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I P S O I L I I I

Responsible Use of Soil and Land and Regional Development

Conference and Research Program of the Academia Danubiana

9th - 21th of March 2007

Kvarda Werner (ed.)

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Kvarda, W. (University of Natural Resources and Applied Life Sciences, Vienna)

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My special thanks to my colleagues and friends in science and research, Prof. Winfried Blum from the Institute of Soil Science - BOKU and MR. Dr. Günther Pfaffenwimmer from the Federal Ministry of Education and Research – Vienna, (ENSI project) for the fruitful dis-cussions that helped shaping the concept of the project and Prof. Tomaz Prus who was intro-ducing social values and land-use ethics into the project. I am greatly indebted to Wolfgang Dorner and Prof. Borislav Stojkov for their unwavering support with regard for editing and contributing with new ideas for the project.

I would like to thank the students from ten different countries who have been an intellectual family to me. Their enthusiasm and intellectual stimulation was a constant source of emotional support. Representative my thanks to Flora Möczenyi and Akos Pottyondi from Hungary, Dobromir Borislavov from Bulgaria, Sandrine Vidal from France, Christof Schrenk from Germany, Karl Spachinger from Austria, Marijana Pantic from Serbia, Pavlina Misikova from Slovakia, Sandra Keyzlarova from Czech republic, Kataryna Kyrylchuk from Ukraine, Aleksander Magyar from Slovenia.

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Finally I have to thank Dr. Kurt Puchinger and Major Kurt Lentsch for supporting this project in a political, theoretical and realizable point of view. This project would have been impossible to carry out without the constant care and compassion of my wife.

PREFACE

Lentsch, K. (Major of Neusiedl am See, 2nd president of Burgenland´s parliament)

After decades of merciless exploitation of ground and soil a visible change in action and thought has followed. Growing pieces of land are declared as protected zones and are, if at all, only cultivated extremely smoothly. It has been found out that permanent selfishness at the cost of nature and environment causes irreversible damage of our continent, and thereby vital resources for mankind will forever be lost.

Projects like IPSOIL show all these facts scientifically proved. Furthermore they offer solutions in different directions regarding man's well-being. International assemblies with professors and students coming from half of Europe contribute to the positive development of these studies.

For me as the mayor of Neusiedl, it means great pride that Professor Kvarda has chosen this town as the centre for this project which has been going on for years already. We can only promise to fully support all these activities and to wish all participants a lot of success.

Best regards

Kurt Lentsch
Mayor of Neusiedl am See
2nd president of Burgenland's parliament

INTRODUCTION

Kvarda, W. (University of Natural Resources and Applied Life Sciences – BOKU, Vienna)

If you want to build a ship,
Don´t drum up the men to gather wood,
divide the work and give orders.
Instead, teach them to yearn for the vast and endless sea.

Antoine de Saint-Exupery

One of the real success stories of the European Union are Europe wide educational programmes. Europe offers many possibilities within its´ Higher Educational programmes for obtaining a peaceful and democratic development process inspired by these values and also by **Environmental Education** (EE) principles. The *second enlightenment* needs EE for self-organization, in qualifying students to take an active part regarding the solution of the future. These co-operations are designed to reduce cultural barriers between the European states and to promote the building of a common European Education space. Also Mark Leonard, the director for International Politics at the Centre for European Reform in London, gives us something to cheer us up, in his most recent publication: *"Why Europe will run the 21st Century"*. [LEONARD] Leonard describes a set of values emerging which are focused on peace, freedom, wealth and democracy,

Education has a key position to learn constantly about ourselves, our potential, our limitations, our relationships, our society, our environment, our world. Henceforth the UN is proclaiming with the Decade for Education for Sustainable Development from 2005 till 2014, that education will help to develop widespread understanding of the interdependence and fragility of planetary life support systems. Education for sustainable development is a life-wide and lifelong endeavour which challenges individuals, institutions and societies to view tomorrow as a day that belongs to all of us, or it will not belong to anyone.

The future of **Europe** depends on the quality of its human resources. Nowadays, this means a population that is well educated and highly skilled, capable of leading the change of the knowledge economy and society. Soils are generally not well known by European citizens, particularly since only a small fraction of the European population is currently living in rural areas having a direct contact with soils.

