particular areas. The budget of the project has typically been PLN 1 billion (Euro 260 million).

## **Case studies**

Polish case studies have been conducted in two regions (RRAs), specifically in Malopolska and Lodzkie voivodships. Malopolska has been chosen since it has been characterised as possessing the highest level of natural environment diversity in Poland. Nine out of the 17 Polish natural landscape types can be found in Malopolska. Moreover, five (plus part of one other) national parks, ten landscape parks (plus part of another), five landscape preserves (plus parts of three others), 77 nature preserves, two nature-landscape settlements, 17 ecological use areas, 52 natural documentation points as well as 1 775 of the designated natural monuments have been located in the region. Two thirds of Malopolska territory (the highest percentage in the country) is protected by law as sensitive natural areas.

## **Description of regional situation**

Malopolska (RRA1) and Lodzkie (RRA2) regions are two of the 16 administrative units called voivodships (województwa). This is the top level of local administration, consisting of smaller units called powiats (powiaty) and gminas (gminy). This three-level administrative division of the country was introduced by the administrative reform of January 1999. During the period 1975-1998 Poland was divided into 49 smaller voivodships and there was no powiat level.

This change has had a very important influence on the content of this report. Due to the lack of comparable data for the period before 1999, primary attention was given in the paper to the descriptive analysis of the historic tendencies in RRAs. Detailed numbers were presented when the suitable data were possible to find.

## **RRA1 Malopolska Region**

Malopolska voivodship covers 15 189 sq km (since the last change of administrative borders in January 2003) which is about 5% of the country's surface. The population is 3 217 000 (data for December 2003), which is 8.37% of the population of Poland (fourth place in the country). The population density is 212 persons per sq. km., which puts the voivodship in second place in the country (behind the Silesian voivodship). The national average is 124 persons per sq. km.

Within the region, the urban population is 49.9% of the total population, which is significantly less than the 61.8% urbanisation indicator for the whole country. That indicator has dropped since 1995 – when it stood at 50.8% – despite the fact that several localities were given town designations. This is mainly due to migration from urban to rural areas and the negative natural increase of population in urban areas.

Rural areas are inhabited by 1 629 900 people which gives Malopolska region the second largest rural community in Poland. During the years 1988–2002 (between the two last National Censuses) the rural population increased by 6.88%. Malopolska’s rural areas are additionally characterized by exceptionally high population density – 119 persons per sq. km., which is more than double the national average (which stands at 50 persons per sq. km.).

The urban network in Malopolska consists currently of 55 towns and cities. Most of them are small towns, having up to 10 000 inhabitants (27 localities). The region’s capital, and the biggest city, is Krakow, inhabited by 706 000 people, which makes it the third largest city in Poland. Other large cities in Malopolska are Tarnów (pop. 118 000) and Nowy Sącz (pop. 90 000).

Malopolska’s territory is quite compact, at 15.1 thousand sq. km. It borders Silesian voivodship (województwo Śląskie) to the west (with a common border of 295 km.), Swietokrzyskie voivodship to the north (182 km.), Podkarpackie voivodship to the east (80 km.) and Slovakia to the south (317 km.), which is the only border based on geographic criteria.

Malopolska region has the most varied surface characteristics in the country. Most of its territory has an upland or mountainous character. Over 30% of the area is situated more than 500m above sea level and only 9% lies less than 200m above sea level. With an altitude difference of 2340 meters, the zone of permanent inhabitancy (ekumena) is 1000 meters.

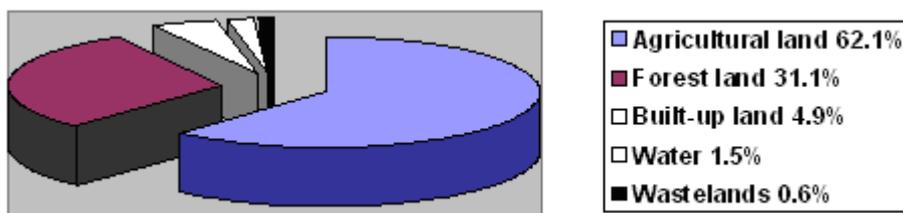
In Malopolska one can find nine of the 17 main types of natural landscape in Poland and seven different climatic levels. It is also the region with the highest annual level of precipitation.

Relative to the rest of the country, Malopolska voivodship has quite rich surface water resources but very limited amounts of underground water. Due to the mountainous character of rivers and streams, rapid rises in water level, and even floods, occur very often in many areas. The flood plain culminates in the Wisla river valley and endangers the city of Krakow and its surrounding territory. It is estimated that 48% of the region is especially endangered by floods.

The economic potential output of the Malopolska region accounts for 7,4% of the country’s GDP. The structure of economic activities is rather dysfunctional and needs to be transformed. 34% of the total Malopolska workforce work in sector I (agriculture, forestry, and fisheries), 25% work in sector II (industry and building industry), and more than 40% work in sector III (services).

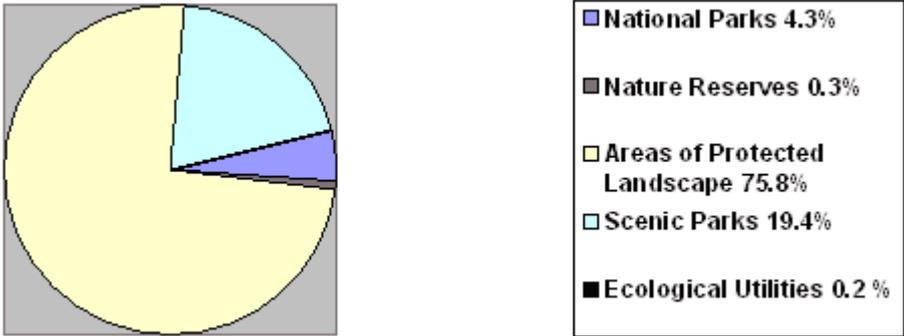
The unemployment rate in Malopolska region (14% in 2004) is the second lowest in the country (which averages 18%) and has remained quite stable during the last two years.

**Graph 1: Land use distribution in Malopolska Region. Data for 2004**



From all of Poland’s regions, Malopolska has the largest part of its territory (67%) designated as legally protected areas. As the voivodship was created in 1999, there are no comparable data available for the last two decades. However, there is no doubt that over that period one can observe a stable tendency in growth of both the number and scope of areas where nature is legally protected. The current structure of these areas is as follows:

**Graph 2: The Structure of legally protected areas in Malopolska region. Data for 2003.**



There are about four thousand non-governmental organizations (NGOs) registered in Malopolska. In the region, just as in Poland overall, an increase in the third sector – very intensive in the 1990s - has slowed down, however there is still a progressive tendency. Malopolska has the third highest density of NGOs in Poland (measured as the number of NGOs per 10 thousand inhabitants). It is worth noting that rural areas are characterized by small numbers of registered organizations. A high density of NGOs is typical for urban areas, especially for cities. However, considering informal types of organizations and local activities, civil society in rural areas seems to be much stronger than the statistical data would indicate. The main areas of NGOs activity are: sport and recreation, culture, and social services. There are very strong sport organizations which run many types of teams, clubs, and gymnastic associations. There are also many cultural organizations working to preserve cultural heritage, traditions and monuments. Currently, the strongest organizations are those that provide social services. This is a very large and potent group of organizations which has taken over many of the local governments’ tasks. Also very active are the unions and associations of national minorities. Other relevant groups of organizations are ecological and humanitarian ones. At the opposite end of the spectrum, organizations supporting civil initiatives are relatively weak and underdeveloped.

