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**Central Eastern Europe –  
Soil Degradation,  
Soil Protection & Spatial Planning**

with contributions from Poland,  
the Czech Republic, the Slovak Republic,  
Hungary and Slovenia

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# Sustainable Use of Land in Central Eastern Europe

Dear Members and Friends of the European Land and Soil Alliance,

The European Commission has started to develop a **European Soil Protection Strategy**, which has put soil protection ahead of the European environmental policy agenda. What is positive is the fact that, in the framework of the "Soil Thematic Strategy", EU accession countries as well as EU member states are officially and equally represented in the Advisory Forum accompanying the soil policy development process. We would like to take this opportunity to mention that the European Land and Soil Alliance ELSA e.V. also has received a mandate in this important body.

On 1 May 2004, the EU will make the first step for enlargement towards Central Eastern Europe. In order to broaden the horizon of the soil topic in Europe, this issue will present abstracts of highly interesting articles about soil protection and spatial planning from five countries of Central Eastern Europe in their national languages.

We are pleased to present the contributions of the following authors: **Poland:** Prof. Dr. Piotr Sklodowski, Polish Society of Soil Science, Warsaw, Jacek Lenzion and Dr. Witold Toczyski, University of Gdansk; **Czech Republic:** Prof. Dr. Josef Rusek, Institute of Soil Biology, Academy of Sciences of the Czech Republic, Budejovice, and Dr. Jiri Plos, Czech Chamber of Architects, Prague; **Slovak Republic:** Prof. Dr. Pavol Bielek and Dr. Radoslav Bujnovsky, Soil Science and Conservation Research Institute, Bratislava; **Hungary:** Prof. Dr. Attila Buday-Sántha, University of Pécs, and Dr. Iván Illés, Senior Research Fellow, Centre for Regional Studies of the Hungarian Academy of Sciences, Pécs; **Slovenia:** Prof. Dr. Franc Lobnik, Centre for Soil and Environmental Sciences, University of Ljubljana, and Dr. Kaliopa Dimitrovska Andrews, Urban Planning Institute of the Republic of Slovenia, Ljubljana.

Attention should also be paid to the introductory comments of the new Secretary-General of the International Union of Soil Sciences (IUSS), Prof. Dr. Stephen Nortcliff, Department of Soil Science, University of Reading (UK), as well as to the survey on the present situation of soils in Central and Eastern Europe by Dr. Luca Montanarella, European Commission, Joint Research Centre, Ispra (I). The fact that transnational cooperation and concrete projects in and with Central and Eastern European countries are actively supported is proved by the contribution of Dr. Ulrich Graute, Joint Technical Secretariat INTERREG III B Central Adriatic Danubian South-Eastern European Space (CADSES), Dresden (D).

We would like to take this opportunity to thank all of the above-mentioned authors. We would be pleased to attract the interest of a broad readership in all countries of Europe – mainly in the context of EU enlargement – and we would also like to inspire them to use the numerous links to visit interesting websites in order to delve further into the inexhaustible topic of soil.

Editorial staff local land & soil news

# Some Considerations on Threats to Soil and its Protection in Europe

**Soil is the product of complex interactions at the earth's surface between climate, geology, vegetation and biological activity all operating through time. These natural processes and interactions will be modified through man's use of the soil and manipulation of the landscape. Whilst this manipulation will inevitably produce changes in the 'natural soil' the task facing all of us is to ensure that this use and manipulation does not detrimentally alter the nature of the soil or in extremis destroy the soil!**

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*by Prof. Dr. Stephen Nortcliff, Secretary General International Union of Soil Sciences, Department of Soil Science, The University of Reading (UK)*

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Soil is an essential and largely non-renewable resource since the processes of soil formation take place over very long time periods, over a large number of human generations. Under natural conditions the soil may be perceived by us to be relatively unchanging through a single generation. Whilst naturally the soil may perceptibly change very little it is increasingly under threat of rapid change from a wide range of different directions. These threats are diverse but include inappropriate and non-sustainable use and encroachment and consequent sealing of the soil from urban development such as housing, roads and associated infrastructure and from industrial activity. The need to protect the soil from these potential threats is now widely recognised with initiatives at national level where many countries have or are developing soil protection strategies, at supra-national levels as evidenced by the current discussion amongst member countries and accession countries of the European Union on the '*Thematic Strategy for Soil Protection*', and internationally, for example there was focus on the need to protect soil as a key component of sustainable development at the World Summit on Sustainable Development in Johannesburg in 2002. These initiatives on soil protection will complement long established policies on water and air protection.

The soil, often defined as the upper layer of the Earth's crust, is an essential component of environmental systems, performing a wide range of key environmental, economic and social functions vital for our normal activities. The loss of the soil would have a devastating effect on our lives. Agriculture and forestry are dependent upon the soil for the supply of water and nutrients for plant growth and the physical support of the plants. Soils perform a wide

range of functions related to the storage of water, nutrients and other constituents. These functions include: the filtering of materials added to the soil surface which will be altered and pass through the soil to other ecosystem components; the buffering of natural additions of water and atmospheric inputs and increasingly importantly the inputs from our activities, whether accidental or intentional; and the transformation of materials within the soil system.

Because of this wide range of functions performed by the soil and its relationship with other environmental components, the soil cannot be considered in isolation. For example, soil plays key roles in the area of water protection and in the exchange of gases with the atmosphere. Increasingly soil is recognised as a diverse biological habitat for micro-, meso- and macro-organisms and the associated gene pool. The biodiversity within soils is relatively poorly understood, but there is considerable concern that there is a need to protect soil biodiversity. Failure to do so means we may lose biological components, the importance of which we are currently unaware of – we may not know what we are losing! There is also a need to protect the soil because it is a platform for human activity and retains evidence of our cultural heritage.

In developing a soil protection policy it is essential that the wide range of functions performed by the soil are recognised. Similarly it is important to understand the dynamic nature of the soil, interacting with other environmental components and responding to the changes introduced both naturally (e.g. natural ecosystem development and through response to changes in climatic conditions) and by human intervention.

The threats to soil in this changing environment are diverse and complex. If we are to make progress there is a need to focus on a relatively small number of them and establish priorities. Recent discussion within the European Union on a *Thematic Strategy for Soil Protection* has identified a number of 'priority' threats, which with varying importance are found in many countries of Western and Central Europe. Some of these threats are:

**1. Erosion** – There is widespread concern at the accelerated removal of soil by water and wind erosion across Europe. Much of the erosion occurs because of inappropriate agricultural and forestry activities, but there is an increasing occurrence of erosion associated with inappropriate development in urban and industrial environments. In addition to the loss of soil at a site the eroded soil also poses a major threat with the reduced capacity of reservoirs through sedimentation and the loss of productivity in the aquatic components of the ecosystem through inundation of fluvial and marine environments.

**2. Decline in soil organic matter (SOM)** – SOM is an essential soil constituent, influencing soils' physical, chemical and biological properties and behaviour. It is suggested that there has been a steady decline in levels of SOM across much of Europe principally in the second half of the twentieth century. These changes have been mainly ascribed to changes in agricultural practice. The concern over the decline in SOM is that there will be a loss of soil function and the soil will be vulnerable to physical damage and erosion.

**3. Contamination** – Local and diffuse contamination of soil, the resultant loss of soil function and the potential risk to humans and other ecosystem components are of widespread concern across Europe and beyond. There is a historical legacy of contamination which must be prioritised for clean up, both to remove the hazard and to provide clean soil for future use. Important in any future soil protection policy are measures to prevent future contamination of soil, including measures to control additions to soil as well as more general land and environmental practices.

**4. Soil sealing** – The loss of 'green field' soil to urban and industrial developments is a widespread problem of concern throughout Europe. There is a need to prevent further 'soil sealing'. A key approach here is land use planning, but this should be supported by instruments to encourage the re-use of 'brownfield' sites within established urban and industrial boundaries.

**5. Soil compaction** – There is evidence to suggest that soils are increasingly vulnerable to compaction and resultant loss of function. In part compaction may be related to the reduced resilience of the soil because of declines in SOM, but it must also be associated with inappropriate and poorly timed use of machinery. Some workers have suggested that the solution is a simple one, a shift to zero or minimum tillage. Whilst this is appropriate in some parts of Europe there is conflicting evidence in others and zero tillage alone does not provide the solution to this problem.

**6. Decline in soil biodiversity** – In many respects soil biodiversity is the relatively unknown part of the soil, but it is widely believed that soil biodiversity is an essential soil property and must be maintained if the soil is to maintain its dynamic properties and the ability to respond to changes in environmental conditions. Whilst there is incomplete knowledge of the composition and function of the biological components of the soil, the conservation of biodiversity is a priority feature in almost all soil protection considerations. In part this prioritisation is because we are not fully aware of what we might be losing.

**7. Salinisation** – In many countries where irrigation is used to support agricultural production there is concern that poor quality management has resulted in salinisation problems with a resultant loss of productivity. In coastal areas there is a further concern of salinisation from marine encroachment both at the surface and subsurface where saline water is encroaching in to fresh water aquifers because of over extraction (in some cases to provide irrigation water). The concerns over salinisation are exacerbated by the possibility of the increased need for irrigation water as a result of shifts in climate.

The above list is not exhaustive but seeks to highlight some of the threats facing the soil and hence provide a tentative list of priority areas in the development of any soil protection policy. In addition to these threats, however, any soil protection policy must recognise that soil is diverse both in terms of its nature and distribution. Many different soil types are found across Europe and their nature and pattern within the landscape are exceedingly complex. This diversity must be recognised in any framework for soil protection and due allowance made in the development of any soil protection policy.

*With the widespread recognition of the need to protect soils through the development of soil protection policies, we as soil scientists have an important role to play in ensuring that these policies are based on our breadth of knowledge and understanding of the soil systems and the key role soil plays within the broad environmental system. In the past there have been policies to protect air and water – introducing policies for soil protection will provide the 'missing link' in environmental protection! ■*

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# Overview of Soil Resources and Soil Conservation in Central Eastern Europe

After successfully growing from 6 to 15 members, the European Union is now preparing for its biggest enlargement ever in terms of scope and diversity. 13 countries have applied to become new members: 10 of these countries – Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic, and Slovenia are set to join on 1st May 2004. They are currently known by the term "accession countries". Bulgaria and Romania hope to do so by 2007, while Turkey is not currently negotiating its membership.

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by Dr. Luca Montanarella, European Commission, Joint Research Centre, Ispra (I)

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The soil protection strategy of the European Union builds on the recognition that the important functions of soils are threatened by severe degradation processes. The major threats identified so far are soil erosion, decline in organic matter content, loss of soil biodiversity, soil contamination, salinisation, soil compaction, soil sealing and major hydrogeological risks (flood and landslides).

Information on soils has been collected in Europe over decades by many institutions. Most data are scattered at National level. Existing national monitoring systems should be incorporated into the EU monitoring system to assure overall coherence at the European level. This would enable EU soil policy to be reviewed and adjusted at regular intervals, in order to increase its effectiveness.

The soil strategy is not limited to a particular use, it includes the widest range of possible land uses: agriculture, forestry, urban, industry, infrastructure, etc. A distinction between soil as an ecosystem and its role in spatial planning needs to be made. The soil (terrestrial) ecosystem means a dynamic complex of human, plant, animal and micro-organism communities and their non-living environment interacting as a functional unit. Spatial planning policy should relate land use to soil capacity because loss of soil is irreversible for example when extending the urban environment. Soil sealing should take protection of soil resources into account. Agriculture can play an important role in revitalising soil by sustainable farming methods well adapted to the soil characteristics and socio-economic situations. Focussing on five of the newly designated EU member states from Central Eastern Europe reveals a distinctive situation regarding soils and land (*see the following contributions in this issue*).

Since several EU Candidate Countries are also parties to the *United Nations Convention to Combat Desertification (UNCCD)*, considerations of the issues related to land degradation and desertification are now included in many assessments currently being completed in these countries. A recent workshop, organised by the *Joint Research Centre of the European Commission* has reviewed the current situation concerning land degradation in Central and Eastern European Countries. The results of the workshop have highlighted the extensive soil degradation processes occurring in most of the EU candidate countries.

**Erosion** is a major environmental issue, although there are significant differences between countries regarding its extent and intensity. Areas affected range from 5% to 39% of the total surface. **Water erosion** is a widespread problem in many candidate countries, with, for example, more than 50% of the agricultural land of the *Czech Republic* and 72% of the arable land of Bulgaria affected. Also **wind erosion** is a problem in some of the candidate countries: *Bulgaria* is reporting more than 1,6 million ha (29% of all cultivated lands) affected by this degradation process. Also the *Czech Republic* and *Slovakia* report some degree of wind erosion. **Decline in soil organic matter SOM** is reported by Poland, and in *Romania* on 14% of the agricultural land, often to be considered a side effect of accelerated erosion rates (26% of *Romania* is affected by water erosion). **Contamination** is usually reported by the Central and Eastern European countries as the most serious land degradation problem, often associated with obsolete industrial and military sites. Besides these point sources of local contamination (hot spots), there are often diffuse soil contamination problems due to atmospheric deposition. *Hungary*, for example, is reporting **acidification** of soils on more than 12% of the total land area. **Soil compaction** by heavy machinery has been a typical problem in large state owned farming systems. In the *Czech Republic* 40 to 50% of all agricultural soils are endangered by compaction as well as in *Slovakia*. In *Hungary* 14% of the total land area is affected by this form of degradation. **Salinisation** is reported by

Hungary, Bulgaria and Romania, often associated with unsustainable irrigation practices. **Hydrogeological risks**, like flooding and land slides, are affecting many countries in this area. The recent flooding events in the Danube and Elbe basins are well known, as well as very frequent land slides in some mountainous areas. Particularly *Bulgaria* and *Romania* reported severe problems of slope instability in several of their mountain regions.

In conclusion: Central and Eastern European countries are affected by severe land degradation problems, which fully justifies the recent approval by the UNCCD of a specific regional annex (annex V) to the convention, addressing the specific problems of this area. The development of a regional and of national action programmes, as required by the UNCCD, may in the future lead to an improved quality of the land in this area and may reverse the current degradation trends. ■

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### Exploitation of soil cover and identified soil problems in Central Eastern Europe (2000)

	Poland	Czech Rep.	Slovak Rep.	Hungary	Slovenia
<b>Surface (km<sup>2</sup>)</b>	<b>312,685</b>	<b>78,866</b>	<b>49,035</b>	<b>93,030</b>	<b>20,273</b>
Water bodies (km <sup>2</sup> )	8,220	1,590	931	690	142
<b>Land (km<sup>2</sup>)</b>	<b>304,465</b>	<b>77,276</b>	<b>48,104</b>	<b>92,340</b>	<b>20,131</b>
Inhabitants (1.000)	38,646	10,273	5,402	10,138	1,964
<b>Land/inhabitant (ha/inh.)</b>	<b>0.79</b>	<b>0.75</b>	<b>0.89</b>	<b>0.91</b>	<b>1.03</b>
<b>Land use (%)</b>					
Agricultural land	58	54	50	63	34
- arable land	45	39	30	49	25
Forest land	30	33	42	19	60
Other land areas	12	11	8	17	6
- Buildings and infrastructure	4	3	5	4	4
<b>Degradation of soils</b>					
Soil erosion	••	••	••	••	••
- water erosion	•	••	••	•	•
- wind erosion	•	••	•	•	••
Decline in soil organic matter	•	•	••	•	•
Contamination	•	•	•	•	•
- local contamination	••	•	•	•	•
- diffuse contamination	•	•	•	•	•
- soil acidification	••	•	•	••	•
Soil sealing	••	••	•	••	••
- urbanisation	••	••	•	••	••
- infrastructure	••	••	•	••	••
Soil compaction	••	••	••	••	•
Decline in soil biodiversity	•	••	••	••	•
Salinisation	•	•	•	••	•
Hydrogeological risks	••	••	••	••	••
- flooding	••	••	••	••	••
- landslides	•	•	•	•	••

Soil problems identified: • low intensity / local problem •• from medium to higher intensity / regional problem

Table: Jenny, R. D. (2003): All data in this table – surface, inhabitants and land use – are from national statistics and have been verified by the authors in this issue; the same goes for the assessment of problems of soil degradation identified in each country. Due to different evaluation methods the comparison of data and scale between countries is not guaranteed and may be subject to error. (Ed.).