Soil protection has never been ranking high among the priorities for environmental protection in Europe. In the year 2002, 15 European Environmental ministers have outlined first steps towards a strategy to protect soils, on a level with cleaning up our water and air. The European Parliament resolution on the Commission communication ´Towards a Thematic Strategy for soil Protection´ (COM(2002)179) is targeting to conserve land use for example preventing sealing the soil next to other protected goods.

http://europa.eu.int/comm/environment/soil/

The present evolution of international **climate policy** will definitely influence all questions of land use and soil protection and cultivation. The climate convention is going more than ever to convert into a Meta-process. The special announcement of the International Panel on Climate Change (IPCC) is combining in an emphatic way all issues of the soil use, climate protection and economic development of the regions. There exists a huge demand not only for developing and checking methods and also delivering realistic estimations about potential and storage length, but much more than up to now to make clear the interrelationship of facts also beyond the scientific community, for getting more influence within political judgements.

Therefore the **question** arises, how to bridge between the available scientific knowledge on one hand and those who need it for defining policies, and operational procedures, such as stakeholders, and politicians and decision makers on the other hand. Within the Socrates Erasmus project "Responsible use of soil and land and regional development" (IPSOIL), this question has been worked on since 2005. The first results can be found on the following website: http://www.academia-danubiana.net/projects/IPSOIL%20II.html.

The IPSOIL story

The project IPSOIL was organised in three parts. **First** in 2005, the impact of the threats related to soil and land-use were analyzed and actual trends in land-use were described. The soil indicator framework, or DPSIR approach, as a theoretical basis and its application in practice help us to understand complex systems and soil related processes and to react by developing responses and solutions for strategies and operational procedures, for fostering responsible use of soil and land [BLUM].

Secondly in 2006, targeted projects of applied research for a multifunctional planning process and management of soil and land were elaborated. [KVARDA]

Finally in 2007**,** we were initiating specific actions for policy support, to integrate the ´Thematic strategy for soil protection´ from the DG Environment of the European Commission into an empowering dialogue on a regional basis. The main aim of the IPSOIL idea is to **disseminate the results** of a three years intensive project work reducing the damage of soil and land and raising awareness among politicians and stakeholders and all the people living in the region.

Organisational approach and structure

The **aims** of this project are to co-operate in the development of measures against uncontrolled sealing and damage of soil and land. Discussing new patterns of sustainable land-use and regional development

we have to ask the question, how we will obtain harmonisation of different demands of yields in a spatial and temporary aspect. Within the framework of this Intensive program we were spanning a bridge between scientific basics and systemic advisory issues to get more influence for objective political decisions.

We started with a **Kick off meeting** end of November 2006 to discuss the results of the past and be prepared for the final seminar in March. At the Kick off meeting we were sharing in various groups the task for this session, to elaborate goals and objectives about framework conditions for measures raising awareness for responsible soil and land use and an enhancement of a dialogue between regional partners to create effective governance towards a ´learning region´. Thanks to Sandra Keyzlarova who was finishing the report.

Prof. Winfried Blum, Dr. Wolfgang Dorner, Pavlina Misikova, Prof. Tomaz Prus, and Prof. Borislav Stojkov were delivering essential scientific inputs.[1] We were receiving an overview of concepts and strategies from Prof. José Manuel Henriques from Portugal about the CIARIS project. [2] CIARIS is a knowledge development system aiming at supporting the actors to develop their capacities of design, planning, management, follow-up and evaluation of their actions on the fight against social exclusion at the local level, which we will integrate into the ´learning region´ concept for the future.

The **Intensive program** took place in Neusiedl am See, March 9th till March 21st 2007. The participating students were preparing case studies related to the three topics, multifunctional soil and land-use, explaining new governance and the learning region concept.

Fig. 2: Seminar atmosphere at the Firestation

At the seminar Wolfgang Dorner and Juraj Berdis were coordinating and elaborating the preparatory work for two scientific applications for the follow up of the IPSOIL project - Lifelong Learning (LLL) and REGPOT. During the IP workshop Dipl.Ing Hubert Schattovich from the Burgenland government and Mr. Alois Lang from the Burgenland Research association were informing the students about cross national projects related to the subject of land management.

The **transnational co-peration** has taken place by our virtual learning environment at BOKU, based on an open-source management system (CMS). https://moodle.boku.ac.at/ The course IPSOIL III was supervised by Roman Grünner and Claus Rainer Michalek, which comprises contents for downloading our pdf files and a discussion board – e.g. IPSOIL café, our common forum. In general our transnational co-operation is connected by a network of excellence called ´Academia Danubiana, a scientific NGO fostering educational network and promoting a higher degree of territorial integration with the accession countries within the Danube region (www.academia-danubiana.net)

1 http://www.academia-danubiana.net/projects/ IPSOIL/IPSOIL%20III/lectures.html

2 http://www.ilo.org/ciaris/ShowIndex.do

The transdisciplinary approach - New forms of learning and problem solving

Today we need a new approach of mutual learning between science and society. If we want to do joint problem identification and solving among science, technology and different stakeholders in society we have to learn about **transdisciplinarity**. Transdisciplinarity is a new form of learning and problem solving involving cooperation among different parts of society and academia in order to meet complex challenges of society.