Local governments are legally obliged to cooperate with NGOs. The areas of cooperation (and respective percentages of groups within each area cooperating) between local governments and NGOs in Malopolska include: sport (74%), culture (62%), social assistance (49%), addiction prevention (46%), education (32%) and child-rearing and development (26%). 76% of local governments declare that they include NGOs in decision-making processes. Local governments point to two main barriers in developing cooperation with NGOs: 1) lack of sufficient financial means, and 2) weakness of local NGO’s environment (poor factual knowledge, inner competition holding up cooperation, lack of representation of a sector). NGOs in turn accuse local governments of lack of transparent rules and standards and poor factual knowledge of officials. NGOs state that these poor relations with authorities – beside the lack of funds, office space and equipment – constitute the main barrier in developing a third sector in Poland.

**Regional development strategy** was formulated in 2000 and is currently the main framework for sectoral policies implemented in Malopolska. As one of the major assumptions of the document is the sustainable development of the voivodship, nature protection and preservation of biodiversity are given a very central position in it. A reflection of this significance is the “Program of the sustainable development and nature protection in Malopolska for the years 2001-2015.” It includes all activities and policies that are linked to ecology and environmental protection. According to its regulations this goal requires the integrated approach and coordination of many different programs/projects (both at the regional and the national level). These are:

- Program For the Modernisation and Restructuring of the Agricultural Sector and Sustainable Development of Rural Areas
- Integrated Operational Program of Regional Development
- Regional Waste Management Plan
- Agro-Environmental Program
- National Program of Forestation Promotion
- Executive Program of National Ecological Policy
- National Program of Communal Sewage Treatment

Both the documents and the official statements show that local authorities are aware of the necessity for cross-sectoral coordination of policies in the realm of nature protection and biodiversity. But, in practice, there is a lot to improve in this matter.

### **LIA 1 – Jodłownik gmina**

Gmina Jodłownik is located in the southern part of Malopolska voivodship (see Map 1), in the mountain area. It is composed of 12 villages with a total population over eight thousand. It has been a traditional agricultural area with a tradition of Polish red cow breeding. However, since the 1970s many farmers have turned to fruit production, mainly apples (872 ha in 2002) and currants (206 ha in 2002). There has also been some traditional types of farming, namely, rye, wheat and oats (1232 combined ha in 2002), as well as potatoes and vegetables (332 ha and 149 ha in 2002, respectively). The farms of Jodłownik have been relatively fragmented and small (see: Table 2 ) with very low soil quality (3<sup>rd</sup> class and below), but farm areas still form the largest type of land use (see Table 3).

**Table 2: Landholding structure in Jodłownik (in 2002)**

<b>Size of farm:</b>	<b>Number of farms (%):</b>
1ha and less	318 (20)
1 ha – 4,99 ha	1 046 (67)
5,0 ha – 9,99 ha	194 (12)
10, 0 ha and more	31 (5)
Total number of farms	1 589 (100)

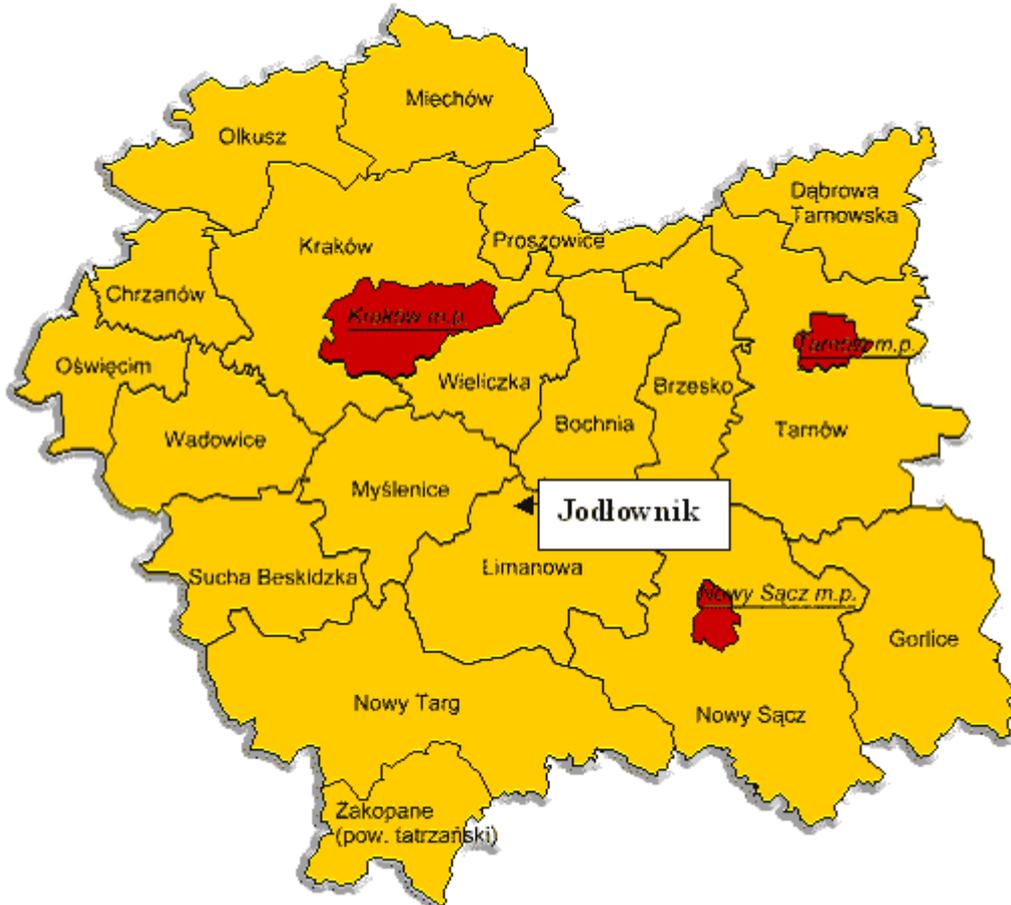
**Table 3: Distribution of land uses (in 2002)**

Type of land use:	Area in ha (%):
Agriculture	4 032 (56)
Orchards	1 196 (17)
Forests	1 752 (24)
Built-up and others	213 (3)
Total	7 193 (100)

The largest farm (112 ha in use and 64 ha rented out) in Jodłownik gmina belongs to the Cistercian monastery founded in Szczyrzyc (one of the villages) in the mid-XIIIth century. Under the communist regime this farm was nationalised and had the status of a state farm. It was regained by the monastery in 1993 and has taken part in the Polish red cow project.