# The Situation of Sustainable Land Use and Soil Protection in Poland

The total land area is under two main land use forms – agriculture and forestry. Generally agricultural land occupies about 59% of the whole state area, arable land makes up 45%, orchards 1%, meadows and pastures 13%. Forested areas account for around 30% of Polish territory. The remaining land for housing occupies 12%. But there is clear evidence to suggest that the area of farmland has been steadily decreasing since 1946. Built-up areas and forests have expanded at the expense of agricultural land. Problems of soil quality degradation in Poland are acidification and erosion.

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by Prof. Dr. Skłodowski, President of the Polish Society of Soil Science, Warsaw (PL)

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The soil, the relief, water management relationships and the climate all determine the natural conditions of Poland's agriculture with soil as a decisive factor.

## Genetic classification of soils

According to the FAO classification most of our soils belong to: *Luvisols*, *Aerosols*, *Cambisols*, *Leptosols*, *Podzols*, *Phaeozems*, *Gleysols* and *Histosols*.

The quality of Polish soils is among the poorest in Europe: The potential production per hectare of Polish soils is equal on average to about 0.6 ha potential of arable lands in the European Union. This is a result of the fact that considering the entire area of Poland's arable land, there is as much as 33% of poor and very poor soil and only about 14% high productivity soil. The I-II-III classes include *Haplic Pheosems*, *Eutric Cambisols* and *Orthic Luvisols*. These soils are high productivity soil types and all crops which are cultivated in Poland give high yields.



Photo P. Skłodowski: Agricultural landscape in Poland

***These figures indicate: We have to protect the high productivity soils in Poland first of all.***

Soil protection laws have formally existed in Poland since 1972. Detailed legal regulations are contained in the Act on Protection of Arable and Forest Land. First to be formulated was the regulation concerning utilisation of the best soil for agricultural purposes. Its aim is the protection of the physical surface of soils. Utilisation of soils for non-agricultural purposes requires the permission of the state administration.

## Decrease of agricultural land

It should be emphasized that acreage of agricultural lands had not changed in the period 1947-1960: it was maintained at the level of 20.4 million hectares. Beginning with the year 1960, the use of land has been subjected to gradual alteration. The area of arable land has been on the decrease. Forested areas and so-called other land types have increased.

Within the last 40 years, the area of agricultural land has decreased by 2.0 million hectares and the factor per one inhabitant has fallen from 0.86 hectare to 0.48 hectare. The majority of such land was used for housing and mining. Analysis of land loss on areas covered for non-agricultural purposes reveals that though most productive soils are specially protected, areas of very good soil quality for arable land are decreasing more rapidly compared to other soils.

This results from the fact that cities are usually located on good soils or in the vicinity of good soils. The main bulk of urban development and new infrastructure investments are located close to existing cities.

Besides protection of the physical surface of soils, legal regulations also concern degradation of the chemical properties of soils, degradation of the water regime, erosion processes, degradation of biological and physical properties of soils. The thematic range covered by legislation on the protection of soils is thus very broad.

Chemical analyses of our soils have demonstrated a decrease (10-20%) in organic carbon content during the last 30 years. This is a result of a significant decrease in the volume of manure production and its supply. Maintaining levels of humus in soils is now an important task for Polish agriculture.

### **High level of acidification**

Extremely dangerous for the potential production of Polish soils is the high level of their acidity. Several different reasons have contributed to the growing acidity of Polish soils within a period of only a few decades. More than 25% of all the soils are considered strong acidified soils, and nearly 40% acidified soils. A total of more than 60% of Polish soils is characteristic of either very high or high level acidification.

According to data obtained from a monitoring study, in about 25% of soils the actual content of phosphorus is permanently too low, and in 33% of Polish soils there is insufficient potassium content. Significant soil areas, particularly sandy soils, have an insufficient magnesium content.

### **Contamination with heavy metals**

Results of investigations indicate that soils characterized by the natural content of heavy metals (degree 0 – that is, non-contaminated soils) make up 78.3% of the total area of Polish soils. These soils, with only a slightly increased content of heavy metals (degree 1 of contamination), make up 18.6%. These data underline that about 97% of the acreage of soils used for agriculture consists of non-contaminated soils or contains only slightly increased amounts of heavy metals. Such a situation allows for the production of high quality agricultural crops.

Soils contaminated to varying degrees with heavy metals constitute approximately 3% of the agriculturally used area of the country; noticeably, strongly polluted soils (degree 4) and very strong polluted soils (degree 5) that should be either excluded from farming or have their production profile altered constitute only about 0.3%, that is, about 56,000 hectares. ■

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### **Zagadnienia zrównoważonego użytkowania i ochrony gleb w Polsce**

Jakość polskich gleb należy do najniższych w Europie. Potencjał produkcyjny przeciętnego hektara naszych gleb odpowiada potencjałowi przeciętnego 0.6 ha gruntów ornych krajów Unii Europejskiej. Wynika z tego faktu, iż w ogólnej powierzchni polskich gruntów ornych znajduje się aż prawie 33% gruntów słabych i bardzo słabych, a tylko 14% gleb wysokiej produktywności, na których wszystkie rośliny uprawiane w Polsce dają najwyższe plony. Dlatego w Polsce przede wszystkim powinniśmy chronić gleby wysokiej produktywności przed przeznaczeniem ich na cele nierolnicze i przed degradacją. Drugim istotnym zadaniem jest racjonalne gospodarowanie zasobami glebowymi w ramach zrównoważonego rozwoju, uwzględniającego cele społeczne, ekonomiczne i ekologiczne. Bez głębokiego poznania właściwości gleb i ich geograficznego rozmieszczenia, zrównoważony rozwój, zwłaszcza obszarów wiejskich jest niemożliwy.

Formalnie prawna ochrona gleb w Polsce istnieje od 1972r. Zgodnie z obowiązującą Ustawą o ochronie gruntów rolnych i leśnych, na cele nierolnicze należy przeznaczać nieużytki i gleby najniższych klas bonitacyjnych. Przeznaczanie dobrych gleb na cele poza rolnicze wymaga zgody władz państwowych oraz dokonania wysokich opłat. W okresie ostatnich 40 lat powierzchnia użytków rolnych w Polsce zmniejszyła się prawie o 2 miliony hektarów, a ich powierzchnia przeliczeniu na jednego mieszkańca zmniejszyła się w tym czasie z 0.86 hektara do 0.48 ha. Powierzchnia lasów w tym czasie powiększyła się o 1.5 miliona hektarów.

Zgodnie z Ustawą ochrona gruntów polega również na zapobieganiu: chemicznej degradacji gleb, zmianom stosunków wodnych, zmianom właściwości fizycznych i biologicznych gleb, które w dalszym ciągu użytkowane są rolniczo. Analizy chemiczne naszych gleb wskazują na obniżenie w nich (10 - 20%) zawartości węgla organicznego w ciągu ostatnich 30 lat.

Wyjątkowym zagrożeniem dla potencjału produkcyjnego polskich gleb jest ich wysoka kwasowość. Ponad 25% gleb oceniane jest jako bardzo kwaśne, a blisko 40% gleb oceniane jest jako kwaśne. Gleby w różnym stopniu zanieczyszczone metalami ciężkimi stanowią około 3% użytków rolnych, przy czym silnie i bardzo silnie zanieczyszczone, które powinny być wyłączone z produkcji rolniczej lub produkcja ta na nich powinna być zrestrukturyzowana, stanowią tylko około 0.3%, czyli około 56 tysięcy hektarów.

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# The Situation of Spatial Planning and Land Use Management in Poland

One has to distinguish between two aspects of the system: the normative, legal system and the functioning of law in practice of planning and management (eg. while producing policies, making administrative decisions). In Poland we have a very complex legal system, with many interlinked acts and bylaws, but it is rather unstable (mainly due to the "systemic transition" of the state and society). The enforcement of law is still weak, partly because it is subject to current political pressures but also because it is influenced by different traditions and attitudes inherited after the political partition and subordination of Poland to external (not accepted) legal systems in the last two centuries. The other reason is the quality of the present legal system – it is perceived as rather complicated and in many parts vague or inconsistent. Keeping these distinctions in mind, we would focus more on the normative than descriptive side of the system.

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by Jacek Lendzion, *Environment & Development*, Gdansk & Dr. Witold Toczyski, *University of Gdansk (PL)*

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The scope and procedure of appropriation of land for specific uses and – more generally – to set spatial development policy guidelines is defined in Poland by the *Spatial Development Act* (1994) and the new *Act on Spatial Planning and Development*, voted recently by the Parliament. It also regulates the way of resolving conflicts of interests that might arise between citizens, self-governed communities and the state assuming sustainable development as a foundation. The system of spatial planning and land use management in Poland – like in many countries – functions at three basic levels: national, regional and local.

## National spatial development

Spatial development planning at the national level has a long tradition (going back to the 1930s). It influences regional and local policies in rather in directive way, sending the right signals and incentives for dialogue about the main trends and policy options. Its other, permanent feature is orientation on action and problems, strengthened by their institutional affiliation to the governmental bodies responsible for economic development. The current national planning document, entitled *Outline of the National Spatial Development (NSD)* has been prepared in the interaction with regional and sectoral actors. Alongside socio-economic and environmental policies it constitutes a regulatory (though strategic and open) tool for structural changes of the whole country.

NSD constitutes a document that contains guidelines – from the national interests point of view – for the spatial development planning process and policies of regions and sectoral bodies. It defines the objectives and principles of sustainable development of the country and the regions, balancing the spatial polarization supported by market forces with the socially and ecologically justified need for spatial order. The so called "primary spatial systems stabilising the national spatial development" were proposed as the framework to keep this balance and long term sustainability realistic.

There are systems: of urban centres (settlement), transportation & telecommunication, energy & water management, and – last not least – rural areas (esp. the premises for their multifunctional development).

The tools for spatial development policy control and implementation has been defined also, including:

- *Spatial information system* and periodical reports on spatial development of the country to monitor the changes and their external factors;
- *general legal instruments*, as detailed codes for preparation of plans, planning application decision making procedures;
- *strategic assessment* of environmental impacts;
- *sectoral and regional programmes of public investments* and other public tasks;
- *special economic and administrative instruments*, like tax exemptions in the specially assisted areas of structural problems (eg. remote rural areas suffering from unemployment) or simplified decision making procedures for implementation of priority infrastructure.

The NSD itself doesn't define areas or problem fields connected with the soil management or protection. Seeing the national level planning in more complex way, however, we should note in this respect the very crucial role of environmental policy documents and the special policy for agricultural land management.

In the *National Environmental Policy (NEP)* special goals for the soil resources (alongside water, forests, and waste) management are set explicitly. However, the links between soil protection/management and the system of land-use/spatial planning are not set out explicitly – with the exception of land utilization for roads and their vicinity and the problem of *brownfield* remediation. The medium term goals of NEP (2003-2010) for spatial planning include i.a. improvement of the ratio between intensively built-up and open areas in the urban municipalities.

The strongest instrument for land protection with high quality soils is the *Agricultural and Afforested Land Protection Act*, which regulates both the administrative procedures and economic aspects (charges). In the course of the development and implementation of national policy measures the NSD document expects that within the period of 10 years (2000 – 2010) agricultural areas will be reduced by 3 %. The largest area will be earmarked for non-agricultural purposes in the northern regions (afforestation), around urban and industrial agglomerations in the south of the country and along proposed motorways. In areas of intensive farming (with very high quality soils), the losses will not exceed 1 %.

### Regional spatial development

Spatial planning belongs to regions particular tasks in Poland and comprises two different processes and documents. First, a *Development Strategy of Region* is prepared and adopted by the regional self-government. This document is very comprehensive nature and focuses mainly on social and economic issues. Many public actors (including local self-governments) and non-public actors participate in its preparation (however informally) and these strategies should be periodically amended. Regional programmes and action plans have to be based on the strategy, but on the other hand coordinated with the *Regional Spatial Development Plan (RSD)*.

The task of RSD according to the law is to formulate the spatial policy of the region, comprising: settlement system organization and development, location of principal public infrastructure and other developmental programmes, and integration of natural and cultural environment requirements into spatial policy. The regional planning has generally the same roots and methodology as the national, but now initial steps are being taken to combine the spatial comprehensive perspective with the action planning and development tasks distribution in space. The current generation of plans shows however, that they are rather more like spatial agendas for regional (EU supported) programmes than plans for coordinated action in the spatial environment, focused on the real problem solving (as they used to be in the Polish tradition).

Planowanie zagospodarowania przestrzeni ma w Polsce długą tradycję. Ma ono istotny wpływ na polityki rozwoju regionalnego i lokalnego. Na zrównoważony rozwój kraju a zwłaszcza zgodne z nim wykorzystanie przestrzeni i ochronę zasobów glebowych wpływają tak podstawowe dokumenty jak *"Koncepcja Polityki Zagospodarowania Kraju"*, *"Narodowa Polityka Ekologiczna"* i *"Ustawa o Ochronie Gruntów Rolnych i Leśnych"*. Programy i plany operacyjne rozwoju danego regionu koordynowane są w tych aspektach przez Plan Przestrzennego Zagospodarowania Województwa. Taki sposób wdrażania polityki rozwoju wyznacza polskie ustawodawstwo. Wszystkie gminy w Polsce (miejskie i wiejskie) muszą posiadać dokument stanowiący zarys lokalnej polityki przestrzennej. Wyznacza ona m. in. zasady wdrażania tej polityki poprzez uchwalanie miejscowych planów zagospodarowania przestrzennego dla wybranych obszarów. Zgodnie z najnowszym polskim prawem plany takie są obowiązkowe dla obszarów, które zamierza się wyłączyć z użytkowania rolnego.

### Municipal spatial development

All municipalities in Poland (urban and rural) are obliged to have a draft of local spatial policy document called *"Study on the preconditions and directions for the spatial development"*. The study should follow national and regional goals, spatial development policies and programmes for a given area. Of course also any other law and conditions of the use of land and other man-made and natural resources should be strictly followed at the local level. Their task is to

- adapt the principles of sustainable territorial and economic development to local conditions,
- indicate areas for housing and zones for other direct investment,
- propose general options for technical infrastructure systems (sewage treatment, location of main roads etc.),
- identify the most important preservation areas due to their natural, economic (agricultural) and cultural value,
- establish local planning policy (system of plans and monitoring),
- determine the areas for organized development or revitalization, and sites intended for implementation of public objectives (programmes).

*Local Physical Development Plans* are prepared for some parts of a municipal or rural commune only, and only when the Local Council decides this is necessary. Only this plan is a legal basis for detailed land-use management of a given territory and has legally binding character for all the actors. When adopted in the form of a local bylaw, it determines allocation of land between different functions and provides also a legal basis for land reclamation for important public tasks. The common tasks proposed by a higher tier of government can be introduced into the plan as a rule only by means of negotiations.