Transdisciplinarity requires methods that allow integration of knowledge with respect to at least four dimensions.

- The first dimension involves structures and procedures for systematically linking of knowledge from different sciences to establish an **interdisciplinary** approach. For our example we need soil scientists, regional planners, economists, ecologists, etc. to formulate the PROBLEMS in relation to the eight threats to soil and / or land-use.
- The second dimension entails subdivision into different systems and compartments to allow an encompassing, **holistic** consideration (such as water, air, soil, fruits, animals). The principle is bringing the whole together, describing the CAUSES and PROCESSES and harmonisation of methods for the analysis of the STATE of the eight threats to soil and / or land use and their changes within time. The so called DPSIR-framework approach allows for bridging between science and politics. A shift occurs from a holistic real-world perspective, at the first level, to a system or model level, at the second stage." (KLEIN, 2001)
- The third dimension is integrating different qualities of thought distinguished in the **complementarity** between intuitive and analytic modes, indicated by the right and the left brain hemisphere. We need to ask questions, to intervene, to render visible what has so long been hidden from public discussion.
- The fourth dimension of knowledge integration shifts from methodology to **epistemology**. Different interests of stakeholders with different types of arguments. City planners, engineers, and other design professionals have gotten trapped in standardized solutions that require enormous expenditures of energy and resources to implement. These standard templates, available as off the shelf recipes, are unconsciously adopted and replicated on a vast scale, that we call dump design and planning.

Mutifunctional soil and land-use

If the problem of soil degradation is to be solved and an understanding in the society for creating a sustainable use of the soil and a **multi-functional land management** developed, the choice of the

interdisciplinary and transdisciplinary method is inevitavle. Multifunctional land management means to substitute the zoning principle of the physical separation of urban and rural activities and for the soil it means that soil can be used in all its main functions.

Tomaz Prus is describing multifunctionality as the interlacing of functions of (global) natural systems and each of its components. Wolfgang Holzner from the BOKU is portraying sustainable models of **integrated land utilization**, where Nature conservation plays in an *orchestra* together with other land-users in the fields of forestry, agriculture, tourism and industry, with the aim of mutual benefit.[3] The result is – in biology we would say ´symbiosis´ but for our musical example – a melodious sound.

Dóra Rebeka Kertész is depicting within her diploma work, the´**Green map** of Neusiedl am See´, a melodious sound and illuminating the interconnections between society, nature and the built environment, helping residents for making smarter lifestyle choices.

Sonntag, 18. März 2007 — BURGENLAND — Seite 21

Reisebus gestoppt
Als gefährlich entpuppte sich ein ungarischer Bus, den Autobahnpolizisten aus Oberwart bei Güssing kontrollierten. Die Bremsen waren defekt, die 43 Reisenden mussten in einen Ersatzbus umsteigen.

Pendler-Preis
Projekte und Ideen zur Verbesserung der Verkehrssituation im Burgenland suchen VCÖ und Landesregierung. Informationen im Internet: www.vcoe.at

Demo an Grenze
Ihrem Ärger machten mehrere ungarische Bürgergruppen gestern am Grenzübergang bei Heiligenkreuz (Luft-, 1500 Menschen demonstrierten gegen eine von der BEWAG geplante Müllverbrennungsanlage.

In Venedig zu Gast
Der burgenländische Komponist Gerhard Krammer gastierte im „Teatro la Fenice" in Venedig. Die Zuscher in der italienischen Lagunenstadt waren begeistert.

Diesel am Bahnhof
Umweltalarm in Deutschkreutz: Aus einer Lokomotive trat Diesel aus. Die Feuerwehr musste 15 Kubikmeter vergiftete Erde entsorgen.

Kontrolle ist besser: Wissenschafter aus acht Ländern unterziehen den Neusiedler See zur Zeit einer eingehenden Untersuchung. Sandrine, eine Expertin aus Frankreich, testet gerade das Wasser auf seine Qualität (oben). Es werden aber auch Bodenproben entnommen. In einem mobilen Labor im Feuerwehrhaus Neusiedl werten die Umweltfachleute anschließend die Messdaten aus. „Unsere Ergebnisse teilen wir dann der Bevölkerung mit."