Despite the overwhelming agricultural character of the LIA, the local government tries to overcome such a disadvantage and re-shape the track of its further development towards a more multi-functional type. Therefore, in the last few years a lot of efforts using state funding have been made in order to renovate the heating systems, to modernise roads and bridges, to modernise local schools, the sewage system, etc. Local authorities have identified three main areas for special attention in the local development plan, namely, agriculture and agri-tourism, the general economy, as well as culture and education. The monastery in Szczyrzyc has taken an important role in promoting tourism in the area and serving as a pilgrimage centre.

**MAP 1: Location of Jodłownik gmina in the Malopolska region:**



## Project descriptions in RRA1

### Project Description - Preservation of Genetic Resources: Polish Red Cow

<b>Main Actors</b>	
National and regional government, research institutions, local authorities, farmers	The project has been a unique combination of science-oriented research agencies and economic ones in seeking the most efficient cow breed for extensive farm practices
<b>Geography Limits</b>	
Mountain areas located in the southern part of Malopolska voivodship, fragmented landholding structure with a significant majority of small farms (more than 80% have less than 5 ha in the LIA)	
<b>Financial Issues</b>	
Each year every farmer receives 1300 PLN (c.a. Euro) for each cow in their possession. Project has been financed mainly from the budget of The Ministry of Agriculture and Rural Development, with some support from the EU.	
<b>Social History of the initiative</b>	
<p>This project has been rooted in a long and rich tradition of raising Polish red cows in the areas of southern Malopolska. The first association of Polish Red Cow breeders was established in 1894 (!) In the inter-war period (1918 – 1939) Polish red cows formed 25% of the national herd in Poland, and still 18% in the late 1960`s. Trying to intensify animal production in Poland, Communist authorities made two important decisions in the 1960`s: 1. to eliminate Polish red cows from large, intensive state and collective farms and to replace them with “more efficient” black-white and red-white breeds and 2. to limit the Polish red cow area only to some parts of the Malopolska region. However, a group of farmers from the Malopolska region bought about a hundred cows from areas where the breeding of Polish red cows had been prohibited in order to save the whole herd. In the mid-1970s, in the southeastern part of Malopolska, an area for preserving Polish red cow was established with limited support from the government. In 1982, the government made the decision to eliminate all regional cow breeding projects and all forms of government support for Polish red cow breeding have been withdrawn.</p>	<p>The whole story results in preservation of only a thousand Polish red cows (“pure blood”). There is still a serious threat of extinction for the whole breed. The main conflict has emerged between the productivist knowledge represented by government and some farmers` knowledge focusing on the preservation of the traditional cow breed. Farmers` knowledge seemed to be supported by scientific knowledge focusing on the creation of the “gene reserve bank”. The deficit of knowledge seems to be located in the area of economic advantages of Polish red cow. It has been required in order to start the project of preserving Polish red cow breed.</p>
<b>Recent Objectives</b>	
<p>Recent objectives of the project that started in 2000 have been focused on: 1) reconstruction of the Polish red cow herd of 750 cows; 2) preservation of the gene bank reserve, and 3) reconstruction of the traditional characteristics of the Polish red cow breed such as, its adaptability to difficult (mountain) natural conditions, high fertility rate, healthy deliveries, high vitality of calves and high quality of milk. All these objectives have formed the basis for evaluation of the Polish red cow`s economic usefulness.</p>	<p>Such ideas have generated a peculiar type of economic usefulness not based on an economy-of-scale frame but on more sustainable economic measures. Such knowledge has been implemented as a rationale for the whole project in its current phase.</p>

<b>Collective organisation</b>	
National Research Institute of Animal Production has been the national coordination centre for the whole project. Special task forces such as the Advisory Board and Working Group have played a major role in the process of evaluating all activities within the project.	NRIAP has established close relations with farmers. Many farmers have participated in training courses. According to Professor Trela, one of the leading persons in the project, NRIAP still lacks close contact with breeders unions, which should be the main channels for passing scientific knowledge to farmers. NRIAP also has a kind of marketing policy organising cow exhibitions and sessions in cooperation with the LIA's government, as well as leading local breeders.
<b>Management</b>	
Scientific (NRIAP) and local knowledge (local breeders) as well as the managerial one (local authorities in LIA), competent managers (NRIAP personnel) supported by qualified persons (local breeders, both from the monastery farm and local farmers). There have been two major farms in the LIAs based on the contract with NRIAP (each having about 30 cows) as well as a certain number of individual farmers owning about 10 cows each	All three sides evaluate the inter-relations as highly positive and cooperative. Local breeders stress that this time the whole issue of the Polish red cow has not been destroyed by scientists and managers, like in the 1980s, when they tried to force farmers to use chemicals, farming techniques, etc. that met "scientific criteria" but contradicted particular local natural conditions and folk knowledge.
<b>Impacts, Contribution to RSD</b>	
The reintroduction of the Polish red cow in the area has seemed to be the reinvention of particular local agricultural tradition. It also helps to prevent soil erosion and biotope preservation since it requires the extensive grazing. The return of Polish red cow has also preserved the traditional mountain landscape where such cows have been perceived as its important icon.	The project has strengthened the local identity as the traditional "motherland" of the Polish red cow, and also re-established cow breeding activity among local farmers.
<b>Institutional Support</b>	
The project has been supported by public funds from the Ministry of Agriculture and Rural Development as well as some EU funds contributed as a part of PAOW	
<b>Future main plans</b>	
The project has entered its third stage, and is now approaching the level of 750 purebred Polish red cows. It has been focused both on the development of already existing herds, as well as establishment of others in order to get more breeders involved.	Problems in cooperation with associations of breeders

## RRA2. Lodzkie Region

Lodzkie region is situated in central Poland. It covers 18 219 sq. km. The region's capital is Lodz, while other main cities include: Piotrków Trybunalski, Tomaszów Mazowiecki, Bełchatów, Kutno, and Sieradz. The geographic surface is mostly plains, with 20% forest cover (the smallest ratio in Poland).

**Economy:** The most important factor of the Lodz region's economic growth is its natural resources supply potential. The district of Bełchatów owes its rapid growth to the fields of brown coal found in the area. The geothermal water resources in the northern part of the region have helped develop spa, recreation, and tourist services, while the districts of Kutno, Leczyca, and Lowicz are traditional agricultural strongholds.

Over 200 000 companies operate in the Lodz region, most of which are micro-enterprises, with up to 5 employees. Over 90% of these companies are private. The public sector represents the remaining 10%. Small enterprises, i.e. partnerships and private workshops represent an overwhelming majority in all of the region's districts. Nearly half of these workshops are located in Lodz – the region's capital.

**Agriculture:** The Lodzkie region has typical agricultural features. Arable land covers 1.25 million ha, which is about 70% of the general area of the province (the highest index in the country). The agricultural and food industry, represented by nearly 3000 units, employ 42 000 people. The average farm size in the region does not exceed 15 ha. This size is, however, the standard in Poland, for it describes up to 91% of farms nationwide. The total number of farms in the province is over 170 000. Lodz's farms are well-equipped with the necessary machinery to engage in agriculture; in this respect, the Lodz region ranks fourth of all Polish regions.