As we stressed before, the main tool for properly managing the land in order to achieve soil quality are the administrative procedure defined in the *"Agricultural and Afforested Land Protection Act"*. But the role of spatial planning in the decision making process, aimed at getting access to a protected plot of land is substantial as defined by the Act. Final permission can be obtained only after the designation of a proposed new land-use has been justified in the local physical development plan and once planning procedures have been formally followed. ■

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# The Situation of Sustainable Land Use and Soil Protection in the Czech Republic

**Agriculture together with forestry and water management are the most important factors affecting soil in the Czech Republic. Agriculture takes up 54.2% of the total surface area of the Czech Republic (4,277,000 ha). The share of arable soil is extremely high (71.9%) whereas for permanent agriculture grasslands it is low (28.1%). The agriculture landscape was changed dramatically during the former regime from the 1950s onwards: extremely large arable plots without natural barriers (bosquets, ridges, farm roads, wetlands, small ponds, etc.) were established at that time as a consequence of an industrialization of agriculture. The soil was and still is to a large degree exposed to water (42%) and wind (7.5 %) erosion and humus loss. Frequent use of pesticides and high doses of fertilisers led to serious biological soil degradation in the past. As a soil biologist I will focus here on the problematic of biota in the arable soils of the Czech Republic.**

*by Prof. Dr. Josef Rusek, Institute of Soil Biology, Academy of Sciences of the Czech Republic, České Budějovice (CZ)*

Agriculture generally has a negative impact on soil organisms. Comparing arable soils with the forest and grassland ones, the absence of some ecological groups of soil biota, xylobionts, etc., is conspicuous. Lower density and species diversity are other striking features of arable soil. There is a direct relation between soil fertility and the presence of soil organisms. Soil without life is no longer soil. It is a dead substrate, which does not meet any of the important functions of soil in ecosystems (Rusek 1987). This postulate is not quite as obvious as it would seem. There are many famous soil scientists in the world who consider the role of biota to be a marginal factor for soil development and soil function.

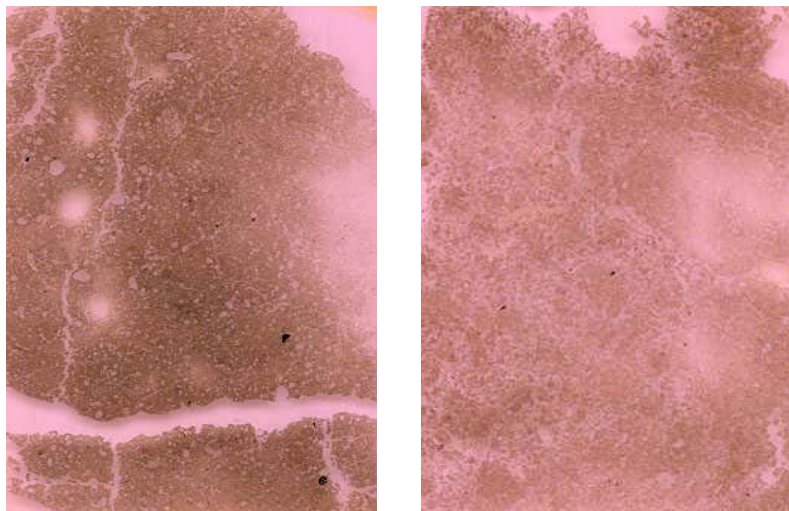
Human's activities have directly or indirectly affected most ecosystems on earth, including soils and their biotic components. The influence has not always been negative. For instance, in meadow soils man has influenced some components of soil organisms in a favourable way, but others have been suppressed completely. Soil organisms are negatively influenced in arable fields by mechanical soil cultivation, pesticides, inappropriate use of high doses of fertilizers, lower humus content, soil compaction by heavy machinery, soil acidification, etc.

The quantity of insecticides used in agriculture is substantially lower than that of herbicides. In the former Czechoslovakia, for instance, herbicides were used on more than 60% of the total acreage of arable land every year. Herbicides have a drastic negative impact on soil organisms and chemical processes in soil. Changes in the composition and dynamics of soil organism communities provoke a number of negative reactions in dynamics of chemical processes in soil, leading to changes in humus quality and quantity, leaching of P, N, and other nutrients from soil. A podsolization process starts when herbicides are applied for more than four years. Apparently harmless herbicides, as they are generally proclaimed to be, have powerful negative effects on non-target soil organisms and on the soil itself.

Intensive industrial farming along with all the negative tools and agrochemicals mentioned above was applied in the former Czechoslovakia in the second half of the 1950s. Nonetheless in the first half of the 1960s very high densities and species richness of soil mesofauna communities were recorded e.g. in the chernozem arable soils in South Moravia or South Slovakia. Collembolan community densities reaching 40,600 to 139,600 individuals per m<sup>2</sup> consisted of 28 to 34 species. The total micro-arthropod densities reached no fewer than almost one million individuals. Even such specialised and fragile species from groups such as Protura, Pauropoda, Symphyla or Diplura were living in the arable soils (Rusek 2000). Three years later, in 1967, a complete collapse of these rich soil animal communities was recorded on the same plots. The density decreased, from the former 40,600 - 62,200 individuals per m<sup>2</sup> to 800 - 4,200 individuals per m<sup>2</sup>, and only 4 - 5 species remained from the former species rich community. These low community parameters, accompanied by low soil bacterial densities and the extinction of anecic (deep dwelling) earthworms and other groups of soil macro- and mega-fauna, still persist there today.

Recent investigations in northern Austria adjacent to our arable plots in southern Moravia have indicated better soil biological parameters there. The different, industrial type of agriculture led to a high extinction rate of soil biota in our country and to almost dead soils. Such soils will occur in most of the former East European countries with state industrial type of agriculture!

The extinction of functionally important soil biota led for example, to soil compaction because of the lack of anecic earthworms restoring the soil microstructure each year. Their deep burrows contribute to soil aeration, to rain water and root penetration into deeper soil horizons. Organic-mineral complexes and mull humus form are not produced in the absence of these earthworms, so the soil microstructure gradually collapses and a dense compacted soil is formed. Soil micro-arthropods do not activate the



Photos: Compacted soil microstructure (left) with mechanical vertical and horizontal cracks in the upper 0-5 cm of arable soils in S. Moravia, and not compacted microstructure of arable soils in N. Austria (right).

soil micro-flora and the decomposition of dead organic material is severely retarded or even stopped. Many soil-borne plant diseases are not eliminated in the absence of specific soil micro-arthropods and they are widespread in such fields, e.g. potato scab (*Streptomyces scabiae*). Investigations done in the decades since have shown that the collembolan densities in arable soils of different parts of the Czech Republic were reaching 800 - 36,400 individuals per m<sup>2</sup>, and comprised 3 - 21 species. Arable soils were grouped into three categories according the collembolan density (D) and species number (S):

1. undisturbed (D > 20,000 ind.m<sup>2</sup>, S > 20 spp.),
2. moderately damaged (D > 10,000 ind.m<sup>2</sup>, S > 10 spp.), and
3. heavily damaged (D < 10,000 ind.m<sup>2</sup>, S < 10 spp.).

We do not know how large the acreage of the heavily and slightly damaged arable soils is in our country, but it will be very important to analyze this and to use the biological parameters as important soil characteristics. We have information on how fast the recovery of small damaged abandoned field plots is during secondary succession, but we do not know how fast the recovery of soil biota communities in huge areas of arable fields established during the industrial type of agriculture in the 1950s and 1960s will be. Some factors contributing to the reduction and extinction of soil biota in arable fields have decreased in the last 10 years, e.g. use of mineral fertilizer from 223 kg/ha in 1989 to 92.2 kg/ha in 2001 and the use of pesticides to 0.98 kg active substance per hectare in 2001. There is an attempt to improve the biological potential in arable soils in our country and a wider landscape oriented project proposal has now been prepared including all the above mentioned soil biological issues. To protect the arable soils a sustainable agriculture supporting development of soil biota should be established. ■

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#### Situace trvalého vyžívání krajiny a ochrany půdy v České republice

V České republice je v zemědělství využíváno 54,2% (4 277 tis. ha) z celkové plochy území. Podíl orné půdy je velmi vysoký (71,9%), podíl trvalých travních ploch je nízký (28,1%). Zemědělská krajina byla silně pozměněná v bývalém režimu. Vznikly tehdy extrémně velké pozemky orné půdy industriálního zemědělství bez přírodních bariér (remízky, mezí, polních cest, bažin, malých rybníčků, aj.). Půda byla a je stále vystavena vodní (42%) a větrné (7,5%) erozi a ztrátám humusu. Pravidelné používání pesticidů a vysokých dávek minerálních hnojiv vedlo v minulosti k silné biologické degradaci půdy. Jako půdní biolog se zde zaměřím na problematiku edafonu v orných půdách České republiky.

Zemědělství obecně má negativní dopad na půdní organizmy. Nízká hustota a druhová diverzita společenstev půdních organismů je nápadným znakem orných půd. Existuje přímá závislost mezi úrodností a bohatostí edafonu. Půda bez života není více půdou, je to mrtvý substrát, který postrádá všechny funkce půdy v ekosystému.

Lidské aktivity ovlivnily přímo nebo nepřímo většinu ekosystémů na zemi, včetně půd a jejich biologické složky. Půdní organizmy jsou negativně ovlivněny mechanickou půdní kultivací, pesticidy, neuváženým používáním vysokých dávek umělých hnojiv, úbytkem humusu, zhuňováním a okyselováním půdy či jinými faktory. V bývalém Československu se během kolektivního hospodářství např.

ošetřovalo ročně více než 60% orných ploch herbicidy. Herbicidy mají drastický negativní dopad na půdní organizmy a procesy v půdě, které vedou např. ke změnám kvality a kvantity humusu, vyplavování P, N a jiných živin z půdy, a při jejich dlouhodobém používání dochází k podzolicaci a ke zhroutení půdní mikrostruktury. Intenzivní zemědělská velkovýroba měla katastrofální negativní dopad na biologickou složku v půdě a v druhé polovině 60tých let téměř vyhubila kdysi bohatá společenstva půdních organismů. Na základě početnosti jedinců a druhové bohatosti chvostoskoků lze rozlišit tři stupně poškození biologického potenciálu orných půd: 1. nepoškozené, 2. středně a 3. silně poškozené. Pločný rozsah poškození neznáme, ale biologické charakteristiky orných půd by měly patřit k jejich základním charakteristikám. Navrhovaný projekt by měl přispět k odstranění těchto mezer v poznání a k následnému trvale udržitelnému managementu orných půd.

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# Land Use Planning in the Czech System of Law

Land use planning has a long tradition in Czech law, being rooted in the period of the Austro-Hungarian legal regulations of the late 19th century. During the course of the 20th century, land use planning in the Czech Republic experienced many dramatic stages. This period of administration was most significantly affected by the totalitarian phase lasting more than fifty years, during which two extensive legal regulations concerning land use planning and the Building Code were drawn up (1958 and 1976). In 1992, land use planning underwent the first major revision; in 1998 the second. At the present time, a brand new legal regulation is in the final stages of legislative preparation. A fundamental change implemented in the 1990s was the return to the system of independent territorial self-government (first municipal, subsequently regional), overcoming the centralistic state administration model.

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by JUDr. PhDr. Jiri Plos, Czech Chamber of Architects, Prague (CZ)

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## Implementation of planning activities

Land use planning gradually regained the role of a genuinely functional integrated tool of land formation as synergistic both town and landscape planning. This was supported in the legal order of the Czech Republic through the immediate anchoring of several fundamental pillars of the system, e.g. included re-establishing appropriate ownership relations, the right to a favourable natural and landscape environment and the right to preservation of the cultural heritage. Although the backbone of the planning system is traditionally formed by the *Building Act*, primarily its first part is devoted to land use planning and planning procedure. But the effectiveness of planning activities and management implementation is also greatly affected by a number of fractional legal regulations. One of the crucial objectives of the new legal regulation should be the removal of the factual and legal heterogeneity and incongruity.

Any legal regulation makes sense only in relation to human activities, to human impacts on nature during landscape formation and to formation of the technological world previously created by humans. If fundamental rights according to *Article 7 of the Constitution* and *Articles 6, 31, 34 and 35 of the Charter*, e.g. the right to a favourable environment, are to be protected at a sufficiently effective level, land-use planning must primarily be a dialogue, a debate held between all subjects inhabiting or, possibly, managing certain administrative municipal territories.

## Conception of land-use planning

The existing conception of land use planning stems from the thesis that the basic aim of this debate is to reach agreement on management of the territory inhabited and to set terms for qualified decision making about land development and management. According to this conception, land use planning must above all:

- create an *open information system* providing to all who may show interest the greatest amount of information available on the territory and its status and development,

- and allowing for the formation of a factual *framework for the creation of municipal programmes and policies*;
- provide conditions for effective and purposeful enforcement of *personal responsibility* – namely, at the level most suitable for personal, group and institutional decision making – the subsidiarity principle;
- co-create municipal law through the formation of a *legal framework for enlightened land management through administrative decision making*;
- provide preconditions for *flexible implementation of land use plans, to be monitored by feedback* and, in this regard, create effective pressure on implementation through a system of control and feedback mechanisms.

The above comments confirm that a necessary presupposition for reaching this consensus on land management and formation is a functional democratic society and the genuinely active co-participation of civic society.

## Fundamental functions of land use plans

Land use plans at all administrative levels (regions, municipalities and parts of municipalities) are multilayer documents containing a whole range of information and communications of different legal natures and differing sense and consequence for the communities administered by them. As a formalised expression of community agreement on the management of an inhabited territory, a land use plan fulfils these fundamental functions:

- Above all, it is the expression of civic political will regarding the direction of development of the territory as managed by the community and expressed by the decision of the board of representatives after having been discussed with the civic public, the entrepreneurial public and the state administration bodies and/or bodies of neighbouring self-governments concerned.
- At the same time, however, in legal terms a land use plan is a more or less binding document which, through a generally binding regulation, sets the terms for land arrangement (including zoning) and land use.

### **Legal regulation and planning procedure**

The fundamental legal regulation defining land use planning procedures is *Act No. 50/1976 Coll.*, on land use planning and the *Building Code (the Building Act)*, which has been repeatedly amended. It is a basic and key component, indeed the backbone, of public law and is of extraordinary importance for land formation, mainly in the process of acquisition (drawing up, discussion), approval, announcement and subsequent implementation of the respective documentation when directing the development of administrative units (municipalities, regions, the state and including links to European level).

Besides the Building Act, the corpus of building law regulations also includes several regulations for its implementation and a whole series of other legal rules of differing legal force forming a natural core of a wider legal environment of branch regulations. The *land use plan of a municipality and region* comprises the basic legal and political document according to which the territory of the respective municipality and region is managed, including the assessment of the territory's other cultural and civilisation values.

An integral part of land use planning activities is *planning procedure*, which completes the entire land use planning process and, through feedback, affects changes and amendments to land use plans. The most frequent is planning permission for construction locations and land use, in which the interests of nature and landscape preservation are protected during the course of the planning procedure from the position of the state administration bodies.

The basic set of legal regulations directly pertaining to natural and landscape wealth conservation, namely, in connection with land use planning and sustainable development, includes the following legal regulations in particular regarding:

- the environment and their impact assessment of constructions;
- the nature and landscape protection;
- the waters and water management;
- the forests and forest management;
- the protection of agricultural land resources;
- the mineral resources and geological works and mining activities;
- the land and land development and land ownership rights.