Dämme sollen vor Überflutungen schützen

Land steckt Millionen in Hochwasserschutz

100 Millionen Euro (!) wurden in den vergangenen zehn Jahren in den Hochwasserschutz im Burgenland gesteckt. Das gab VP-Landesrat Niki Berlakovich jetzt bekannt. Nach der Flut 1998 wurde mit dem Bau von Schutzdämmen und Rückhaltebecken im Mittellauf der Pinka begonnen. Die Investitionen betragen 4,7 Millionen Euro.

In den Orten Unterwart, Rotenturm und Jabing soll die Bevölkerung in Zukunft vor Hochwasserkatastrophen sicher sein, meint der Mandatar. Da eine „Flutmulde"

VON HAROLD PEARSON

vor neun Jahren nicht imstande war, die Wassermassen aufzunehmen, habe man ein neues Konzept für die drei Orte entwickelt, Berlakovich: „Der Fenekgraben in Unterwart-Rotenturm wurde auf einer Länge von 1,5 Kilometer ausgebaut, südöstlich von Jabing wurden 2,7 km adaptiert. In Unterwart kam ein zwei Kilometer langer Damm hinzu."

Dazu wurden Biotope mit mehr als 2000 Sträuchern und Bäumen bepflanzt – es entstanden sowohl ein Reservat für die Tierwelt als auch ein Erholungsgebiet für die Bevölkerung. Ein Erfolg, demnach warnt Berlakovich: „Absoluten Schutz vor einem Hochwasser gibt es keinen."

Schweizer trainiert gratis Gedächtnis

Berühmter Gedächtniskünstler im Burgenland: Der Schweizer Gregor Staub merkt sich in Kürze die kompliziertesten Zahlen, Namen und sonstige Informationen. Eine Vorführung gibt er am Donnerstag, dem 22. März, ab 19 Uhr im Gymnasium Neusiedl – Eintritt frei!

burgenländische zeitung.at

Fig.2: Sandrine Vidal and Christian Schrenk are presenting first results about water quality

Explaining new governance

The main aim of the IPSOIL idea is to **disseminate the results** of a three years intensive project work for empowering a dialogue on a regional basis reducing the damage of soil and land and raising awareness among politicians, stakeholders and residents. Wolfgang Dorner is focusing on the university of the future, which plays a crucial role in regional development.

Therefore the project will stimulate the mutual learning process for sustainable land use and also foster the creation of social structures for a constructive encounter between persons with contrasting interests. If we want to bring society into the art of **governance** and to encourage the creativity of all social groups, than they should realize their intellectual potential for solving complex soil use problems. The learning region should be seen as a continuous learning process, that provides the region with a cross-sectional platform to discuss sustainable land use development as a precondition for ecological awareness for collective action.

The learning region concept

To manage our continually changing activities in land use planning, new ´polycentric governing styles´ may support the dialogue between all the players, in an ongoing process to create effective governance toward a ´**learning region**´ democratically by everyone affected. A Learning Region combines the pragmatic execution of learning and regional development. The regional education and science institutions are aligned with the regional development objectives and accordingly qualified inhabitants have to train the trainers and activate and integrate the stakeholders of the region for pushing the development. Marijana Pantic is pointing out the obstacles and also future steps for a process of implementing a learning region in the north of Serbia.

This concept of a ´learning region´ will establish a sustainable learning support and mobilise regional and local actors, authorities, local business and small industry to a committed and effective involvement, utilisation and support for developing new concepts of responsible land use. The local and regional actors will work on cooperation agreements for finding ´common ground´ for future development. The results of this project should be supported in practical application. For realizing the expected goals a process will be initiated as an innovative beginning, as a result of the project.

Dissemination and Implementation strategies for Life Long Learning

The additional benefits and/or **spin-offs** of the project IPSOIL and the contribution of non-higher education institutions was done within two project applications in the second week of the IP. For continuing the IPSOIL project the students were working on EU programmes like Life Long Learning (LLL) and the FP7 Capacities Work Programme - REGPOT.

Within our final work, we were applying for a LifeLong-Learning program "Dissemination and exploitation of results", called **SuReLa** – **Su**stainability and **Re**sponsibility in **La**nd-use. The aim of this Learning Partnership is to promote the responsible use of natural resources, i.e. soil by using the results of the previous projects (i.e. IPSOIL I to III), simplifying the language of scientists, conveying experiences and knowledge to different target groups with the help of multiplicators. For this we want to address and mobilize as diverse and balanced groups of learners as possible, in relation to age, gender, education, occupation and income situation, etc. as possible, in cooperation with organisations experienced in lifelong learning and the empowerment of stakeholders. The participating organisations are universities already taking part in the IPSOIL project and NGO´s from Slovakia, Austria and Hungary.