**Table 4: Distribution (by %) of land uses in the RRA\***

RRA LODZKIE REGION	Total (absolute) km <sup>2</sup>	Agri- cultural land	Forests and wooded area	Waters	Minerals	Transport land	Residential land	Ecological land	Waste- land	Miscella- neous
2002	18219	72.4%	20.9%	0.7%	0.2%	2.8%	1.7%	0.0%	0.9%	0.4%

Source: Head Office of Geodesy and Cartography

\* Because of administrative reform in 1999 and the resulting new division of territory in Poland (the current Lodzkie Voivodship includes 9 old voivodships) there is no earlier data.

**Natural conditions:** If compared to the northern and southern parts of the country, the Lodz region is located in a zone of poor biodiversity. The underlying cause of that situation was the intense transformation of the natural environment, initiated by the development of agriculture and the subsequent settlement, industrialisation and urbanisation. As a result, the region's area is largely deforested. The forest cover in the region is the smallest in the country, and amounts to 20,6%. However, it does not mean that the central part of the country is deprived of significant natural values. A good example is the river valleys. The valley of the Pilica river - apart from a short section near Tomaszow - runs in its natural bed but is still extensively developed. The Warta river valley is more transformed, although some of its sections are also highly valuable, i.e. the swamp belt of the ice-marginal valley of the Bzura and Ner rivers, stretching up to the Warta River. Despite its severe transformation, it is still home to many birds and swamp plants. A distinctive feature of the region's natural value is its location within the range limits of important tree species i.e. beech, fir, spruce and the Polish larch. Near the city of Lodz there are beech and fir forests, covered by several reserves, which function as border poles marking the natural distribution of these tree species.

Landscape parks, nature reserves, ecological grounds and Natura 2000 areas in the Lodz Region are the most important aspects of species and ecosystem protection and landscape biodiversity.

**Table 5: Nature protection in the RRA\***

2002	Scenic (landscape) parks	Areas of protected landscape	Nature reserves	Nature reserves where forests dominate	Natural and scenic complexes	Ecological land	Natural monuments
Number of establishments	7	15	88	67	19	402	3996
Area in % of total region area	5,38%	10,30%	0,40%	0,19%	0,53%	0,06%	-

Source: Central Statistical Office

\* Because of administrative reform in 1999 and a new division of territory in Poland (the current Lodzkie Voivodship includes 9 old voivodships) there is no earlier data.

**Scenic (landscape) parks** are areas with strictly defined boundaries, subject to protection due to the outstanding value of their natural environment as well as the high aesthetic and tourist value of the landscape. Any investment activities that could result in a degradation of the natural environment are prohibited in these parks.

**Areas of protected landscape** are areas with strictly defined boundaries, subject to protection due to the relatively unchanged natural environment and capacity of maintaining the biological balance. Any sources of physical and chemical pollution of the natural environment are prohibited in these areas.

A **nature reserve** is an area in which defined species of flora and fauna and elements of an inanimate nature, having a significant scientific, natural, cultural or scenic value, are maintained in their natural - or insignificantly altered - ecosystems. These include: fauna, flora, scenery, forest, peat-bog, water, inanimate nature and halophyte reserves.

**Natural and scenic complexes** are created for the purpose of protecting extremely valuable fragments of the natural and cultural environment and preserving their aesthetic values.

**Ecological utilities** comprise the remains of ecosystems which are worthy of protection and are significant in maintaining unique gene pools and settlement typology, such as: natural water basins, field and forest ponds, tree and bush clusters, swamps, peat-bogs, dunes, areas of unused flora, old riverbeds, rock outcrops, escarpments, gravel banks, etc.

**Natural monuments** are individual natural objects, or their clusters, protected due to their scientific, cultural, historic and commemorative values as well as due to their unique landscape characteristics.

**Natura 2000 areas** are a new form of nature conservation established by the Act on Nature Conservation of 2004. These sites belong to the European Network of Protected Areas which protect the natural heritage of the European Union. There are plans to establish eight Special Protection Areas for Habitats and three Special Protection Areas for Birds within the Lodz region. The total area of those sites constitutes 2% of the region's territory. The bird protection areas have already been formally established whereas the habitat areas still need to be verified and approved by the European Union. This new form of environment protection is now in the stage of implementation. Protection and land use plans are still being developed and therefore it is too early to assess their efficacy.

One of the elements of the Regional Programme of Environment Protection (July 2003) is an estimation of the current conditions of the natural environment and its major threats. The priority activities in this area are the following:

- regular afforestation (increase by about 180 000 ha),

- protection of unique and the most valuable areas in order to preserve their biodiversity and to build up a coherent ecological system,
- protection of valuable areas of significant biodiversity,
- improvement of environmental quality in respect to all of its elements, including polluted and environmentally destroyed areas.

Additionally, the programme assumes establishment of a coherent system of protected areas that would play an overriding role in the spatial structure of the region. The system of protected areas shall include landscape parks and areas of protected landscape. The assumptions have been positively evaluated and now it is time to pursue concrete measures and activities that would qualify for financial grants.

## LIA2 – Nowosolna gmina

The Nowosolna gmina is located in the eastern part of the Lodz region (Lodzkie Voivodship). This gmina is located close to the urban agglomeration – the city of Lodz. The gmina occupies an area of 54 sq. km.



The gmina has poor-quality soils. They are mainly sandy and gravelly soils, lacking nutritional elements. Low-quality soils of the 5 and 6 and 3 class prevail.

The area has a well-preserved natural environment as well as healthy climatic conditions. A large forest area of 980ha (Wiaczynski Forest) stretches out in the southern part of the gmina. In the northern part of this forest, in an area of 8,29 ha, the Nature Reserve was delineated in 1958 with seventeen 300-year-old beeches, sycamores, firs and larches. The most important feature of this gmina is the unique upland landscape of the marginal zone of Lodz Heights that stands

out against the lowlands of central Poland. Frontal moraine ridges, outlying hills, gullies, deeply cut river valleys – these are just a few of the geomorphological attractions which are worth seeing in this area. The Wzniesienia Lodzkie Landscape Park (The Lodz Heights Landscape Park) was created in 1996 on an area of 13 767 ha. It covers the most valuable parts of the edge zone of Lodz Heights. The park area is also an important water junction. The bigger, northern part (comprising 54% of the gmina) of the territory of Nowosolna gmina is situated in the Wzniesienia Lodzkie Landscape Park. Most of this territory is covered with farmland. Forests cover 28% of its area.

The area is gaining greater and greater popularity among the inhabitants of Lodz who are interested in settling in the area.. The rich flora and landscape features have been preserved since 1996 when the Wzniesienia Lodzkie Landscape Park was created.

An important factor for the development opportunities of this gmina is an advantageous transportation system within the area of the gmina and good connections with neighboring towns. The future motorway planned for this region will run through the Nowosolna gmina.

The analysed rural gmina is changing to a considerable degree and is, at a quick pace, altering the character of its resources. The number of farms depending exclusively or mainly on farming income is shrinking in Nowosolna; there is more and more non-cultivated land but, on the other hand, there has been the paradoxically dynamic growth in the number of farms.