Many other legal regulations are important for nature and landscape conservation e.g. regarding the land registry and its management, geodesy and cartography, information and information systems.

The public administration system has been greatly transformed. It is properly structured and includes both state administration at central, regional and local level and local self-government of newly originated or renewed regions, on municipalities and, mainly, the Capital City of Prague. The system is characterised by dual execution of administration in regions and some municipalities, since a number of Acts entrust them with execution of so called delegated operation of state administration. Unfortunately, this duality of the administrative system results in a certain diffusion and non-transparency of personal responsibility and complicates effective control of administrative actions. A special position is occupied by citizens' associations and societies that have open access to discussions on land use plans and to planning and/or building procedures. ■

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### **Krátká úvaha o směřování územního plánování**

Územní plánování je tradiční součástí českého právního řádu. Územnímu plánování byla postupně navracena role skutečně funkčního celostního nástroje utváření území jakožto synergického plánování úrbánního i krajinného, šetrného k přírodnímu a krajinnému i ke kulturnímu bohatství a různorodosti a podporujícímu trvale udržitelný vývoj.

Stávající pojetí územního plánování vychází z teze, že jeho základním posláním je dosáhnout shody o správě obývaného území a stanovení podmínek pro kvalifikované rozhodování o vývoji a správě území, o způsobech jeho utváření - tedy jeho uspořádání a využívání, a to vytvářením otevřeného informačního systému věcného rámce pro tvorbu programů a politik obce a kraje, vytvářením podmínek pro účinné a účelné uplatňování osobní odpovědnosti, spoluvytvářením komunálního práva tvorbou právního rámce pro poučenou správu území správním rozhodováním a vytvářením podmínek pro pružné a zpětnou vazbou kontrolované a kontrolovatelné uplatňování územního plánu.

Základní právní normou upravující procedury územního plánování je zákon č. 50/1976 Sb., o územním plánování a stavebním řádu (stavební zákon), který byl opakovaně novelizován, a soubor právních předpisů, jimiž se tento zákon provádí, zejména vyhlášky k územnímu plánování. Stavební zákon je páteří veřejného práva a má zcela mimořádný význam pro utváření území, zejména v procesu pořizování (zhotovování, projednávání), schvalování, vyhlášení a následného uplatňování (implementace) příslušné dokumentace při usměřování vývoje správních celků (obcí, regionů, státu - a to i v souvislostech překračujících státní hranice). Rozhodnutí ve správních řízeních konaných podle stavebního zákona a v souvislosti s ním představují až šedesát procent veškerých správních rozhodnutí vydávaných orgány veřejné správy v České republice. Širší právní zázemí tvoří stavebnímu zákonu především právní předpisy o přírodě a krajině, vodách, ovzduší, zemědělském půdním fondu, lesích, nerostném bohatství, ale také o kulturním bohatství a památkové péči a předpisy o infrastruktuře dopravní a technické.

Velké proměny doznal systém veřejné správy, který je výrazně strukturován a zahrnuje jednak správu státní (na ústřední, krajské a místní úrovni), jednak územní samosprávu nově vzniklých (resp. obnovených) krajů, obcí a zvláště pak hlavního města Prahy.

Součástí systému veřejné správy je též samospráva personální - profesní, z níž se územního plánování dotýká zejména činnost autorizovaných územních plánovačů/urbanistů a architektů sdružených v České komoře architektů.

# The Situation of Sustainable Land Use and Soil Protection in the Slovak Republic

The new development in Slovakia has had a positive effect on land use sustainability and soil protection problems. This is due to an extension of smaller scale land use, new afforestation, mainly of steep slopes, and higher diversity of soil use by new small family farms. There has also been a reduction in soil pollution and soil acidification. On the other hand there has been a reduction in soil organic matter due to lower animal density. Also, mineral fertilizers are used to a much lesser extent and soil compaction is still a serious problem.

by Prof. Dr. Pavol Bielek, DrSc., Soil Science and Conservation Research Institute, Bratislava (SK)

## Sustainable land use in Slovakia

Land use sustainability in Slovakia is of course critically dependent on land management practices, which are developing now under new political and economic rules. From large scale soil, forest and water use before 1989 we are now on the way to more detailed ideas, policies and decisions. It is evident now that large scale use of natural resources (mainly soil) happened in the past as a generally accepted philosophy not only at the higher level of decision making but in the minds of the common people as well. Therefore large scale soil, forest and water management in Slovakia still predominates. It would be a very positive development if there were a more differentiated, small-scale land use system to complement the thinking in bigger areas and in some cases to substitute it.

We can trace the developments by looking at actual numbers. From 1989 about 21.7 % of what was originally state and cooperative arable soil have been transformed into more or less small family farms. The rest is still used by cooperatives (about 64 %) and by other enterprises with between 1,000 to 2,000 ha on average per one unit. Although field size has decreased, large fields (mostly 10 – 20 ha) still dominate. At the end of 2001 we had about 331,000 small family soil users in Slovakia with 0.54 ha each on average. As far as forest soil is concerned about 80 % is used by big corporations (including the state) and only about 5.5 % is used by individual users. About 40 % of Slovakia's surface area is forested and this territory is increasing.

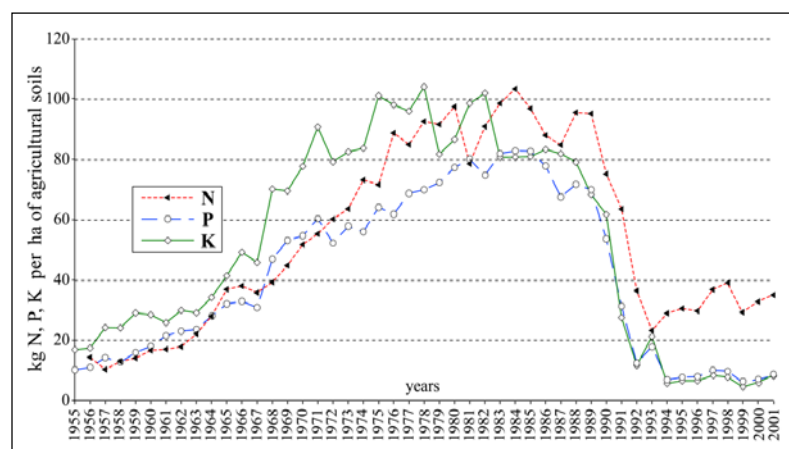
All these developments are favourable from the point of view of land sustainability and soil protection, as they help to combat soil erosion processes.



Aerial photograph Eurosense, Bratislava

In Slovakia about 50% of farming land suffers from water erosion. This is due to the mountainous character of our territory and also because of arable land being located on slopes. In the past there was considerable pressure on farmers to cultivate mainly corn plants on steep slopes as well. Now with the help of the *Soil Information System* we have identified about 30,000 ha which have to be transformed from arable land to another form of use. Now small family farms are helping in this process. We have also identified about 60,000 ha of agricultural soils as potentially afforested areas. This program of afforestation is now being implemented step by step.

Due to the new economic situation in agriculture since the political changes that occurred in 1989 there has been a very significant decrease of mineral fertilizers use. From 239 kg NPK applied per ha on average (1990) we are now (2001) using only about 46.5 kg NPK per ha. As a result we have identified a lower nutrient content in our soils. It also had a positive impact on the level of water pollution. Lower levels of nitrates should be mentioned first of all. The reduction in use of organic fertilizers has also been very significant. This is due to a decrease in animal density per 100 ha of farming land from 85 (1989) to 34 animal units (2001). Some decreases in soil organic matter have been identified by the soil monitoring system that has been carried out in Slovakia since 1992.



**Figure P. Bielek:**  
**NPK mineral fertilizers consumption development in Slovakia**

We have only about 30,000 ha of polluted soils, mainly due to heavy metals. On account of positive developments in industry a new type of soil pollution has now been identified. Existing polluted areas are under control. These are not used for food production. Also acidification is having a significantly smaller impact on the soils. Naturally acidic soils need to be limed but the resources to do this are currently lacking due to the poor economic situation in our agriculture. Soil compaction is a serious problem in Slovakia. This is due to the use of heavy machines (large scale soil use) and because of insufficient use of organic fertilizers. Tilling technologies are still not used sufficiently.

Legislation on soil protection was developed significantly during the past ten years. A new *Soil Protection Act* was adopted in 1992 and several other regulations are now in operation. The *Soil Protection Policy* adopted by the government (2000) is creating a new framework for new campaigns. This year, the Act on sludge application to soil was accepted. New soil pollution limits and soil erosion norms have also been adopted. The main aim of this process is to enact legislation adapted to that of the European Union. ■

### Soil use structure in Slovakia



<b>Farming land</b>	<b>2,439 th.ha</b>
from that arable land	1,450 th.ha
<b>Forest land</b>	<b>2,001 th.ha</b>

### Udržateľný vývoj vo využívaní pôd a ochrana pôdy v Slovenskej republike

Veľkovýroba je dominujúcou formou využívania poľnohospodárskej, ale aj lesnej pôdy v SR. Z celkovej výmery 1450 tis. ha ornej pôdy sa asi 64 % využíva veľkovýrobným družstevným sektorom a 21,7 % rodinnými farmami. Znižovanie výmer pôdy vo veľkovýrobe a rozširovanie plôch využívaných rodinnými farmami diverzifikujú štruktúru užívania pôdy a stabilizujúco (udržateľne) pôsobia pri ochrane pôdy a krajiny. Postupné zalesňovanie potenciálne až 60 tis. ha menej kvalitných poľnohospodárskych pôd a znižovanie výmery orných pôd na svahoch (potenciálne o 30 tis. ha) sú tiež citelnými opatreniami najmä proti erózii pôdy. Radikálne sa znížil emisný impakt znečistenia pôdy a aj acidifikačné vplyvy na pôdu sa minimalizovali. Negatívny vývoj sa zaznamenáva v bilanciách organickej hmoty pôdy a to v dôsledku poklesu stavov hospodárskych zvierat a radikálneho zníženia výroby priemyselných kompostov. Výrazne sa znížila aj spotreba priemyselných hnojív, čo sa mierne začína prejavovať znižovaním obsahov živín v pôde. Naďalej pretrvávajú problémy so zhutnutím pôdy.

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# The Situation of Spatial Planning and Land Use Management in the Slovak Republic

Harmonizing the different interests of functional systems or land use represents a significant problem of spatial planning in the Slovak Republic. Developments over the last few decades indicate that the proportion of agricultural land use is still decreasing on account of shifts towards forestry and use for socio-economic development. The ongoing increase in forest areas can be seen as a positive development. The development of land use and its management always reflects the societal value of land and is always economically oriented. Different groups of indicators are being devised to monitor developments in land use and the adoption of efficient measures (legal and practical).

by Dr. Radoslav Bujnovsky, Soil Science and Conservation Research Institute, Bratislava (SK)

Spatial planning is carried out through the programme for territorial development in the Slovak Republic that is continually updated and elaborated. Conflicting interests between functional systems are considered to be a significant problem with regard to the implementation of sustainable development principles (Berková et al., 1999).

## Trends of land use development

The proportion of individual types of land use, trends regarding future development, the societal value (priorities) applied to individual land use options and the consequences of specific land use are all relevant issues for land use evaluation. As is clear from many sources (e.g. de Sherbinin, 2000), land structure development is the result of long-term anthropic influence. The following table provides a comparison of structures of land use development over the last few decades in the Slovak Republic:

		1970	1980	1990	2000
Agriculture land	%	53.3	50.5	49.9	49.8
Forest land	%	37.9	40.0	40.6	40.8
Water surface	%	1.8	1.8	1.9	1.9
Urban area	%	2.0	2.3	2.6	4.5
Other area	%	5.0	5.4	5.0	3.0
Total	%	100.0	100.0	100.0	100.0

*Development of land use in the Slovak Republic*

The proportion of agricultural land has gradually decreased both in relative and absolute terms on account of shifts into socio-economic (urban and industrial areas, infrastructure building) and forestry sectors. In comparison to world-wide trends, the problem of deforestation is not currently relevant in the Slovak Republic. The socio-economic interests of society

primarily give rise to urban and industrial developments. As a consequence of prior developments, the population is still more concentrated in the cities than in many countries. Although the area covered by urban development is much smaller than agricultural or forested areas, its environmental impact on biodiversity, hydrological cycle, soil quality, waste production is significant.



*Photo: E. Fulajtar:  
Natural agricultural landscape of Slovakia*

## The value of the landscape

According to Bergstrom (1998, cited in OECD 2001) the land/landscape potentially has several different values: cultural, historical, recreational, scenic and aesthetic values; spirit value, existential value, biodiversity and ecosystem value, security and stability value, agricultural production and consumption value and job satisfaction value. The societal value of land is normally still dominated by its economic value. In the area of soil quality evaluation there are permanent attempts to shift the society's attention to the regulative functions of soil which maintain the stability of the ecosystem (e.g. Bujnovsky, 2001).

The utilisation of soil for socio-economic functions such as space for development of industry, infrastructure and settlements and waste dumps, as well as the use of soil as a source of raw materials, is in a competitive relationship to the provision of ecological functions. Recent activities in preparation of legislative documents for soil protection in Slovakia are consistent with the soil quality programme mentioned above. There are different ways for evaluating land use management. For evaluation of land use within a set of sustainable development indicators (e.g. Mederly, 2001) the following indicators are used: *area of arable soil and permanent cultures, use of mineral fertilisers, use of pesticides, forested areas as a percentage of total land area, intensity of wood extraction, area affected by desertification, area of municipal settlements.*



Photo: E. Fulajtar:  
View of a traditional Slovakian village

From this viewpoint it is possible to conclude that:

- *the acreage of agricultural land (especially arable land) is gradually decreasing*
- *consumption of fertilisers and pesticides is much lower than in developed countries (e.g. EU-15)*
- *the acreage of forests is slowly increasing as a consequence of shifts away from agricultural land*
- *trends in wood extraction are in the order of 54 – 55% of wood mass gain*
- *area affected by desertification: The Slovak Republic is involved in international efforts to eliminate desertification and drought; desertification can be assumed to be a consequence of depletion and pollution of natural resources by human activities*
- *developments in areas of municipal settlements or built-up areas are being monitored.*

### K problému územného plánovania a manažmentu využívania krajiny v Slovenskej republike

Zosúlad'ovanie rôznych záujmov funkčných systémov resp. využitia krajiny predstavuje významný problém územného plánovania v Slovenskej republike. Vývoj štruktúry využitia krajiny potvrdzuje postupný pokles výmery poľnohospodársky využívanej pôdy a jej presun pre bytovú výstavbu, rozvoj infraštruktúry a priemyslu, ako aj presun do lesníctva, ktorý z pohľadu environmentálnej stability krajiny treba hodnotiť obzvlášť pozitívne. Vývoj v oblasti využívania krajiny vždy odzrkadľuje spoločenskú hodnotu krajiny a je stále ekonomicky orientovaný. Prirodzeným dôsledkom využívania krajiny býva často zníženie ekologickej stability daného územia. V prípade pôdy sa jedná o problém jej degradácie alebo prípadne až jej vylúčenia z plnenia ekologických funkcií. Za účelom monitorovania vývoja využívania krajiny a prípadného prijatia účinných regulačných opatrení (právnych aj praktických) sa vyvíjajú rôzne skupiny indikátorov – tak na úrovni trvalo udržateľného rozvoja, ako aj pri hodnotení dôsledkov poľnohospodárskeho využívania pôdy (OECD).