Our second project proposal within the 7th Framework of Research, Theme 6, Environment, Integrated Resources Management, is called "**T**ransfer of knowledge on **R**esponsible **U**se of the **S**oil in The **W**estern **B**alkan **C**ountries" = **TRUS –WBC**. For exchanging the scientific experiences and know how

3 http://www.mpc1.at/download/Kvarda.pdf

about our project and sharing it between the EUs´ convergence and outermost regions and Western Balkan countries (WBC) we were applying for a FP7-REGPOT-3 International Cooperation program. This activity will support training and research activities for incoming and outgoing young researchers in member states and from the WBC.

Within FP7 support will be given to S&T potential reinforcement of the Western Balkan Countries (Serbia etc.) like **REGPOT-2007-3** for International Co-operation. This activity will provide the opportunity to develop partnerships through actions with centres of excellence established in the EUs´ convergence and outermost regions.[4] The overall goal of the project is to provide the opportunity to develop partnerships through actions of responsible soil use, with existing centres of excellence in the EUs´ convergence and outermost regions, the Member States (MS) and the WBC.

The outputs of the IP were also **disseminated** to a wider audience. Flora Möcsenyi was publishing an article of the IPSOIL success story in BOKU Insight June 2007.[5] As a highlight Mag. Dobromir Borislavov, a graduate from the Lesotechnical University in Sofia and member of the IPSOIL team, was awarded with the Dr. Karl Schleinzer Foundation price, for his personal engagement of collaboration from the University of Forestry in Sofia, with the colleagues from 8 participating Danubian countries during the IPSOIL project time, and the University of Natural Resources and Applied Life Sciences in Vienna .

The final presentation of the project took place on March 16th 2007 in the Haus im Puls. The students were presenting the results from the three years project work. Also the following final evening at the Gerbgruben – the ´blues´ Jazz night – was an extraordinary event. Thanks to Bärbel Keller and the Mosquito Jazz band.

Conclusion

The goal of this Intensive program was to co-operate in the development of a common vision of measures of sustainable land use around Neusiedl am See, having in mind a balanced production system, also for developing and transferring concrete measures for a ´learning region´. The conversion of contents and methods of the five main soil research clusters was initiated as a social learning process within a participatory and dialogue discourse. According to this intention, a holistic discussion with appropriate stakeholders of the region was necessary, who were participating within an environmental dialogue and hopefully they will try to modify the change. This ecologisation process could initiate the transition for a sustainable development according to a ´learning region´.

Rosa Strasser was proposing a catalogue of social issues at the beginning of the IPSOIL project, already in 2005. She was announcing the Socrates Erasmus program as a challenging task to encourage students and teachers to find ´**common ground**´ in their understanding of the subject, to know about different approaches and also disagreement / dissent, but it should give the opportunity to experience and to reflect different approaches. [STRASSER]

On behalf of myself I have to congratulate the students and also my colleagues, who were taking an active part for continuing the matter of soil protection, not asking for new orders, but yearning for the vast and endless chance of awareness raising for a lively world.

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5 http://www.boku.ac.at/fileadmin/_/news-letter /Insight_05_Web.pdf p21-22

CHALLENGES FOR SOIL SCIENCE IN VIEW OF THE EUROPEAN THEMATIC STRATEGY FOR SOIL PROTECTION

Blum, W. E. H.; Kvarda, W. (University of Natural Resources and Applied Life Sciences, Vienna)

Based on the 6th Environmental Action Programme of the European Commission (EC) in 2001, a Communication entitled "Towards a thematic strategy for soil protection" (COM (2002)179 final) was developed and ratified by the 15 ministers of the environment of the European Union in 2002. The purpose of this Communication was to build on the political commitment to soil protection, in order to achieve a fuller and more systematic approach in the future.Moreover, the concept of the European soil framework directive clearly shows that soil science is able to contribute to the protection of the environment by supporting sustainable agricultural soil management. Threats to soil, caused by agriculture are discussed, as well as the harmonisation between agricultural soil management and environmental protection and the role of soil organic matter, especially in view of the emerging developments in bio-energy generation.

This can be achieved through an integrated concept, distinguishing between main research goals, priority research clusters and sciences involved, for bridging between science on one side and politics, decision making and stakeholder needs on the other side are shown.