A considerable amount of land has been sold to locals or newcomers – but *de facto* agricultural functions and production development opportunities should encourage farmers to apply for benefits from agri-environmental schemes and to fulfill tasks as landscape

protectors. In single cases ecological farms are expected to appear; in a larger number, agro-tourist farms (but it should be remembered that they involve the difficult skill of linking agricultural functions with customer service functions). In this situation, the residential-housing functions (including the settlement ones), dynamically developing in the 90s, gain significant and multidimensional meaning (i. e. economic, social).

In 2002 the strategy for socioeconomic development for the Nowosolna gmina was worked out by sociologists from Lodz University. The work on the strategy was based on the documents found in the gmina, interviews with local authorities, and a public opinion poll among the gmina inhabitants. The gmina and its problems were therefore well-known to the investigators. In this strategy, Nowosolna was shown as a gmina of sustainable, multifunctional economic growth and an increasing quality of life for the integrated local community. There is a question about the possibility of integrating the Landscape Park into the common strategy of sustainability for the gmina.

**Agri-environmental schemes** are carried out within the Rural Development Plan and are related to Poland's accession to the EU. Agri-environmental schemes enable farmers to receive grants for pursuing activities that aim at environment protection in the farms. The country was divided into so called priority zones (where it is possible to implement all proposed types of activities (packages)) and the rest of the territory of selected development directions. In Lodz region priority zones have been established in the territory of landscape parks and additionally in the drainage basin of the Ochnia River in the north of the region.

By 5 April 2005, 283 grant applications had been filed. So far, grants for 67 organic farming applications have been paid out. The filed applications concern mainly the protection of soil and water. In order to ensure the protection of biodiversity the most important activities are implemented within the following packages: preservation of extensive grasslands, preservation of extensive pastures and protection of breeds of local domestic animals. The biggest number of grant applications filed (17) dealt with raising endangered animal breeds. The total number of submitted applications for preservation of grassland and pastures is nine.

The programme for the **Protection of Bumblebees in Central Poland** is carried out by the Society for Nature Research and Conservation (Towarzystwo Badan i Ochrony Przyrody), Spala branch. The main objective of the programme is to preserve and enable the population growth of *Bombus* bumblebees. In the Lodz region, the programme is carried out in Spalski, Przedborski, Sulejowski, and Bolimowski Landscape Parks and the Landscape Park of Lodz Heights (Park Krajobrazowy Wzniesień Lodzkich). Within the programme for the **Protection of Bumblebees in Central Poland** cultivated melliferous plants, such as phacelia, yellow lupin, red clover and lucerne were sown in a dozen villages. Bumblebees are monitored on goat willows. Leaflets, stickers and folders have been published. At the headquarters of Spalski Landscape Park, small gardens with wild and garden plants that bumblebees feed on, are on exhibition. According to experts, this is one of the most important schemes for biodiversity preservation implemented in the region. It is also vital that it engages local community and non-governmental organisations.

**The Scheme of Care and Preservation of Traditional Adjacent Orchards** aims at preserving local traditions of fruit processing. It is targeted at inhabitants of communities located within the park boundaries. This activity is important for preserving genetic biodiversity of plants in the region.

## Projects description in RRA 2

### The programme for the Protection of Bumblebees (*Bombus*) in Central Poland

<b>Main actors of the program / project</b>	
<p>The initiator of the programme is the NGO The Society for Nature Research and Conservation (Towarzystwo Badań i Ochrony Przyrody). Its members – volunteers are responsible for realisation of project - supply seeds and cuttings of melliferous plants such as phacelia, yellow lupin, red clover and lucerne (which are a food base for bumblebees), and wooden boxes for bumblebee reproduction; they also inform and instruct people and monitor the effects of the project. Seven landscape parks and one national park also participate in the program. Park employees coordinate the program, inform people from the surrounding area about the project, lead the trainings. The other actors are: The Polish Hunting Association and a forestry management group that offered some areas to sow the plants for bumblebees. The actors are representatives of the former intelligentsia, like teachers or priests. Rural schools are places to meet with farmers and trainings. The users are: farmers, other people living in the country, foresters. Their task is to sow or plant the special plants for bumblebees in their gardens or fields (on a plot of 100 sq. meters) and put a box for reproduction nearby.</p>	<p>The Society for Nature Research and Conservation (Towarzystwo Badań i Ochrony Przyrody) is an organization that gathers people interested in preserving Polish nature. It was established in 1994 but has operated as an informal movement since 1982. Central Poland is the main area of its activity (an area of three regions: Lodzkie, Mazowieckie, Swietokrzyskie). Its purposes are: protection of wild animals and plants and their habitats, Promoting and encouraging societal interest in nature in society and disseminating knowledge advocating environmental stewardship. At present, it has about 200 active members. It has realized a lot of projects from the range of the nature conservancy (among others: “protection of black grouse habitats in Kielecczyzna”, “active protection of bats”, “protection and sustainable utilisation of the Krasna river valley”) and research programmes (e.g. monitoring of birds). An effect of this long-term activity is the great documentation of the state of wildlife in the region.</p>
<b>Geographic limits</b>	
<p>The project is ongoing in three voivodships in Central Poland, in the area of seven landscape parks (Spalski, Przedborski, Sulejowski, Wzniesienia Lodzkie, Bolimowski, Kozienski, Suchedniowsko-Oblęgorski), in Swietokrzyski National Park and some areas that are embracing the “programy rolnośrodowiskowe”. The project includes 100 villages (on 100 farms in each village, on average) and 50 forest settlements. In Lodzkie Region the project is taking place in the area of five landscape parks. In the area of The Wzniesienia Lodzkie Landscape Park, 6 villages participate in the project.</p>	<p>This area was chosen as the site for conducting the project because of the problem of the possible extinction of the bumblebee. It is also an area of activity for the association, so there is a net of people who can coordinate the program.</p>
<b>Financial issues</b>	
<p>The main financial sources are: United Nations Development Program GEF – Small Grants Programme and EcoFund - a foundation brought into being in 1992 by the Ministry of Finance to effectively administer the money derived from the conversion of a part of the foreign debt of Poland into a fund intended to support environmental protection projects (within a mechanism usually referred to as “debt-for-environment swap”).</p>	<p>The financial resources cover the expenses of buying seeds and plant cuttings, paying farmers for sowing the plants in their fields (100 PLN for 100 sq. meters), making the wooden boxes for bumblebees, preparing informative brochures and other materials about the programme, transport and supplying plants and boxes, monitoring and management of the project. The association’s own contribution is the voluntary work of its members.</p>