Within agricultural land use the set of agri-environmental indicators (Anonymous, 2001) is under development. The landscape part focuses attention on such indicators as landscape structure, landscape management and landscape costs and benefits. It is necessary to stress that intensive agriculture has limited space for meeting non-productive landscape functions. ■

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# Soil Protection in Hungary

Due to the peculiar geographical position of the territory of the country, the available arable lands and the quality of soils in Hungary are outstandingly good even in international comparison. It is in the society's basic interest to preserve the croplands and protect and improve their quality as required. However, land protection is mostly dependent on the profitability of agricultural production. Unfortunately, the agrarian crisis after the change of the regime devalued agricultural production, and diverted attention away from land protection.

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by Prof. Dr. Attila Buday-Sántha, University of Pécs (HU)

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## Formation of soils in Hungary

Hungary's territory is situated in the middle of the Carpathian basin, at its deepest point, and is at the meeting point of oceanic and continental, humid and arid climates. Two thirds of the country's territory is less than 200 metres above sea level, and because of the high temporary and permanent water cover it was necessary to implement water management across 70% of the country's territory in order to be able to use it for dwelling and agricultural purposes. Due to the country's peculiar position and climate, most soils are neutral or alkaline field soils with good productivity, and forest soils which have acidified in different degrees and are of varied productivity. In addition to this, the often sandy and pebbly soils which are formed by the stream deposits that come down to the plain and the meadow soils that are formed under the permanent water cover occupy a significant area, too. It is due to the borderline situation of the country in terms of geography and climate that so many soil types have evolved. They are arranged in mosaic-like fractured forms, and at the same time they comprise special, often outstandingly good productive areas (e.g. wine and fruit productive areas). In international comparison, the yielding capacity of about 40% of soils can be regarded as good, about 30% is medium, and 30% is poor. 60% of soils have been damaged either because of the conditions of formation or improper use. The most frequent types of soil damage are acidification (2.6 million ha), damage due to erosion (2.3 million ha), unfavourable mechanical composition, for example sandy soil (0.7 million ha), sodium-based soils (0.96 million ha), soils damaged by deflation (1.4 million ha), and soils that tend to become soggy (1 million ha).

With substantial state subsidies, melioration work has been going on for more than 200 years now in order to eliminate and improve factors that prevent pro-

duction (high underground water-level, sodification, loose sandy soils). These efforts have brought results mainly in water management, the treatment of sodic soils and hardening of sandy soils.



Photo A. Buday-Sántha:  
Agricultural landscape of Hungary

## Agricultural land and cropland

Hungary belongs to those European countries which have the best indicators in terms of agricultural and cropland. 83% of the country's territory is cropland, 63% is agricultural land and 49% is ploughed land compared to the EU where 45% and 23% are agricultural land and ploughed land respectively. Agricultural land accounts for 0.6 ha per head of population in Hungary and 0.4 ha in the EU. This can be attributed partly to the specific configurations of the country's terrain, and partly to delayed industrialization and urban development. Since cropland is the greatest natural resource of the country and the agricultural sector also has a critical role in the country's economy, it is of utmost importance to protect cropland. However, the level of land protection is always influenced by the economic position of agriculture and its profitability level.

Item	1990		2001		Change between 1990 and 2000	
	1.000 ha	%	1.000 ha	%	1.000 ha	%
Plough-lands	4.713	50.7	4.516	48.5	-197	-4.2
Garden	341	3.7	98	1.1	-243	-71.3
Vineyard	139	1.5	93	1.0	-46	-33.1
Orchard	95	1.0	97	1.0	+2	+2.1
Grass-plot	1.186	12.7	1.061	11.4	-125	-10.5
<b>Agricultural land</b>	<b>6.474</b>	<b>69.6</b>	<b>5.865</b>	<b>63.0</b>	<b>-609</b>	<b>-9.4</b>
Forest	1.695	18.2	1.772	19.1	+77	+4.5
Fish-pond	27	0.3	32	0.3	+5	+18.5
Reed	40	0.4	60	0.6	+20	+50.0
<b>Cropland</b>	<b>8.236</b>	<b>88.5</b>	<b>7.729</b>	<b>83.1</b>	<b>-507</b>	<b>-6.2</b>
<b>Taken out of cultivation</b>	<b>1.067</b>	<b>11.5</b>	<b>1.574</b>	<b>16.9</b>	<b>+507</b>	<b>+47.5</b>
Total	9.303	100.0	9.303	100.0	-	-

**Territory of Hungary by cultivation branches**

*Magyar Statisztikai Zsebkönyv. 1990, 2001. KSH. Budapest, 1991, 2002.*

Land protection can be assessed in terms of quantity and quality. Land use for development in housing, industry and infrastructure can be considered as quantitative losses. The increase in their size is a consequence of social and economic development. It is extremely important to use only low-fertility land for other uses like housing and transport. The quantity of land use for these purposes should be restricted. Such a restriction is important with a view to the economy as well as environmental protection. The *land protection contribution* was introduced in order to prevent croplands being taken out of cultivation. It is to be paid when land is taken out of agricultural production; the amount is depending on the quality of land in a progressively increasing. However, this cannot effectively restrain the process of taking out land when land prices are favourable and agriculture is in a crisis.

Considerable expenditure is needed to protect land at a high quality level, to preserve the productive capacity of soils, to improve the disadvantageous composition and pH of soils and to implement melioration work. Producers may only do so if they have received a return on their investment and efforts. The economic recession after the change of the regime devalued agricultural production and croplands at the same time. The unfavourable cost-price relation not only makes it impossible to implement soil-improvement work with long-term return but also provides insufficient funds to purchase fertilizers and plant-protecting agents which influence yields directly.

After the privatization of large plants, small farms of only a few hectares were formed, and their owners do not possess the means necessary for production, market connections or ex-

pertise to create conditions for profitable production. They adapt to the unfavourable economic situation by increasingly leaving uncultivated those areas of land that cannot be cultivated profitably. On the cultivated lands, moreover, they only carry out essential agrotechnological operations. They cannot afford to protect soils efficiently against erosion or acidification, and with small plots it is not possible to do so either, even if the state gave substantial subsidies. In any case, the unfavourable economic terms of trade for farmers reduce the rate of soils productivity that could be improved profitably. A change in a favourable direction in land protection can only be expected if ownership issues are settled and conditions for profitable agrarian production are created. Depending on the economic circumstances, it may be necessary to change the conditions of use in certain areas.

The 750,000 ha afforestation program set for 2050 can be of significance in fighting erosion and the damage caused by deflation. It would mainly cover steep mountain and hill slopes as well as extremely loose sandy areas. In addition to this, significant areas mainly sodic and sandy areas can be expected to be used as grassplots for extensive grazing, while better quality areas were used as ploughing land and horticulture land. ■

Magyarország területének sajátos földrajzi adottságaiból adódóan az ország termőföld ellátottsága és talajainak minősége nemzetközi viszonylatban is kiemelkedően jó. A termőterületek megőrzése, minőségének megóvása, szükség szerinti javítása a társadalom alapvető érdeke. A talajvédelem azonban nagyrészt a mezőgazdasági termelés jövedelmezőségének a függvénye. Sajnos a rendszerváltást követő agrárválság leértékelte a mezőgazdasági termelést, és elterelte a figyelmet a talajvédelemtől.

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# Spatial and environmental planning in Hungary

The specific characteristics of spatial and environmental planning in Hungary are determined by geographical location, natural geographical conditions and the country's historical development. Three of these characteristics deserve mention here. Many laws and regulations on spatial and environmental planning will have to be adapted to the new conditions by the accession of Hungary to the EU in line with European standards.

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*by Dr. Iván Illés, Scientific Council, Centre for Regional Research of the Hungarian Academy of Sciences, Pécs (HU)*

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## **Urban concentration in the city of Budapest**

The first point to emphasize in particular is the extraordinarily large concentration of urban population in the capital city of Budapest and the surrounding built-up areas. 2.5 million people live in this conurbation, about a quarter of the country's total population. The origins of this concentration can be traced back to the time of the Austro-Hungarian monarchy. At that time, the governments of the Hungarian part of the dual monarchy wanted to develop Budapest into a monarchical capital city equal in status to Vienna. Almost all available state funds were therefore used principally for this purpose. This process of development was driven on by institutionalized inertia even after the collapse of the monarchy and up until the 1950s. After this the communist government pursued quite a different policy in order to put a stop to the continuing concentration of economic resources and people in Budapest. Administrative measures were put in place that made it very difficult to move to Budapest. The outcome of this policy was that a densely populated belt of heavily built-up housing settlements grew up outside the city boundaries which lacked local authority support. Over the last decade the population of Budapest has fallen markedly from 2 to 1.83 million. The reason for this decline in population is due to demographic changes on the one hand (low birth rate and high death rate) and a massive migratory movement into the surrounding areas on the other. The result is a dramatic shrinkage of green areas in the areas surrounding Budapest.



*Photo 1. Illés: Site of the Capital City of Budapest*

## **Difference of demographic structures and settlements**

Second: Equally striking is the difference between the southeastern and northwestern halves of the country in terms of rural settlement. Whereas in the southeast the average population of the villages is more than 3,000, in the north and west it is less than 500. These two very different settlement structures demand a differentiated approach to the problems of rural development. The reasons for this difference are, again, of both a geographical as well as a historical nature. The southeastern half is a large lowland plain. In the northwest the countryside is divided into hills and (not very high) mountains. The southeastern part of the country was conquered and ravaged by the Turks so that the people who lived there could only find safety in larger settlements. After the land had been reconquered the settlements that were built were usually also fairly large. In the 19th century the area of agricultural arable land in this part of the country was doubled in size by river management, without any new villages being established. Instead of new villages the farmers there established isolated farms and lived and worked there without any local authority provision of services or utilities. By 1950 about 35 to 40 % of the population of the lowland plain lived on these isolated farms. With collectivisation, the farmers' property and land was taken away from them. This meant that the farms lost the basis of their livelihood. As a result the people moved to villages and towns. The majority of the farms were demolished. The rest were no longer occupied. Any farms that remained have been used again recently as private farms or retreats.

## **Disparity in regional development and economy**

The third characteristic is the large and growing disparity in development and welfare between the western and eastern part of the country. This difference has increased dramatically over the last few years. The reason for this is that up to 85 % of new – mainly foreign – investment has been introduced in the region of the capital and in the western part of the country, whereas in the east the economy has continued to stagnate or even decline. The growing economic differences and income disparities bring with them the threat of serious domestic political tensions.

### **Law and measures on spatial planning**

The 1990 *Law on Local Administrative Bodies* and the 1996 *Law on Spatial and Environmental Planning* form the legal foundation for planning activities in Hungary. Local administrative bodies have a great deal of autonomy here – sometimes too much. All town and regional planning measures have to be passed by the relevant local administrative bodies. It is recommended that each local authority work together voluntarily with its neighbouring communities, but this does not in any way limit their authority to organize their district as they see fit. The "*higher interests of the state and administrative region*" cannot be imposed on local authorities.

This structure sometimes causes difficulties and conflicts. For example, it has still (for the last twenty years) not been possible to find a local community willing to accept the used heating elements from the one Hungarian nuclear power station, even though numerous local communities possess favourable geological conditions for them. The heating elements are still stored in the grounds of the power station, but of course this cannot be seen as a final solution that offers any reassurance. Another example is the construction of the circular motorway route around Budapest. The idea was that it should be built on land belonging to several communities that surround the capital. However, some of them do not want to give their approval to this building work. The reasons they cite for their attitude are generally to do with the environment. However, the real reason is most likely that they want to receive greater compensation. So far no way has been found of circumventing these long-winded and exhausting negotiations.

Budapest is in a quite unique situation. The capital city has 23 districts. Each district is its own administrative body and has a large degree of autonomy. The various tasks and competencies are shared between the administration of the capital and the district administrations. Plans for the capital as a whole are passed by the city's assembly. Approval for specific building plans, however, has to be gained from the districts. On the main traffic routes the road belongs to the capital while the pavement belongs to the districts, so that any modernization of a main road near district boundaries requires coordination between three different administrations. Apart from the normal processes of coordination, then, conflict is built into this planning system from the very start.

### **Effect of re-privatization of land**

The re-privatization of land and property entails further difficulties for environmental planning and soil protection. Since re-privatization a large proportion of the land has belonged to owners who are the descendants of former farmers, but who in general have long since stopped living on the land. They are not in a position to cultivate the land. The former large collective farms, however, are not permitted to buy the land. As a consequence land is either leased or in quite a few cases is not cultivated at all.

### **Területfejlesztés és területrendezés Magyarországon**

A magyar területfejlesztés sajátosságai az ország földrajzi helyzetéből és történelmi fejlődéséből fakadnak. A legfontosabb meghatározó sajátosságok a városi lakosság és a gazdaság nagyfokú budapesti koncentrációja, a vidéki településhálózat nagyfokú differenciáltsága, különösen az alföldi nagy települések és az aprófalvas vidékek között, valamint a területi fejlettségi különbségek jelentős volta és gyors növekedése az utóbbi években.

A területrendezés jogi alapjait az önkormányzati törvény (1990), valamint a területfejlesztésről és területrendezésről szóló törvény (1996) szabta meg. A települések nagyfokú autonómiával rendelkeznek saját településük tervezésében, fejlesztésben. Sajnos néha hiányoznak a szükséges településközi koordináció elemei. Hiányoznak azok a mechanizmusok, intézmények, amelyekben keresztül a közös érdek érvényesíthető lenne. A közös, koordinált fejlesztés különösen sok akadályba ütközik a fővárosban, annak egyes kerületeiben, valamint a főváros és az agglomerációs települések viszonylatában. De gondokat okoz néha a privatizáció által okozott átláthatatlan helyzet, a telekkönyvezés elmaradása a városi ingatlangazdálkodásban, valamint a természeti értékek védelme területén is.

Sometimes, fields that had been declared a protected area have also been re-privatized. In some cases it is fairly difficult to get the new owners to cultivate these fields in accordance with the regulations on environmental protection. Thus the state or the local authorities are forced to buy back the land. In the towns, development is complicated by the fact that the ownership situation of re-privatized land and properties is often unclear. There is a back log of property entries going back several years.

### **Outlook to the EU accession**

The difficulties mentioned above are the result of a tumultuous period of transformation and transition in Hungary. After a comprehensive state command economy people wanted to get away from this system completely and organize the administration and economy with as much liberalism as possible. After 13 years it is possible to see that many things have not worked out the way they were imagined. Many laws and regulations have to be changed and adapted to the new conditions. Hungary's accession to the EU will certainly help to bring environmental planning and soil protection regulations in line with European standards. ■

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# The Situation of Sustainable Land Use and Soil Protection in Slovenia

Slovenia's physiogeographical units consist of the high Alps, the Alpine Foreland, a Coastal or Sub-Mediterranean region, the Dinaric Plateau of continental Slovenia and the Sub-Pannonian region. Only 18% of Slovenia consists of lowlands, together with valleys and basins. Arable land, major urban areas, rivers, industry and traffic infrastructure are concentrated in these areas and represent the heaviest burdens on nature. We must preserve every piece of arable land, because loss of fertile soil cannot be replaced through amelioration of soils with less favourable properties. A socio-economic strategy for the preservation and improvement of agriculture and the countryside is important.

by Prof. Dr. Franc Lobnik, Centre for Soil and Environmental Sciences, University of Ljubljana (SI)

## Slovenian Soil Information System – SIS

In addition to soil mapping, many different research projects concerning soil and soil pollution have been undertaken in Slovenia. Available Slovenian soil data in digital form is gathered together in the *Soil Information System of Slovenia (SIS)*, initiated, developed and maintained at CSES. It is a source of soil data, supported with laboratory analyses and defined spatially. SIS unites the following main elements into a logical whole: (Figure) digital soil map 1:25,000 (DSM25), soil attribute databases; soil profile data (SP) and data on soil pollution monitoring (SPM). The Soil Information System in Slovenia should be incorporated to the *Spatial Data Infrastructure (SDI)*. The spatial digital soil databases offer basic soil information essential for determining the soil production potentials for different land uses, environmental impact assessments, degradation hazard predictions, and the preparations of protective measures. The system could utilise GIS and SIS techniques to determine which location will least affect nature.