At an accelerating rate we are destroying and sealing natural habitats and converting them to fields, settlements and traffic areas. Soil is a limited resource and is getting less and less. Soils are carried away by water and wind erosion in finest arable lands at rates between 10 and 40 times the rates of soil formation. Jared Diamond show us on an epic journey around the globe, through history of humanity why several civilizations like the Easter Islanders, Classic Maya and other past societies collapsed. Thus we have the opportunity to learn from the mistakes of distant peoples and foster counter measures.

At the moment the European Union is a revolutionary model for the future to follow this provocative challenge. Mark Leonard argues: "It understands that preserving the planet for future generations is not just an existential challenge, it also makes good economic sense. But not only economic issues are pointing a new way to the future." [1] In Europe a new set of values are emerging which are focused on sustainable development, quality of life and multilateralism. The European dream emphasizes community relationships over individual autonomy, cultural diversity over assimilation, quality of life over the accumulation of wealth, sustainable development over unlimited material growth, the rights of nature over property rights, and global cooperation over the unilateral exercise of power.

Jeremy Rifkin points out: "A new science is emerging – a second Enlightenment – whose operating principles and assumptions are more compatible with network ways of thinking. While the old science is characterized by detachment, expropriation, dissection, and reduction, the new science is characterized by engagement, replenishment, integration, and holism." [2]

Therefore we need a new form of learning and problem solving involving cooperation among different parts of society and academia in order to meet complex challenges of societies. We need cooperation of researchers, practitioners and stakeholders to address the complex challenges of society.

One of the main threats to soil, described in the EU communication "Towards a thematic strategy for soil protection (COM2002) 179 final) is the loss of soil organic matter, especially in agro-ecosystems.

New developments, e.g. in the field of bioenergy generation, indicate that soil organic matter is becoming a crucial problem through the competition between the use of organic matter for technical purposes, especially energy generation and the need of organic matter for sustaining soil biology and fertility. Examples are the use of straw in central heating plants or full plant harvest, e.g. in poplar plantations with a 4-5 years' rotation.

Most of the current propagators of bioenergy disregard the fact that all bioenergy except that which is generated in water systems, is produced by soils, and the question is how long and under which conditions soil fertility can be maintained in order to produce bioenergy in a sustainable way. This question very much depends on the soil organic matter status and the understanding of the processes which balance the organic matter content and its functions in the soil-plant system.

In order to ensure soil protection, the EC developed a Thematic Strategy, proposing a series of environmental measures, designed to prevent soil degradation, including legislation related to mining, waste, sewage sludge and compost, and integrat-ing soil protection concepts into major EU policies.

An analysis of the rapid change of landscape inventory requires an encompassing knowledge integration with respect to compartments of soil, water, air etc. and the incorporation of disciplinary knowledge from the natural and the social sciences. In this context, the concept of an *architecture of knowledge* is helpful for ordering different types of arguments and reasoning inherent in transdisciplinary processes. To take the example of a landscape change, *´verstehen´* is on the top level, representing understanding of a real-world problem within its history, constraints, dynamics, and uniqueness.

It must be distinguished between:

- 1. The key epistemics of cognition on this level are understanding by empathy, feeling, pictorial representation in memory and intuitive comprehension.
- 2. At the second level is the conceptual model of the real world. A shift occurs from a holistic real-world perspective, at the first level, to a system or model level, at the second stage. The key for successful work at this stage is synthesis and integration organized by knowledge integration.
- 3. The third level is the epistemics of causal explanation by propositional logic, as prototypically provided by the formal natural sciences. [3]

1 LEONARD (2007) p. 79

2 RIFKIN (2004) p.340

3 KLEIN p.243

1. CASE UNDERSTANDING

Many European Union (EU) policy areas are of some relevance to soil and its protection, especially those relating to environment, agriculture, regional development, transport, development and research. Knowledge of soil survey and monitoring systems, data networks and other forms of information is uneven across Europe. – In view of these factors, it was stressed that in future it will be necessary to develop a new EU-wide monitoring system. It was also stated that the development of an EU Soil Protection Policy will take time and will require a precautionary approach, based on preventing soil degradation in the future.

For this, an operational set-up was created, involving 5 **Technical Working Groups** (TWG) with more than 400 participants, mostly scientists from all over Europe, dealing with soil erosion, decline in organic matter and biodiversity, as well as local and diffuse contamination. Moreover, TWGs were installed for monitoring issues and research. All endeavours of these TWGs were accompanied by an Advisory Forum, including stakeholders and other European-level interest groups. The 5 TWGs each met 4-5 times in different places in Europe and each developed a report which can be read on the soil website (http://europa.eu.int/comm/environment/policies:soil) or in the soil electronic library and discussion site (CIRCA) or as a publication[4] .