<b>Social history of the initiative</b>	
The programme started in July 2003. Before the association members submitted their application for the subsidy, they carried petitions referring to the interest of farmers in participating in the program and they collected a few hundred signatures –signed declarations of interested persons. The reaction of people and institutions (such as landscapes parks) was very positive.	The impetus for organising the programme was reports from naturalists warning of the danger of extinction of the bumblebee in Poland. (Within the last 30-40 years the number of bumblebees has rapidly decreased due to the use of chemical fertilizers and pesticides in agriculture, the burning of grass in meadows, and a lack of plants that are a food base for bumblebees – the bees increasingly lack traditional gardens near rural houses with a variety of different flowers).
<b>Recent objectives</b>	
The main objective of the programme is to enable and maintain population growth of <i>Bombus</i> bumblebees. The outcomes are long-term: supplying special long-term plants for bumblebees, making people aware of the importance of bumblebees as natural pollinators and the need for their protection, generally raising ecological awareness, restoring of the traditional rural landscape with flower gardens near houses, orchards, areas with wild flowers and trees in the fields.	The main aim of the project is effective protection of bumblebees which is possible by promoting the need for protection of bumblebees among farmers, foresters and counteracting unfavourable factors, such as lack of a suitable food base for bumblebees. The project will ensure that bumblebees will be recognized and utilized as superior, long-term pollinators in agriculture, in areas where the extensive, pro-ecological agriculture is realised. Leaflets, stickers and folders have been published. At the headquarters of Spalski Landscape Park small gardens are on display with wild and garden plants that bumblebees feed.
<b>Collective organisation</b>	
The realisation of the program is based on a network of association members and workers in landscape parks.	Activists of the program have direct contact with farmers. There is no need for cooperation with the local authorities. The project is presented and promoted in mass media – local newspapers, radio, and magazines which cover nature protection issues.
<b>Management</b>	
The activists and coordinators of the programme are usually naturalists, are educated in the subject of environmental protection, and work in landscapes – they have professional competence and expert knowledge. The project refers also to the local, practical knowledge of farmers regarding appropriate cultivation of plants for bumblebees. It refers also to a traditional rural culture - to the custom of maintaining a flower garden near house has nowadays been replaced by cultivation of lawns and coniferous evergreen bushes, all of which are useless for bumblebees.	The cooperation between the activists of project and users is based on direct friendly contact. Persons who cooperate programme come from the area and know the local people, have contact with village administrators, school directors who help them to promote the project, organise meetings and trainings for interested persons.
<b>Impacts, contribution of rural sustainable development</b>	
Environmental impacts: protection and proliferation of endangered bumblebee species and other kind of bees; conservation and restoration of the traditional rural landscape.	Social impacts: ecological education, raising the people's awareness of the value and importance of maintaining the traditional rural landscape, of the important role of bumblebees in pollination of plants and the need for protection of bee species, high activity of local community in project.
<b>Institutional support</b>	
Subsidies from GEF and Ecofund; cooperation with formal structures such as authorities of national and landscape parks, state forestry management, village administrators, rural school directors. The expert cooperation with other organisations active in the field of nature protection: other NGOs, research institutes (e.g. university in Lodz), Botanical Gardens in Lodz.	
<b>Future main plans</b>	
Continuation of the program, expansion to include other regions, embracing protection other species.	The only constraint can be a lack of financial resources.

## The Project of Care and Preservation of Traditional Adjacent Orchards

<b>Main actors of the program / project</b>	
<p>The initiator and coordinator of the program is The Wzniesienia Lodzkie Landscape Park. Its workers (2 persons) and a representative of The Research Institute of Pomology and Floriculture are responsible for implementation of the project – cataloguing of traditional orchards in the area, transplanting traditional species of fruit trees, setting up orchards, leading the trainings, preparing the promotional materials. Active actors also include local teachers and village administrators. Rural schools or fire stations are places for trainings and meeting with farmers. The users are: farmers and other people living in the country in the vicinity of the landscape park who are interested in preserving the old orchards and old species of fruit trees.</p>	<p>The Wzniesienia Lodzkie Landscape Park is one kind of territorial nature protection in Poland. Within its area “natural, historical and cultural values are protected, and the aim of its creation is to preserve, popularise and disseminate these values in the context of sustainable development”</p> <p>The Research Institute of Pomology and Floriculture - one of the leading research activities of the Institute is “protection of genetic resources of fruit trees, bushes and ornamental plants.”</p>
<b>Geographic limits</b>	
<p>The villages in the area of The Wzniesienia Lodzkie Landscape Park. Many of them display a traditional rural landscape with old orchards. (not sure what you meant by this – usually the verb “behave” is used for actions of people or animals)</p>	<p>The area is well known by landscape workers, they also have good contact with local people.</p>
<b>Financial issues</b>	
<p>The subsidy from the Provincial Fund for Environmental Protection and Water Management.</p>	<p>The financial resources cover expenses of cataloguing traditional orchards in the area, transplanting traditional species of fruit trees, preparing a brochure (informing about the programme, various species of fruit trees and methods of tree reproduction and proper orchard maintenance), transport and supplying saplings.</p>
<b>Social history of the initiative</b>	
<p>The initiative comes from another landscape park (The Dolna Wisla Landscape Park). In Wzniesienia Lodzkie Landscape Park it started in the summer of 2003. It is targeted at inhabitants of communities located within the park boundaries. The project corresponds with the tasks and aims of a landscape park (nature and biodiversity protection).</p>	<p>The first step was the cataloguing of traditional orchards in the area. The questionnaires among owners of orchards in commune Nowosolna were distributed and collected. The training sessions for local people were organised (2 in 2003 and 1 in 2004). Some new orchards were set up. An educational brochure was also published, entitled, “The traditional orchards in the Wzniesienia Lodzkie Landscape Park area” (The brochure contains information referring to the natural and cultural values of traditional orchards, explains reproduction methods for old tree varieties and presents methods for increasing the vitality and lifespan of orchards. Also, traditional apple tree varieties are described in it.)</p> <p>Two problems appeared during implementation of the project: one of them was a robbery of cuttings from a demonstrational plot of fruit trees; another one was limited contact from activists with new inhabitants who were moving into the area from town, who would cut out old orchards on their plots and make new “modern” gardens.</p>

<b>Recent objectives</b>	
<p>The project aims to preserve local fruit processing traditions. This activity is important for preserving biodiversity at the genetic level in the region.</p> <p>The outcomes are long-term: preservation of existing old species of fruit trees and traditional orchards; setting up new ones; restoration of the traditional rural landscape with traditional orchards near houses; generally raising ecological awareness.</p>	<p>Participants in training sessions get to know various species of fruit trees, tree reproduction methods and proper orchard maintenance.</p>
<b>Collective organisation</b>	
<p>Activists of the program have direct contact (face-to-face interactions) with farmers. Local people have confidence in employees of the landscape park whom they have known for years.</p>	<p>There is no need for cooperation with the local authorities. The project is presented and promoted in the mass media – in local newspapers and on the radio. There were posters and brochures in public places, in schools, etc.</p>
<b>Management</b>	
<p>The activists and coordinators of the program are educated in the subject of environmental protection, work in landscapes or research institutes – they have professional competence and expert knowledge. The project refers also to the local, practical knowledge of farmers – they know local names for fruit species and places in the area of interesting plant occurrences, as sometimes regional variations of pear trees and apple – trees are unique; they also have practical knowledge in fruit tree reproduction; know a lot about history of fruit farming and traditional ways of making fruit preserves.</p>	<p>The cooperation between the activists of project and users is based on direct, friendly contact. Persons who cooperate in the program come from the area and know the local people, have contact with village administrators, school directors and representatives of local NGOs who help them to promote the project, organise meetings and trainings for interested persons.</p>
<b>Impacts, contribution to rural sustainable development</b>	
<p>The recognition and preservation of old varieties of fruit trees in the region is extremely significant for preservation of biodiversity. The old species of fruit trees are resistant to frost and pests and the fruits have a unique taste. The old orchards make the rural landscape more attractive and they are associated with the traditions of Polish villages. The traditional orchard has a lifespan of around 80-100 years. Continuity in keeping different-aged trees in the orchard is important in order to preserve species. The solution is in transplanting traditional varieties of fruit trees.</p>	<p>Social impacts: ecological education, raising the awareness of people regarding the importance of maintaining a traditional rural landscape and of the great and unique value of old species of fruit trees; high activity of local community in project.</p>
<b>Institutional support</b>	
<p>The the Provincial Fund for Environmental Protection and Water Management in Lodz – the financial resources; The Research Institute of Pomology and Floriculture – professional, expert help in cataloguing traditional orchards in the area of the landscape park, setting up of orchards, leading the trainings; the Botanical Gardens in Lodz – help by preparing the promotional materials, identification of different fruit varieties, transplanting traditional species of fruit trees.</p>	
<b>Future main plans</b>	
<p>Continuation of the program (leading the training sessions, setting up orchards, transplanting traditional species of fruit trees).</p>	<p>The only constraint can be a lack of financial resources.</p>