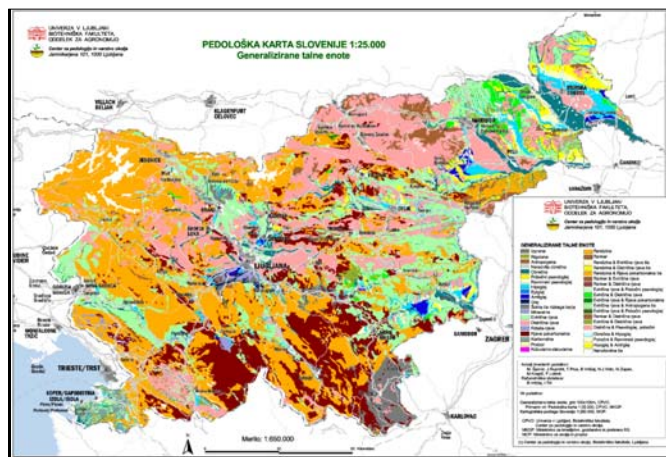


Figure: Digital soil map of Slovenia 1:25.000. Generalised according to the FAO classification

## Soil sealing, pollution and management

Built-up areas already cover a large part of the best soils in Slovenia today. Construction due to urbanization prevails in more populated regions and larger industrial areas. The infrastructure, industrial complexes, roads, recreational surfaces, refuse dumps and new urban areas will adversely affect agriculture by destroying soil (soil sealing) and in many cases polluting vegetation and soils. Therefore, new industrial, urban and traffic activities should be planned carefully. Planners should propose several possible options for new infrastructure to preserve nature. Soil attributes were used to calculate the agricultural value or so-called soil value for each soil unit. According to their agricultural value, soil units were divided into categories from unsuitable for agriculture to prime agricultural land.

Soil pollution by heavy metals, such as Cd, Pb, Cr, Cu, Zn, Hg, pesticides and other organic contaminants, nitrates and in some cases phosphorus, is a problem of concern. Contamination comes mostly from local sources: power plants, iron and steel and chemical industry, zinc smelters, use of irrigation water, sewage sludge, road traffic and agriculture.

So far there has been systematic research on soil pollution (based on UL RS 68/96) in only some areas of Slovenia. Preliminary data show that pollution to some extent might be expected in the areas near the metal processing industry and some organic pollutants on intensive agricultural areas. The values are interpreted as limit, warning and critical, as defined in the relevant legislation. The distribution of Zn in soil is similar to Cd and Pb. Boundary values in soil are exceeded in some locations in Celje area and in local surroundings of Mežica, Jesenice and Maribor.

Increased values of As, Ni and Cr occur only in specific locations and are usually an outcome of local pollution (garbage dumps). Most of detected organic pollutants in soil are present in small concentrations. Particularly in the areas of intensive agriculture (Dravsko-Ptujsko polje, Krško polje, Mursko polje, Sorško polje and surrounding of Koper and Celje), we can find increased values of some herbicides and its metabolites. PAO can occasionally occur in soils in industrial and urban areas. Nitrogen charge levels are unequally dispersed throughout the entire state. Pollution occurs mainly among the shallow soils of our largest rivers' basins (Mura, Drava, Savinja, Sava). These soils have a small water holding capacity; therefore leaching is a very distinctive feature. Agriculture is intensive in these areas (crop production, cattle and pig farms).

In 268 areas in Slovenia where agriculture is an important activity, the nitrogen balance was evaluated as a difference between mineral or organic fertilizer input and plant uptake. Data show +60 kg N/ha as an average among 268 areas investigated. We found 45% of areas that have less than 45 kg N/ha/year and 55% of over-fertilized areas with nitrogen. According to data prepared for the OECD 36 - 42 kg N/ha is the average for the whole of Slovenia. This balance classifies Slovenia between Portugal and Spain.

Due to global climate changes, the data evaluation regarding the proportion of organic material and the proportion of carbon in soil is more and more important. Results of cultivable layer of such soil, gained with soil mapping, show that over 90% of our crop fields can be 2% of organic matter.

### Soil Legislation in Slovenia

Parliament passed the *Act on the Protection of the Environment* in June 1993 (Official Journal of the Republic of Slovenia, No. 32/93). The Act contains general provisions and basic methods of protecting the environment and exploiting natural resources. On the basis of the *Environmental Protection Act*, new legislation regarding soil protection has recently been adopted in Slovenia. A *Decree on Input of Dangerous Substances and Plant Nutrients into the Soil* (Official Journal of the Republic of Slovenia, No. 68/96) was also adopted in November 1996. ■

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### Sonaravna raba prostora in varstvo tal v Sloveniji

Tako kot v večini evropskih dežel imamo tudi v Sloveniji za kmetijstvo najboljša tla v ravninah, obenem pa to povzroča tudi največ nesoglasij med kmetijstvom, varstvom okolja in urbanimi posegi v prostor. Večje število naravnih ujm, kamor štejemo tudi sušna obdobja in polpave, lahko močno zaniha krhko ravnatežje med zalogami in porabo hrane. Dobra, rodovitna tla in produktivna kmetijska zemljišča lahko štejemo med nenadomestljive naravne vire. Tla so pomemben ponor številnih škodljivih snovi, ki jih povzročajo industrija, promet, kmetijstvo ter druge človekove dejavnosti. Bolj kot zrak in voda so tla tisti del prostora, v katerem se škodljive anorganske in organske substance zadržujejo in razgrajujejo.

Večina sistematično urejenih podatkov tal v Sloveniji je shranjenih v Talnem informacijskem sistemu (TIS) v merilu 1:25.000 - PK25 (slika) in predstavlja evidenco tal kot naravnega vira in je ena temeljnih prostorskih podatkovnih zbirk in vir informacij za različne ukrepe in raziskave s področja varstva okolja, kmetijstva, analize naravnih danosti, naravnih virov, prostorskega planiranja. Do sedaj so bile izvedene sistematične raziskave onesnaženosti tal le na določenih območjih v Sloveniji. Dovoljene vrednosti cinka v tleh so presežene na območju Celja razpršeno in v nekaterih lokacijah v okolici Maribora in Jesenic lokalno. Za kovine arzen, nikelj in krom velja, da se povečane vsebnosti pojavljajo le na posameznih lokacijah in so običajno posledica točkovne onesnaženosti (divja odlagaljšča). Zaradi rudniško topilniške dejavnosti sta v Sloveniji prizadeta zgornja Mežiška dolina, ki je onesnažena s svincem, cinkom in kadmijem ter Idrija, kjer so tla v mestu in okolici onesnažena z živim srebrom. Večina detektiranih organskih nevarnih snovi je v tleh v nizkih koncentracijah, predvsem na območjih z intenzivno kmetijsko pridelavo (Dravsko-Ptujsko polje, Krško polje, okolica Kopra, okolica Celja) so povečane vsebnosti herbicidov in njihovih metabolitov. Poliaromatski ogljikovodiki (PAO) pa se občasno pojavljajo v tleh v okolici industrijskih in urbanih središč. Onesnaženje podtalnice z nitratom se pojavlja predvsem pod plitvimi tlemi na ravninah porečij naših voda (Mure, Drave, Savinje in Save). Ta tla imajo majhno kapaciteto tal za zadrževanje vode, zato je izpiranje izrazito. Kmetijstvo na teh območjih je intenzivno (predvsem hlevska živinoreja ter poljedelstvo).

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# Spatial Planning and Urban Development in the Republic of Slovenia

The reform of spatial planning and land use management in Slovenia has been addressed by the adoption of the new Spatial Planning Act, Construction of Facilities Act, Mediation in Trade in Real Estate Act, as well as the adoption of numerous implementing regulations on the basis of the EU Directive concerning construction products (no. 89/106/EEC). The priority programme tasks in the area of Spatial Planning constitute a reform of the standards and organisational aspects of spatial planning to date, especially in relation to the spatial planning documents and their contents, the introduction of market instruments and new roles in spatial planning for local communities. The new planning system is expected to enable better flexibility of spatial documents, greater public participation within the planning process, and to establish the foundations of a spatial planning information system.

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by Dr. Kaliopa Dimitrovska Andrews, Director of the Urban Planning Institute of the Republic of Slovenia, Ljubljana (SI)

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## Spatial Planning System

**State** – In the field of spatial planning and management, the state prepares laws, policies, and other instruments, that are adopted by the National Assembly or the Government of the Republic of Slovenia. They define the spatial planning system and provide strategic spatial development objectives and guidelines. In addition to the provision of a framework for spatial planning at the regional and local levels, the state also implements measures concerning spatial development activities and construction projects, which are of national significance (e.g. power station, motorway construction). The spatial planning documents at the national level are the *Spatial Development Strategy of Slovenia*, the *Spatial Order of Slovenia* and the *Detailed Plan of National Importance*. The state has the authority to monitor the law-fulness of spatial planning at lower levels and to take alternative action, if the local communities fail to perform their tasks in the area of spatial planning and management. The state also has the responsibility to conduct and implement land policy, maintain the spatial data system, develop and encourage professional work in spatial planning, and participate in matters of spatial planning and management at the international level.

**Region** – Slovenia has not yet formally established the regional administrative level. The only spatial planning instrument at the regional level is the *Regional Concept of Spatial Development*, which is being prepared jointly by the state and the municipalities according to the principle of partnership. If this planning document is prepared in sufficient detail, it may replace *Spatial Development Strategies* of all the municipalities involved. Regional Development Agencies have been established to prepare the regional programme as a basis for these projects and also to manage the implementation, especially the organisation and review of EU structural fund spending.

**Municipality – Local Administration** – Local communities (in total 193 municipalities) have the basic right to spatial management and planning of their territories, with

the exception of planning control activities (e.g. planning and building permits) which are under direct jurisdiction of the state. Local communities are obliged to perform activities in the field of spatial planning and management. Their principal task in connection with spatial management and planning is to ensure a rational, mixed, and sustainable land use, as well as an economical use of land in accordance with the principles of high quality living, working, recreation, and a healthy environment.

In decision-making procedures, they are responsible for the direct participation of all involved and interested parties. They also care for and maintain the identity of urban areas and countrysides by taking into consideration and protecting both natural and built characteristic features. Spatial planning documents at the local level are: *Municipal Spatial Development Strategy* (includes also *Concept of Urban Development* and *Concept of Landscape Development and Protection*), *Municipal Spatial Order*, *Local Detailed Plan* and *Planning Information*.

## Urban Development

Current urban changes in Slovenian cities, like many other post-socialist cities, have been associated predominately with commercialisation and gentrification of the historic core, reurbanisation and revitalisation of some inner city areas, and residential and commercial suburbanisation in the outer city (Dimitrovska Andrews, 2002).

These characteristic changes in the land use pattern, which also include a growing need for infrastructure, especially transport, and the growth and decline of particular nuclei (urban nodes), are similar to those identified in other European cities (Kivell, 1993). They have been mostly a result of the restructuring of urban activities in the post industrial city and socio-economic changes.

**Historic core** – In the historic cores, the development of offices, multipurpose commercial centers and tourist oriented facilities are the prevailing interventions. This is by way of refurbishment of existing buildings or new infill development and gentrification promoted by the private

sector and city government. Unfortunately, there are also 'negative' consequences of these revitalisation processes, such as a marked decline in residential uses, conflicts between the interest of commercial development and protection of the country's cultural heritage, traffic congestion and parking problems.

**Inner city** – The most significant urban change in the inner city areas has been the reduction of industrial and military uses and the release of these zones for commercial development, shopping centres and private housing ('brownfield' development). The development of secondary business nodes, established in strategic locations along major access roads, and scattered housing (re)development, located in a dispersed fashion in vacant zones, have also been evident in most of the larger cities in Slovenia. The problems in the restructuring of inner city areas have been associated with increasing social polarisation of large housing estates (e.g. problems of revitalisation, maintenance and management), and infill development with no respect for the characteristic identity and morphological context of established city areas.

**Outer city** – Residential suburbanisation has been a feature of the *Functional Urban Region (FUR)* of the largest cities in Slovenia since 1970, predominately in the form of 'satellite' extensions – dormitory neighborhoods – of existing villages. After 1985, these processes became more extensive and were followed by industrial and commercial suburbanisation. New mixed-use zones combining commercial, light industry and housing programmes have been erected in the outer cities, most of them as 'greenfield' development along major motorways. The built-up area in the FUR of Ljubljana, for example, has increased more than threefold, from 1,654 ha in 1952 to 5,765 ha in 1995. The most characteristic problems of urban changes in the outer cities are visible in the coalescence of existing traditional villages into a suburban agglomeration with a resultant loss of identity of the local places; transformation and loss of identity of the cultural landscape, pollution of underground water resources due to insufficient technical infrastructure and increasing private car traffic.

**Planning and management** – Recent developments in planning and management in Slovenian cities show positive changes towards comprehensive strategic approaches to redevelopment, with the enhancement of the image of the cities as a whole and of the identity of their characteristic areas. *Development Strategy Concepts* have been introduced giving more detailed consideration to design issues and implementation mechanisms. For example, the city of Ljubljana is currently preparing a new generation of planning documents, among them the '*Strategy for Sustainable Development*' and the '*Concept for Spatial Development of the City of Ljubljana*'. The former proposes a *City Design Strategy* for the urban area as a whole (e.g. enhancement of the local context, identity and legibility of the public built and open space) and *Urban Design Frameworks* for characteristic urban areas (e.g. rebuilding of degraded urban sites with respect to the contextual identity of their areas) (Dimitrovska Andrews, 2001).

For implementation of the plan, the Concept is proposing three layers of instruments for spatial development: *Urban Regulation Plans*, *Urban Design Projects* and *Urban Regulatory Measures* (urban and land policy). ■

### Prostorsko planiranje in urbani razvoj v Sloveniji

Reforma gospodarjenja s prostorom zajema sprejetje številnih zakonskih in podzakonskih predpisov kot so nov zakon o urejanju prostora, zakon o graditvi objektov, zakon o posredovanju v prometu z nepremičninami, spremembe in dopolnitve stanovanjskega zakona in številne podzakonske predpise na podlagi direktive EU o gradbenih proizvodih (št. 89/106/EEC).

Prednostne naloge na področju urejanja prostora so reforma normativnega in organizacijskega vidika prostorskega urejanja, ki postavlja nova pravila v sistemu prostorskih aktov in njihovih vsebin, uveljavljanje tržnih instrumentov na področju prostorskega urejanja ter opredelitve vloge lokalnih skupnosti pri urejanju. Pričakovati je, da bo nov sistem urejanja prostora omogočil večjo fleksibilnost prostorskih aktov in večjo participacijo javnosti pri sprejemanju odločitev o rabi prostora. Vzpostavil bo temelje prostorskega informacijskega sistema in na novo reguliral opravljanje dejavnosti prostorskega načrtovanja. V prispevku so podrobneje obravnavane naloge in pristojnosti posameznih ravni planiranja: države, regije in lokalne skupnosti, ki naj bi prispevale k uspešni implementaciji zakonskih določil.