The Technical Working Group Research (TWG Research, 2002-2004), established for the development of the European soil thematic strategy, came to the conclusion that soil research should be organised in such a way that the results are easily accessible to those who need this information for soil and land management, such as farmers, foresters, land managers, land use planners, and architects as well as politicians and decision makers.

Under these premises, 5 priority research areas for soil protection and soil management on the basis of the **DPSIR framework** approach (EEA, 1999) were distinguished (see Fig. 1).

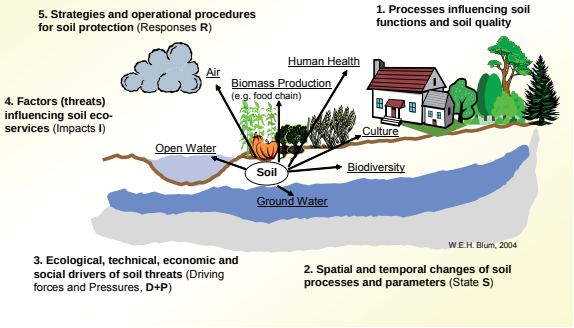
The European Soil Thematic Strategy (European Commission, 2002) defines 5 main functions of soil for human societies and the environment, such as the production of food and other biomass and the capacity for storing, filtering and transformation, soil as a habitat and a gene pool, soil as a physical and cultural environment for humankind and as a source of raw materials. From this, it becomes evident that agricultural production is only one of five main uses of soil and land and therefore in competition with the other uses, see Fig. 1.

Moreover, **8 main threats** to soil were defined in the Soil Thematic Strategy, such as erosion, decline in organic matter, soil contamination (local and diffuse), soil sealing, soil compaction, decline in soil biodiversity, salinisation, and floods and landslides. Most of these threats are caused by agricultural production, especially under unsustainable conditions.

4 L. Van-Camp, Bujarabal, B., Gentile, A.-R., Jones, R.J.A,, Montanarella, L., Olazabal, C. and Selvaradjou, S.-K. (Eds.) (2004). Reports of the Technical Working Groups established under the Thematic Strategy for Soil Protection. EUR 21319 EN/ I-VI, 872 pp. Office for Official Publications of the European Communities, Luxembourg.

Fig. 1:

PRIORITY RESEARCH AREAS FOR SOIL PROTECTION AND SOIL MANAGEMENT BASED ON DPSIR



Therefore, the question must be raised, how to harmonize the five different main functions of soil in such a way that the environment is protected and soils are used sustainable for the production of food and other biomass. Such questions depend mainly on policies, .e.g. at a European and/or a national level, such as policies related to the environment, to agriculture, to regional development, to transport and to other targets.

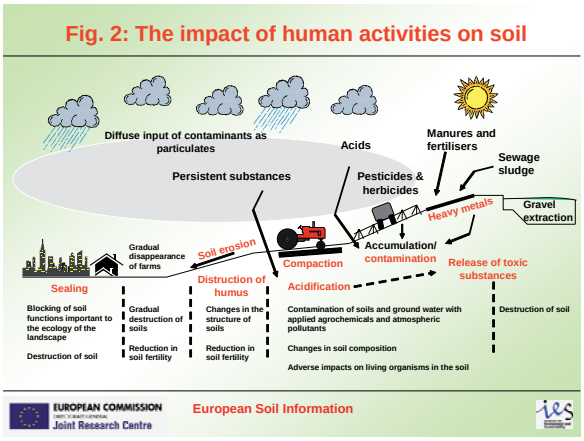
2. CONCEPTUALIZING – APPLICATION OF METHODS OF KNOWLEDGE INTEGRATION

Methods of knowledge integration emanate mostly from interdisciplinary fields such as decision sciences, operations research, and management sciences. They can be classified as methods for problem representation (system dynamics), problem evaluation (Integrated risk management, bio-ecological potential evaluation), problem transition (Future workshops) and study team organization (synthesis-moderation). [5]

Therefore, the question arises, how to practice agriculture in such a way that, besides the production of food, fodder and renewable energy, soils can deliver further goods and services to humans and the environment, see Fig. 1.

This can only be achieved on the basis of an integrated concept for sustainable soil resource management and environmental protection. In order to reach this target, the development of indicators is needed, which can bridge between scientific knowledge on one side and the practice of land management by politicians, decision makers and stakeholders on the other side.