## Comparative Analysis

The presentation of our three cases shows various similarities as well as differences in the projects for the protection of nature and biodiversity. The major difference lies in the dynamics of the two projects implemented in Lodzkie region and the “red cow” project implemented in Malopolska. The first two were initiated by scientists and managers of the landscape park (traditional orchards) or members of a particular NGO (The Society for Nature Research and Conservation, established in 1994 but active only informally since 1982) (bumblebees) quite recently. The “red cow project” has been initiated by scientists only because of a revival of the strong tradition of cow breeding in this particular region of Poland. However, one has to stress that all three of these projects have been framed in the public dialogue both at the local and regional levels (which might also be the case for Lodzkie projects) as well as strong interaction between local, regional and even national levels (in the case of the Malopolska project). Despite their focus on particular types of plants or animals, all three projects have shown a kind of integrative approach towards problems regarding nature protection and biodiversity. In the case of bumblebees emphasis has also been placed on the revival of various types of traditional plants (food for bumblebees); and in the case of traditional orchards, various types of traditional Polish country fruit trees have been perceived as key objects for preservation; while finally, in the case of the preservation of the Polish red cow, more extensive and locally appropriate agricultural economy has been the ultimate goal.

Despite the fact that the initiating groups have been different in each case, all of them gathered various type of actors. In the case of the orchard project, various social forces from the local community seem to be involved, namely, village administrators, schoolteachers, and firemen, as well as farmers. In the case of bumblebee, farmers, foresters, members of the Polish Hunting Association, schoolteachers, and even local parish priests have been involved, as well. In turn, in the case of the Polish red cow project, besides scientists, one might observe the activity of farmers and local government authorities, as well as monks from Szczyrzyc (LIA Jodłownik) monastery. All of these social forces express – as it might be observed – three different types of motivations which have established some mental frames for the presented projects. The first one might be called a “pure scientific” frame and has been presented especially by scientists involved in various projects focusing on “preservation” and/or “documentation” of the extinction of breeds of plants and/or animals. The second frame has been presented mainly by local people involved in the projects (local government, farmers, etc.) and might be called an “economic” one. Local people have been mainly conscious about the economic side of the project either to keep traditional orchards or to breed “the traditional” Polish red cow. In the latter case one might find an extremely powerful story of scientists seeking such an “economic legitimacy” for their scientific interests and stressing the economic usefulness of Polish red cows within the local natural conditions.

All of the presented projects seem to make a strong contribution to nature protection and the solving of biodiversity problems. Since one could argue that the ultimate goal of NCB has been a focus on the preservation of a rich mixture of various plant and animal breeds in the environment, all of the projects have certainly contributed to such a goal. Their complex character has already been stressed before. Moreover, one should add a kind of challenge to the idea of the agro-industrial model of development that has formed the core of the presented projects (especially the “orchard” and “cow” projects). If we assume that modern, mono-culture orchards, as well as modern “milk” or “meat” cow breeds, represent examples of the industrialisation process in agriculture, then we will easily find counteracting tendencies

exhibited in “traditional” mixed orchards and “local” cow breeds. And last, but not least, such a contribution towards the NCB problems solution might be found in the raising and disseminating of an ecological consciousness among local populations. Meetings with farmers, meetings at schools, cow exhibitions focusing – among other things - on the need for restoration of traditional, less intensive cow breeding, involvement of monks, etc.; all these facts might indicate a strong interest in dissemination (are you talking here of the community’s interest in adopting such a consciousness, or the program initiators in “disseminating” it?) of such a type of consciousness.

Considering push forces for voluntary collective sustainable action in the presented cases, one might point out at least three types of them. The first type has contained peculiar characteristics of localities. The establishment of the landscape park has played an important role in the case of the “orchard” project. Such a park has formed the “political opportunity structure” that resulted in training programmes and an increasing level of mobilisation among the local population. The role of local firemen as well as school teachers seemed to be a critical point here. A similar role has been played by the monastery farm in the case of the “cow” project in Malopolska region and the locality (*gmina*) of Jodłownik. The rich and long tradition of breeding red cows in the area has formed the useful background for the revival of such agricultural practises. The second type of a push force might be perceived in the role of a single but highly motivated and active actor. It seems to us that we have such a situation in the case of the “bumblebees” project. The role of The Society for Nature Research and Conservation, based on the legacy of an informal social movement in the 1980s, i.e. under the Communist regime, seems to be a crucial point there as a leading and motivating factor. Moreover, we would argue that the involvement of local government has played an important role as a pushing factor in all three examined cases.

All three examined projects seem to be success stories by now. That, of course, does not mean they will not face some difficulties in the future. The possible constraints have been identified in our presentations above. In the case of the “orchard” as well as “bumblebees” projects the possible lack of funding might be an obstacle to their further continuation. In turn, in the case of the “red cow” project, poor cooperation with the cattle breeders association – as one of the leading scientists in the project acknowledged – might be a kind of threat to the project’s further development. But let us focus on the key elements of current successes of the projects. These might be rooted in two different types of factors. The first one seems to be connected to cooperation among various actors (scientists, local people including farmers, local government, teachers, priests and monks). We might argue that, in fact, one could speak about the governance, and not about the management, of the analysed projects. The second type of success factor seems to lie in the economic rationale. While it has not been so visible in the case of the “orchard” or “bumblebees” projects it has been clearly visible in the case of the “Polish red cow” project. As it has already been stressed in this report, an economic interest among farmers to raise a “traditional” breed of cows, as well as an interest from local government in Jodłownik *gmina* in restarting cattle breeding in the community, have had a strong impact on the development of the project.