V drugem delu prispevka so opredeljeni trendi urbanih sprememb v Slovenskih mestih, ki so podobni tistim v post-socijalističnih mestih in jih označujejo predvsem komercializacija in gentrifikacija mestnih jeder, reurbanizacija in revitalizacija kompaktnega mesta ter stanovanjska in poslovnoproduktivna suburbanizacija v urbani regiji. Prispevek daje pregled značilnih sprememb v rabi prostora po posameznih mestnih območjih in navaja probleme, ki jih spremljajo. Predloge za njihovo reševanje in izgrajevanje razpoznavne strukture mesta predstavljamo na primeru novejših praks planiranja in urejanja prostora v Ljubljani.

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# EU Community Initiative INTERREG III B CADSES – Transnational Network and Co-operation

Parallel to EU enlargement the European Union and its national governments are becoming more aware of the impacts their policies have on the land. With the Community initiative INTERREG III B the European Commission is offering participating countries a funding instrument to encourage and strengthen co-operation towards a more balanced and sustainable development of land in Europe. This instrument is extremely useful for land use and soil protection.

by Dr. Ulrich Graute, Director of the Joint Technical Secretariat INTERREG III B CADSES, Dresden (D)

## Europe is becoming aware of its land

European integration after World War II began with a political vision to prevent another war in Europe and to develop peaceful co-operation among European nations. Co-operation in western Europe led towards the establishment of an economic and in some respects also a social community. Of course, in the early decades of the European integration process it was an undisputed fact that the area of the European Economic Community was composed of the territory of its Member States. Nonetheless, the land itself and its development was not a prominent item on the Community's agenda. Only since the 1970s and 1980s policies were implemented at a European level with a clear relevance for land, such as environmental, regional and transport policies. Today several EU policies affect the development of Member States' land use but in spite of this there is no official policy for the coordination of spatial development. During the 1990s, however, it was possible to identify the rise of a new policy area. Starting with dialogue among planning experts and researchers, step by step co-operation began and committees were established and pilot activities initiated. Following on from this, a political perspective for European spatial development was also outlined. The *European Spatial Development Perspective (ESDP)*, although informal in character, has become the most relevant political document. Implementation, or rather application, of this guiding model was defined in this document as the task "of a wide range of spatial development (land use, regional planning, urban planning) and sectoral planning authorities". In the introduction to the ESDP the German Presidency of the Informal Council of Ministers responsible for Spatial Planning stated clearly: "All the participants were agreed that the ESDP does not provide for any new responsibilities at Community level" and later it says in the same document: "Co-operation is the key to an integrated spatial development policy and

represents added value over sectoral policies acting in isolation". The document is aimed at achieving a sustainable development of European land use but only goes as far as proposing the use of existing competencies and instruments for its implementation.

## EU programmes for spatial development

Meanwhile the European Union uses several of its existing instruments to encourage and strengthen co-operation in the field. The most important instruments for implementing the ESDP are the INTERREG II C (1997 – 1999) and the subsequent INTERREG III B Community Initiative (2000 – 2006). With INTERREG II C the Commission started the first Community Initiative for transnational co-operation in the field of spatial planning. It is notable that the territory concerned is not limited to the land of the 15 EU Members. Accession countries in Central and Eastern Europe as well as other third-party countries such as Norway, Switzerland and the Ukraine are also participating. Strand B of this Initiative is carried out in the framework of 13 programmes.



## **INTERREG II C and INTERREG III B CADSES**

Of the INTERREG programmes that include countries from Central and Eastern Europe the CADSES programme is a main one. This Community Initiative for the *Central Adriatic Danubian and South-Eastern European Space (CADSES)* aims at achieving a higher territorial and economic integration within the co-operating area, promoting a more balanced and harmonious development of the European space.

CADSES co-operation enables a wide range of territorial aspects to be addressed. This may be illustrated by highlighting two projects carried out under INTERREG II C:

The project VISION PLANET was coordinated by the German Federal Office for Building and Regional Planning (BBR). The aim of the project was to elaborate perspectives and strategies of Spatial Development Policy in the Central and Danubian Area (Vision) and to encourage dialogue concerning spatial planning in the Central and Danubian space within a network of institutions dealing with spatial development and spatial policy (Planet). The project produced documents presenting the region in a transnational way with a regional perspective, showing common development priorities. It is no master plan and never intended to function as such. Instead it provides aggregated information about existing space and outlines general policy options for a further development of the land concerned. While VISION PLANET was focused on the general trends and policy options, other projects like KARST were rather more specific. KARST was a water research programme co-ordinated by the water works department of the City of Vienna. Its aim was to develop methods and instruments for capturing and analysing all information required to ensure sustainable protection and use of springs in karst areas, with specific attention being paid to aspects of ongoing administration, crisis management and planning.

In the new funding period 2000 – 2006 more than 80 new project proposals have already been submitted and approved projects already begun to be implemented. Links to project websites will be published on the CADSES website as soon as they are available. During the upcoming year the programme will change in line with the increased number of EU Member States within CADSES, however, the objectives will remain the same. ■

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## **Transnational co-operation on spatial development in Central and Eastern Europe INTERREG III B CADSES**

The European Commission has decided to contribute actively to the development of transnational co-operation by part-financing the Interreg III B programme for the Central Adriatic Danubian South-Eastern European Space (CADSES). The co-operation area includes regions belonging to four EU Member States:

Austria, Germany, Greece and Italy, to five countries which are about to become Member State in 2004: Poland, Czech Republic, Slovak Republic, Hungary, Slovenia and to nine other Non Member States: Albania, Bosnia Herzegovina, Bulgaria, Croatia, Federation of Serbia and Montenegro, Former Yugoslav Republic of Macedonia, Republic of Moldova, Romania, Ukraine.

### **Priorities for action**

#### **Priority 1**

Promoting spatial development approaches and actions for social and economic cohesion

#### **Priority 2**

Efficient and sustainable transport systems and access to the information society

#### **Priority 3**

Promotion and management of landscape, natural and cultural heritage

#### **Priority 4**

Environment protection, resource management and risk prevention

### **Requirements**

Among the minimum requirements for project eligibility to be fulfilled are:

- Be in accordance with European and national spatial development policy issues
- Have effects to integrate development in CADSES
- Provide a transnational project partnership
- Demonstrate the value added of a spatial development approach
- Respect relevant national and EU policies
- Have project partners with sufficient capacity for project implementation
- Secure national co-financing
- Be completed within the programme period (before September 2008)

*For an application form and further information on the programme and to download the applicant's package please visit the CADSES homepage at <http://www.cadses.net>*

INTERREG on the homepage of European Commission: [http://europa.eu.int/comm/regional\\_policy/interreg3/index\\_en.htm](http://europa.eu.int/comm/regional_policy/interreg3/index_en.htm).

### **Contact**

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## Bodendegradation, Bodenschutz und Raumplanung in Mittel-Ost-Europa

1. Mai 2004 findet die erste große Erweiterung der EU in Richtung Mittel-Ost-Europa statt. Diese Ausgabe stellt Fachbeiträge zu Bodendegradation, Bodenschutz und Raumplanung aus fünf Ländern Mittel-Ost-Europas mit Kurzfassungen in der jeweiligen Landessprache vor.

### Vorwort und Überblick

p. 3/4: Prof. Dr. Stephen Nortcliff, Universität Reading (UK), Generalsekretär IUSS: – Boden ist essentielle Grundlage für alles terrestrische Leben. Er spielt eine Schlüsselrolle für den Gasaustausch, den Wasserhaushalt und die Biodiversität. Im Hinblick auf die europäische Bodenschutzstrategie müssen prioritäre Bodenbelastungen und -verunreinigungen, Erosion und Zersiedelung erfasst und wirksam begegnet werden. / p. 5/6: Dr. Luca Montanarella, Europäisches Bodenbüro der Europäischen Kommission, Ispra (I): – Der Zustand der Böden wird in den Ländern national erfasst und dem Bodenbüro berichtet. Die unterschiedlichen Daten sollen künftig in ein europäisches Beobachtungssystem integriert werden. Eine tabellarische Übersicht zeigt Art und Ausmaß von Gefahren, die in den nachfolgenden Ländern Mittel-Ost-Europas auftreten.

### Bodenschutz und Raumplanung in Polen

p. 7/8: Prof. Dr. Sklodowski, Polnische Vereinigung der Bodenkundlichen, Warschau: – Die Qualität der Böden gehört zu den niedrigsten in Mittel-Ost-Europa. Seit 1972 verfügt Polen über Gesetze zum Bodenschutz. Trotzdem sind gute Agrarböden infolge von Siedlungs- und Infrastrukturbau, Rohstoffabbau und Bewaldung verloren gegangen. Verlust organischer Substanz, Erosion und Bodenversauerung und Schwermetallbelastungen sind problematisch. / p. 9/10: Jacek Lendzion, Umwelt und Entwicklung, Danzig & Dr. Witold Toczyski, Universität Danzig: – Raumplanung hat in Polen eine lange Tradition und basiert derzeit auf einem komplexen hierarchischen Rechtssystem von Raumentwicklungs- und Umweltschutzgesetzen sowie obligatorischen Planungsdokumenten auf staatlicher, regionaler und kommunaler Ebene, darunter auch rechtsverbindliche örtliche Entwicklungspläne. Wichtigstes Gesetz zur Erhaltung und Nutzung von Böden ist das nationale Land- und Forstgesetz.

### Bodenschutz und Raumplanung in Tschechien

p. 11/12: Prof. Dr. Josef Rusek, Institut für Bodenbiologie, Akademie der Wissenschaften der Tschechischen Republik, Budweis: – Landwirtschaftliche Böden, insbesondere die Bodenbiota, sind infolge der intensiven Bewirtschaftung vor der Wende durch den Einsatz von hohen Pestizidmengen und schweren Maschinen stark beeinträchtigt worden. Wichtiger Zustandsindikator sind Bodenlebewesen in Ackerböden wie der Collembolen (Springschwänze) - Besatz. Nur durch angepasste Bewirtschaftung ist eine Bodenerholung möglich. / p. 13/14: Dr. Jiri Plos, Tschechische Architekten Kammer, Prag: – Die Landesplanung Tschechiens geht bis in die K+K-Monarchie zurück. Ein neues Planungsgesetz zielt auf die territoriale Selbstverwaltung ab, und strebt den Abbau heterogener Vorschriften an. Detaillierte Landnutzungspläne legen die Nutzung der Böden in den Regionen und Gemeinden fest. Ein wichtiger Punkt bilden die administrative Kontrolle und die Bürgerbeteiligung im Rahmen der Planungsverfahren.

### Bodenschutz und Raumplanung in der Slowakei

p. 15/16: Prof. Dr. Pavol Bielek, Institut für Bodenwissenschaft und Forschung, Bratislava: – Die zunehmend kleinmaßstäbliche Landnutzung mit mehr Kleinbetrieben wirkt sich günstig auf den nachhaltigen Umgang mit Böden aus. Weniger Düngemittel werden eingetragen. Bodengefahren bestehen dennoch in der Wassererosion. / p. 17/18: Dr. Radoslav Bujnovsky, Institut für Bodenwissenschaft und Forschung, Bratislava: – Ackerland, Düngemittel- und Pestizideinsatz gehen zurück, Wald- und Siedlungsflächen nehmen zu. Konkurrierende Nutzungsansprüche erschweren die nachhaltige Landnutzung. Die Entwicklung der Landnutzung und die Wertschätzung der Landschaft werden mittels Indikatoren beobachtet. Die Entwicklung der Landnutzung ist heute verstärkt ökonomisch orientiert.

### Bodenschutz und Raumplanung in Ungarn

p. 19/20: Prof. Dr. Attila Buday-Sántha, Universität Pecs: – Ungarn verfügt im internationalen Vergleich über vielfältige und herausragend produktive Böden. Rund 2/3 des Landes ist Agrarland, zugleich ist es die wichtigste natürliche Ressource. Doch die Krise in der Landwirtschaft, Bodenversauerung und Erosion gefährden diese Böden. Den neuen Kleinbetrieben fehlen trotz Beihilfen zur Bewirtschaftung die Mittel für dringliche Maßnahmen der Bodenmelioration und Schutz vor Winderosion. Auch der Flächenverbrauch sollte auf weniger produktive Standorte begrenzt werden. / p. 21/22: Dr. Ivan Illés, Zentrum für Regionalforschung der Ungarischen Akademie der Wissenschaften, Pecs: – Ein Großteil der Bevölkerung Ungarns lebt im Großraum Budapest, bei jüngst massiver Suburbanisierung. Große, noch wachsende regionale Disparitäten in Wirtschaftsleistung und Siedlungsstruktur kennzeichnen das Land. Eine zu stark konkurrierende Planungsautonomie der Kommunen und Kreise wie auch Privatisierung und ungeklärte Besitzverhältnisse erschweren die nachhaltige Landnutzung.

### Bodenschutz und Raumplanung in Slowenien

p. 23/24: Prof. Dr. Franc Lobnik, Zentrum für Boden- und Umweltwissenschaften, Universität Ljubljana: – Nur 1/5 Sloweniens ist Flachland mit fruchtbaren Böden. Um dieses konkurrieren Ackerland und Siedlungen. Schon jetzt bedecken Siedlungen großflächig beste Böden. Lokal treten Schwermetallbelastungen auf. Ein Bodeninformationssystem dient der Überwachung der Böden. Grundlage für den Bodenschutz bilden das Umweltschutzgesetz und ein Dekret über gefährliche Substanzen. / p. 25/26: Dr. Kaliopa Dimitrovska Andrews, Institut für Urbanistik der Republik Slowenien, Ljubljana: – Umfangreiche legislative Regelungen kennzeichnen ein duales Planungssystem (Staat-Kommunen ohne Regionalebene). Planungs- und Baugenehmigungen unterliegen der direkten Rechtsprechung auf Landesebene. In den Innenstädten wurden viele Revitalisierungen durchgeführt, die aber auch zu sozialen, wirtschaftlichen und kulturellen Interessenkonflikten führten. Die Suburbanisierung hat die Identität des Umlandes stark verändert. Neue Planungen basieren auf stadtreionalen Konzepten.

### Transnationale Zusammenarbeit im CADSES-Raum

p. 27/28: Dr. Ulrich Graute, Direktor JTS INTERREG III B CADSES, Dresden (D): – Im Rahmen von INTERREG III B werden auch in den Ländern Mittel-Ost-Europas transnationale Projekte zur nachhaltigen Raumentwicklung und Erhaltung der Bodenfunktionen mit Mitteln der EU unterstützt und gefördert.

## ELSA Jahrestagung 2003 in Augsburg

Die *"Augsburger Mischung findet Gefallen"*, so betitelte die Augsburger Allgemeine vom 5. April 2003 die Stimmung der zweiten Internationalen Jahrestagung des Boden-Bündnisses ELSA e.V. Gemeint war die harte Arbeit und sachliche Diskussion der rund hundert Teilnehmer in den Workshops und die Sorge der Bodenexperten um den ungebremsten Verlust bester Böden weltweit und in den Kommunen. Für vergnügliche Abwechslung war am Abend gesorgt durch den Empfang des Bürgermeisters *Dr. Klaus Kirchner* im Rathaus bei einem guten Tropfen vom Weinberg der Hessingstiftung, der die Gäste aus fünf Ländern mit den Schönheiten und der Geschichte der Fuggerstadt vertraut machte. Beeindruckt waren alle vom Goldenen Saal – einem prunkvollen Schmuckstück der Stadt.