Examination of the projects described in the previous section of this report leads us to identification of several advantages rooted in different approaches used in different projects. Firstly, the advantage of the “orchard” project seems to lie in the establishment of the landscape park prior to the introduction of the particular project. That creates an opportunity to use already collected assets (finances, professionals, existing regulations, etc.) to disseminate the new idea and to create a network of various types of actors involved in the

development of the project under our consideration. Secondly, the advantage of the “bumblebees” project seems to lie in the strongly motivated and very active initiator. However, it also should be stressed that in both projects another type of advantage seems to be clearly visible - namely, their complex character focusing not only on “bumblebees” or “traditional fruit trees” but also on an integrated approach towards the restoration of the traditional rural landscape and biodiversity. In turn, the advantage of the last project under consideration, “Polish red cow,” has been rooted in several factors. One might identify here the role of the local economic tradition and the structural alignment of different frames (scientific and economic) as well as strong support from local government.

The basic strength both in knowledge generation and its use seems to be located in the direct and quality contacts between scientists and/or project managers and local people. That might be the kind of proof of the validity of social capital possessed by initiators as well as managers of the projects. Especially in the “orchard” and “bumblebees” projects, the whole range of dissemination techniques (workshops, posters, exhibitions, mass media coverage, etc.) have been used. Financial resources used to cover various activities (documentation, printing of folders and other materials, etc) have contributed to the development and use of knowledge as well. Despite involvement in both projects, demonstrated by various local institutions and governments, there is no strong need to use local government resources. Quite contrary, skills demonstrated by activists (landscape park workers and/or members of Society for Nature Research and Conservation) seem to be of primary importance as a strong factor in knowledge generation and use. The “red cow” project, however, demonstrates a slightly different picture in the context of issues discussed in this paragraph. The involvement of local government - beside the good direct contacts between scientists and local people (farmers) - has strongly contributed to the development of knowledge focusing on the advantages of restoration of “red cow” breeding in the area. Dissemination of information about the project (exhibitions, publications, and websites) has resulted in a rising interest in the project among local people, as well as people from other localities.

Some important potential actors that might be involved in the projects seem to demonstrate a lack of knowledge important for development of the projects under consideration. The “orchard” and “red cow” initiatives especially showed this problem. In the “orchard” project, the category of people which we have in mind has been composed of urban inhabitants coming to the area as a new home residence.. Such people are mainly coming from Łódź (the main urban centre in the region) and they destroy traditional fruit trees and other plants existing on former farms they bought in order to arrange the so-called “modern gardens”. Such a situation clearly shows a failure in the communication process between project initiators and activists and this particular category of actors. A similar problem might be observed in the “red cow” project. Despite the involvement of local farmers, the regional or national association of breeders have not been involved in the project. Again, one might observe a communication failure here in attempting to translate the scientific knowledge regarding preservation of a traditional cow breed into intensive cow breeding as a major goal of such an association. We would argue, however, that elimination of such a bottleneck seems to be impossible without any major change of in the agro-industrial type of thinking among the activists of cattle breeder associations. Therefore, one might stress that both cases show communication failures due to contradictory models of farming and breeding, as well as landscape arranging. Analysed projects which were strongly focused on a more sustainable approach to such activities wherein conflict with the “modern”, “agro-industrial” ones.

All three cases examined in our report might support the statement focusing on sustainable development options for the investigated areas. The sustainable characteristics might be found in the restoration of a traditional rural landscape as well as more extensive forms of fruit and cattle production. All these types of activities require two significant types of factors, namely, the knowledge factor as well as the project management one. The knowledge factor might be perceived as the co-existence of scientific knowledge represented by animal scientists, biologists, landscape park managers and activists of the NGO's as well as local tradition and attitudes among local people. In turn, the management factor has to be pointed out as crucial in disseminating, as well as implementing, project knowledge. All three cases also confirm the statement that successful development of the project requires strong cooperation among various types of actors (scientists, managers, activists, and local people, including farmers, as well as – to some extent – local government). Therefore, the development of sustainable development schemes requires governance as a major instrument for their implementation and evaluation.

## **Conclusions**

All cases analysed in the report show the strong impact of interaction between various types of actors on the increase of rural sustainable development. Such an interaction leads to the confrontation of different points of view or – as it was called in the report – different frames. The proper communication process leads, in turn, to the alignment of these frames creating, in our opinion, a more comprehensive and complex vision of local and regional development. Such a complexity, as well as comprehensiveness, is both part of the idea of sustainable development. A lack of communication leading to the de-alignment of frames results, in turn, in the absence of various types of actors in the projects, as the cases of urban people who have moved rural areas and association of cattle breeders have shown in our analysis. Moreover, the interaction between different types of actors works against the standardisation of agricultural practises and products. In fact, it works towards, as we call it, the localisation of such practises and products. Polish red cows raised in the Jodłownik gmina on the monastery farm, as well as on some small private farms, have not been just “milk” cows or “meat” ones. They have been simply “our” cows interacting with their traditional and natural environment. The same story might be observed in the cases of “orchards” and “bumblebees” as particular characteristics of particular rural landscapes and spaces turning them into particular and well-defined places.

The contribution of the interdependencies between various development factors has also increased the sustainable character of the observed rural development. Reintroduction of Polish red cows in the area has strengthened the tendencies among farmers to have more pastures. As a head of the monastery farm stressed in the interview: “The rules of ecological breeding require that each cow has at least two hectares of pasture. It is not so important if such a cow produces less milk than the ‘artificial milk creature’ but it is more important that it is healthier, stronger and is able to walk up to the pasture and down to the farm without any problems”. Such extensive production also enables use of the farm environment as a residential one for incoming tourists. These tourists might be treated as an additional source of income. This same chain of forces one can observe in the cases of the “orchards” and “bumblebees” projects, as well. Both of these initiatives have strengthened the valorisation of respective areas and might become pulling features for incoming tourists. Then, all three cases place agricultural activity back in its natural framework, as a part of complex activities

performed in particular places quite contrary to the ideas encapsulated by the models of agro-industrial and/or post-productive rural development.

Based on the analysis of local cases, as well as some regional tendencies discussed in the report, we would argue that there are two critical points for integrating different types of knowledge in a more coherent policy formulation resulting in the project design. The first one has been a peculiar character of scientific knowledge which has to search for additional, out-of science legitimacy in order to present its rationale for types of actors outside of the science community. The case of the “Polish red cow” project has demonstrated this in its economic frame that has been consistent with a view represented by local people. A similar situation might be observed in Lodzkie voivodship projects as well. Preservation of traditional orchards and/or bumblebees seemed to be consistent with the natural landscape and promotion of tourism idea, as represented by landscape park managers and, at least in part, by local people. That means – and this is the second critical point – that all the different types of knowledge have to be present in various phases of the project, i.e. from policy formulation, on through the project design, all the way to project implementation.

All of that means that strengthening the discourse between scientists and local people, between government and NGOs, etc., becomes a basic pre-condition for formulating an adequate policy and successful implementation of well-designed projects. We would argue that the key instrument here lies in many governance practises, i.e. in development of various forms of participation for local people, NGO activists, as well as government officials and experts, in creating and implementing such projects. Local and regional democracy, as well as pluralism of expert opinions, seems to be important factors here. Then, rural sustainable development seems to be a direct result of this style of government that has been called governance.