Foto F. Dosch: ELSA Jahrestagung 2003 im Bayerischen Landesamt für Umweltschutz

Die 2. Internationale Jahrestagung ELSA e.V. wurde vom Vorsitzenden des Boden-Bündnisses, *Detlef Gerdts*, eröffnet. *Dr. Heinz Fischer-Heidlberger*, Direktor des Bayerischen Staatsministeriums für Landesentwicklung und Umweltfragen übermittelte die Grussworte des Staatsministers *Dr. Werner Schnappauf*. *Dr. Christoph Himmighoffen* hiess die Tagungsteilnehmer im Hause des Bayerischen Landesamtes für Umweltschutz willkommen. Betont wurde in den Eröffnungsansprachen der dringliche Handlungsbedarf auf allen Ebenen von den Staatengemeinschaften bis zu den Kommunen vor Ort, das Bodenbewusstsein zu fördern und eine entschlossene Trendwende im Flächenverbrauch einzuleiten. In einer beispielhaften Offensive hat das Bayerische Umweltministerium alle Kommunen mit einer Arbeitshilfe zum Kommunalen Flächenmanagement ausgestattet (siehe *local land & soil news Nr. 5*). Zudem werde ein *"Bündnis zum Flächensparen"* ins Leben gerufen, um konkrete Maßnahmen in die Tat umzusetzen.

In Vertretung von *Prof. Dr. Klaus Töpfer*, Direktor der United Nations Environmental Programme UNEP, der das Patronat für die Jahrestagung übernommen hat, hielt *Dr. Jens Mackensens*, zuständig für die Climate Change Task Force der UNEP ein wichtiges Grundsatzreferat über die Bedeutung der weltweit zu beobachtenden Bodendegradation im Zusammenhang mit dem globalen Klimawandel. *Dr. Luca Montanarella* erläuterte die wegweisenden Arbeitsschritte der Europäischen Kommission hinsichtlich der Entwicklung einer nachhaltigen Europäischen Bodenschutzstrategie und unterstrich auch deren Bedeutung hinsichtlich der bevorstehenden EU-Ost-Erweiterung (siehe Beitrag Seite 5/6).

Kern der Tagung bildeten vier Workshops, die dazu dienten, sich in verschiedene Sachthemen zu vertiefen und Vorschläge für eine gemeinsame Position (*"Augsburger Erklärung"*) und Handlungsempfehlungen für Kommunen zu entwickeln.

### Workshop I Bodenschutz und Hochwasserschutz:

Die Referenten *Jens Seifert*, Umweltdezernat der Stadt Dresden, *Prof. Dr. Friedrich Beese*, Universität Göttingen, *Dr. Heiko Sieker*, Ingenieurgesellschaft Dahlwitz-Hoppegarten, *Prof. Dr. Karl Auerswald*, Technische Universität München-Freising zeigten Auswirkungen der forstlichen und landwirtschaftlichen Bodennutzung auf das Retentionsverhalten der Böden auf und belegten u.a. auch die Thesen des ELSA-Positionspapiers *"Bodenschutz ist vorsorgender Hochwasserschutz"* mit Auflagen des Auenschutzes, der Flächenausweisung in urbanen Gebieten sowie der grenzüberschreitenden Zusammenarbeit.

### Workshop II Regionales Flächenmanagement:

*Dr. Fabian Dosch*, Bundesamt für Bauwesen und Raumordnung, Bonn, *Dr. Heinz Münzenrieder*, Stadt Augsburg, *Cla Semadeni*, Amt für Raumplanung Graubünden, Chur, *Peter Earl*, Referent für Raumentwicklung, East Sussex, Lewis stellten Konzepte und praktische Erfahrungen der Regionalplanung aus verschiedenen Ländern vor. Die Kooperation zwischen Region und Kommunen sei ebenso wichtig wie die aktive Beteiligung der Akteure, der Behörden und der Bevölkerung, um bei Sachfragen Lösungen zu finden und gemeinsame Vorhaben zu verwirklichen. Dafür seien aber auch ökonomische Anreize, etwa über den Finanzausgleich bei regionalen Gewerbegebieten erforderlich, um attraktive Wirtschaftsstandorte zu fördern.

### Workshop III Bodenbewertung und räumliche Planung:

*Helmer Honrich* und *Annette Eickeler*, Referat für Gesundheit und Umwelt, Landeshauptstadt München, *Dr. Walter Huber*, Landesagentur für Umwelt und Arbeitsschutz, Provinz Bozen-Südtirol, stellten das INTERREG III B Projekt TUSEC-IP vor (siehe Seite 31). Es sollen Wege und Möglichkeiten aufgezeigt werden, wie das Instrument der Bodenbewertung in die Raumplanung integriert und für die zukünftige Siedlungsentwicklung in Stadtregionen genutzt werden kann. Über erste Erfahrungen und den aktuellen Sachstand in Deutschland berichtete *Irene Dahlmann* vom Niedersächsisches Landesamt für Ökologie.

### Workshop IV Bodenbewusstsein und Öffentlichkeitsarbeit:

*Patricia Mersinger*, Referat für Stadtentwicklung und Bürgerbeteiligung, Stadt Osnabrück, *Dr. Silvia Lazar*, ahu AG, Aachen, *Norbert Niedermostheide*, Museum für Natur und Umwelt am Schölerberg, Stadt Osnabrück, *Dr. Andreas Kress*, Europäisches Klima-Bündnis, Frankfurt/Main, *Prof. Dr. Lothar Zettler*, Lars consult AG, Memmingen zeigten auf, wie anhand guter praktischer Beispiele (*best practices*) und (be-)greifbarer didaktischer Aufbereitung das Bewusstsein der Böden Zielgruppen adäquat vermittelt werden kann. Diskutiert wurde auch der Vorschlag, ein *"Europäisches Kommunikationszentrum"* einzurichten, um bestehende Initiativen und Wissen zu bündeln und zu vermitteln.

Im Hinblick auf kommunales Handeln stellten *Claus Hensold*, Bayerisches Landesamt für Umweltschutz, *Dr. Marion Gunreben*, Niedersächsisches Landesamt für Ökologie, und *Prof. Ulrich Holzscheiter*, freier Architekt, München, die Arbeitshilfen *"Kommunales Flächenressourcen Management"*, ein kommunales Entsiegelungskonzept der Stadt Hildesheim sowie einige städtebauliche Ansätze für flächensparendes Bauen vor.

Zum Abschluss der Jahrestagung dankte *Dr. Walter Huber*, Stv. Vorsitzender ELSA e.V. im Namen der Veranstalter für die sehr engagierte Beteiligung aller Referenten und Teilnehmer sowie

den Organisatoren der Veranstaltung, namentlich dem Büro Geotec GmbH mit *Dr. Jürgen Bruggey* und der Geschäftsstelle in Osnabrück *Uta Mählmann* für die hervorragende Vorbereitung und Durchführung und kündigte an, dass die 3. Internationale Jahrestagung 2004 in Bozen-Südtirol stattfinden wird.

*Die einzelnen Vorträge sowie die "Augsburger Erklärung" und die Ergebnisse der Workshops sind abrufbar auf der Internetseite [www.bodenbuendnis.org](http://www.bodenbuendnis.org). Ebenso ist die "Augsburger Erklärung" in Deutsch und Englisch als Separatdruck erhältlich.*

*The final report of the 2nd International Annual Conference of ELSA e.V. the main solutions of the workshops included, will be presented in our homepage [www.soil-alliance.org](http://www.soil-alliance.org). The "Augsburg Declaration" in English and German is also available as a print document by the Secretary of the European Land and Soil Alliance.*

## Brownfield Redevelopment – Marketing Strategies



*Photo F. Dosch: Part of the Saarterrassen New redeveloped industrial buildings in Saarbrücken (D)*

Learning from best practices and exchange of knowledge in an international context in the complex field of recycling of derelict land is valuable and sometimes crucial for the project realisation. *local land & soil news issue no.4* gave an overview of the state of revitalisation of brownfields including economic tools for sustainable brownfield redevelopment. Other toolkits are marketing strategies. A second workshop "**Towards Competitive Brownfield Redevelopment - Project Management and Marketing Strategies**" within a US-American/German Bilateral Working Group took place in Saarbrücken, May 7/8, 2003.

Marketing of brownfields as part of a professional redevelopment project management is a key element for successful redevelopment. At the workshop, examples of project management and marketing strategies from German and U.S. city practice demonstrated key elements of successful marketing like developing a positive and innovative image (branding/labeling), merging marketing and municipal redevelopment planning well in advance, promoting identification of the project (theming and uniqueness), gaining public acceptance through transparency and dynamics in the process. Excursions to successfully redeveloped projects, e.g. Saarterrassen on the premises of a former steel processing plant "*Burbacher Hütte*", gave a practical understanding in marketing concepts.

Further information: [www.bilateral-wg.org](http://www.bilateral-wg.org)

## Transnationales Projekt TUSEC-IP "Böden in Stadt-Regionen" genehmigt



*TUSEC IP intends to contribute to a balanced and sustainable spatial development in the Alpine Space where soil and land are highly restricted resources. It involves partners coming from Austria, Germany, Italy, Slovenia, and Switzerland. Partners will set up a tool for a better management of urban soils in planning procedures.*

TUSEC-IP (Technique of Urban Soil Evaluation in City Regions – Implementation in Planning Procedures) wurde am 10.4.2003 durch den Lenkungsausschuss des INTERREG IIIB Programms Alpenraum genehmigt. Das Projekt befasst sich mit der Entwicklung eines Verfahrens zur Bewertung von Böden in den Städten und Gemeinden und mit der Umsetzung des Verfahrens in die kommunalen und regionalen Planungsverfahren. TUSEC-IP wurde mit tatkräftiger Unterstützung von Mitgliedern und Freunden des Boden-Bündnisses als ein Projekt zur nachhaltigen Siedlungsentwicklung vorbereitet. Die Federführung liegt beim Referat für Gesundheit und Umwelt der Landeshauptstadt München (Leitpartner).

Am Projekt beteiligt sind 10 Partner/innen sowie weitere Sub-Partner/innen aus 5 Ländern. Die Projektpartner/innen sind:

- Autonome Provinz Bozen-Südtirol (I)
- Stadt Linz (A)
- Stadt Maribor (SLO)
- Stadt München (D)
- Stadt Reutlingen (D)
- Stadt Zürich mit Kanton Zürich, Stadt Chur und Kanton Graubünden, Interessengemeinschaft Boden Schweiz und Verein für Familiengärten Zürich (CH)
- Umweltbundesamt GmbH Wien (A)
- Universität Hohenheim, Stuttgart (D)
- Universität Innsbruck (A)
- Universität Torino (I)

Auf der 2. Jahrestagung des Boden-Bündnisses im April 2003 in Augsburg wurde das Projekt erstmals einer breiteren Öffentlichkeit vorgestellt. Weitere Informationen über TUSEC-IP sind ab Projektbeginn am 1.7.2003 unter [www.tusec-ip.org](http://www.tusec-ip.org) verfügbar.

Wir freuen uns über Anregungen, Hinweise, Kritiken oder Praxisbeispiele und sind für ein reges Interesse am Projektverlauf dankbar.

*Annette Eickeler*

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**ELSA e.V. im Advisory Forum zur EU Bodenstrategie vertreten**

Am 23. April 2003 fand in Brüssel die erste Sitzung des Advisory Forums der Generaldirektion Umwelt der EU-Kommission statt. *Prudencio Perera*, Direktor der Abteilung Umweltqualität natürlicher Ressourcen, der die Federführung für die bis 2004 zu erarbeitende **Thematische Bodenstrategie** hat, begrüßte die rund 80 Teilnehmer aus mehr als 20 europäischen Ländern zu der konstituierenden Sitzung. Mit diesem Gemium will die Kommission sicherstellen, dass die Interessen und Erfahrungen der EU-Mitgliedsstaaten und der Beitrittsländer sowie der Interessenverbände (stakeholder) von Anfang an eingebunden werden. Dem Advisory Forum gehören neben den Verantwortlichen der Kommission und EU Institutionen auch zwei Delegierte aus jedem Mitgliedsstaat und Beitrittsland sowie rund dreissig Vertreter europäischer Netzwerke, internationaler Organisationen, Interessenverbände und Nichtregierungsorganisationen NGOs an. Erfreulich ist, dass mit *Dettef Gerdis*, Vorsitzender des Boden-Bündnisses ELSA e.V. und mit *Prof. Dr. Wolfgang Burghardt* und *Holger Robrecht* auch ICLEI im Advisory Forum mit vertreten sind. Prioritär werden in fünf Arbeitsgruppen drei "Bodenbedrohungen" bearbeitet: (1) *Erosion*, (2) *Kontamination (lokal und diffus)*, (3) *Verlust organischer Substanz*; zwei Arbeitsgruppen widmen sich übergreifenden Themen: (4) *Bodenmonitoring* und (5) *Bodenforschung*. ELSA ist mit zwei Experten, *Helmer Honrich*, Stadt München in der Arbeitsgruppe Monitoring und *Dr. Rudolf Pollinger*, Provinz Bozen, in der Arbeitsgruppen Erosion präsent.

*local land & soil news* wird in der nächsten Ausgabe ausführlicher über die Entwicklung der EU-Bodenstrategie berichten. Die verfügbaren Dokumente und die Teilnehmerliste des Advisory-Forums können über die ELSA-Internetseite [www.bodenbuendnis.org](http://www.bodenbuendnis.org) abgerufen werden.

**ELSA contact / order information**

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Name, first name \_\_\_\_\_  
 Institution \_\_\_\_\_  
 Address \_\_\_\_\_  
 Postal code / city \_\_\_\_\_  
 Country \_\_\_\_\_  
 E-mail \_\_\_\_\_  
 Date, signature \_\_\_\_\_

**New Members of ELSA e.V.**

We heartly welcome five new ELSA members in our growing community:

- **City of Bruneco (I)**
- **Municipality of Gallneukirch (A)**
- **Municipality of Gföhl (A)**
- **City of Haarlem (NL)**
- **City of Stuttgart (D)**

**agenda**

Meldungen über Anlässe bitte direkt an das ELSA-Sekretariat [mail@bodenbuendnis.org](mailto:mail@bodenbuendnis.org)

16.-20.07.2003: Interregio 2003 "grenzenlos" Dreiländerschau Vinschgau (I) / Landeck (A) / Engiadina Bassa-Val Müstair (CH) am Reschensee in Graun (I). Gemeinsamer Informationsstand von ELSA e.V. & TUSEC-IP zum Thema:

**"Grenzenlose Boden-Vielfalt"**  
 Detaillierte Informationen unter:  
[www.messe-interregio.org](http://www.messe-interregio.org)

10.-12.09.2003: euregia bodensee Kongress in der Messe Friedrichshafen:

**Standort- und Regionalmanagement**

Themen:

- Globalisierung und Regionalisierung – *Wie müssen Regionen agieren?*
- Interkommunale Kooperationen – *Wie sind diese erfolgreich zu gestalten?*
- Marketing of Places – *Wie lassen sich Städte / Regionen vermarkten?*
- Grenzüberschreitende und transnationale Kooperationen – *Wo lassen sich diese weiter ausbauen?*

Informationen zur Veranstaltung:

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[info@euregia-bodensee.de](mailto:info@euregia-bodensee.de)  
<http://www.euregia-bodensee.de>

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**Focus:**

Transformation on cultural landscapes:  
***Future Land-Use Strategies for Cultural Landscapes***

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**Schwerpunkt:**

Kulturlandschaften im Wandel:  
***Zukunftsstrategien für Kulturlandschaften***

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