Fig. 2: The impact of human activities on soil



Threats to soil through agriculture are depicted in Fig. 2, showing that nearly all agricultural activities can be harmful to soil and the environment, if not used in a

5 KLEIN et al. (2001) p.245

sustainable way. This is true for soil erosion, loss of organic matter, loss of biodiversity, diffuse and local soil contamination, soil compaction, salinisation, and floods and landslides.

For this purpose, within the European Soil Thematic Strategy, an integrated research concept was developed, which can deliver such indicators. The basic ideas of this integrated research concept is shown in Table 1, in which the main research goals, research clusters and the different sciences involved are shown. This priority research can only be carried out in an interdisciplinary and multidisciplinary way.

In order to ensure soil protection, new research concepts were developed, based on the **DPSIR** approach, distinguishing between driving forces (D) which cause pressures (P), which by themselves are causing a (S) state, which has direct and indirect (I) impacts and for which responses (R) are needed (European Environment Agency, 1999). More information on this new approach can be found in Blum et al. 2004.

As a result, a new concept for integrated soil research was established, distinguishing between main research goals, research clusters and the sciences involved. This new research approach defines priority research areas for soil protection as well as comprehensive research projects on the basis of single research proposals, bringing different sciences together.

The realization of this comprehensive research concept is a challenge to the soil scientific community, also because of its interdisciplinarity and multidisciplinarity, bringing soil sciences, political sciences, social sciences, ecological sciences, economic sciences, historical sciences, biological sciences, geological sciences, toxicological sciences, legal sciences, engineering sciences and others together.

Cross-cutting and over-arching research needs defined by the TWG Research were: understanding of the dynamic soil architecture (spatial arrangement of physical, chemical and biological properties) and its relation to functional processes; - understanding and quantification of soil resistance and soil resilience; - linkage between soil reactions on threats and broader social and economic assets related to land use and society; - knowledge of interactions between the physical, chemical and biological processes as a basis of multi-process models; - information and integration of different spatial and temporal scales; - assessment of site-specific soil processes, responding to climate and land use change; - organic-inorganic interactions as basic features of soil functions; - linkages between the behaviour of soil properties under experimental conditions to their behaviour under field conditions.

Tab. 1: Integrated research concept for soil resource management and environmental protection

	MAIN RESEARCH GOALS	RESEARCH CLUSTERS (see Fig. enclosed)	SCIENCES INVOLVED
1	To understand the main processes in the eco-subsystem soil; induced by threats	Analysis of processes related to the 8 threats to soil and their interdependency: erosion, loss of organic matter, contamination, sealing, compaction, decline in biodiversity, salinisation, floods and landslides	Inter-disciplinary research through co-operation of soil physics, soil chemistry, soil mineralogy and soil biology
2	To know where these processes occur and how they develop with time	Development and harmonisation of methods for the analysis of the **State (S)** of the 8 threats to soil and their changes with time = **soil monitoring** in Europe	Multi-disciplinary research through co-operation of soil sciences with - geographical sciences, - geo-statistics, - geo-information sciences (e.g. GIS)
3	To know the driving forces and pressures behind these processes, as related to cultural, social, economic, ecological or technical, local, regional or global developments	Relating the 8 threats to **Driving forces (D)** and **Pressures (P)** = cross linking with EU and other policies (agriculture, transport, energy, environment etc.)	Multi-disciplinary research through co-operation of soil sciences with political sciences, social sciences, economic sciences, legistic sciences, historical sciences, philosophical sciences and others
4	To know the impacts on the eco-services provided by the sub-system soil to other environmental compartments (eco-subsystems)	Analysis of the **Impacts (I)** of the 8 threats, relating them to soil eco-services for other environmental compartments: air, water (open and ground water), biomass production, human health, biodiversity	Multi-disciplinary research through co-operation of soil sciences with geological sciences, biological sciences, toxicological sciences, hydrological sciences, physio-geographical sciences, sedimentological sciences and others
5	To have operational tools (technologies) at one's disposal for the mitigation of threats and impacts	Development of operational procedures for the mitigation of the threats = **Responses (R)**	Multi-disciplinary research through co-operation of natural sciences with engineering sciences, technical sciences, physical sciences, mathematical sciences and others

3. CAUSUAL EXPLAINING

The second level, conceptualizing through synthesis by methods of knowledge integration is an important step for establishing a scientific foundation of transdisciplinarity, which is a new form of learning and problem solving. This means finally, providing a concept for generating robust conclusions and statements that are required from a societal point of view.

In accordance with the principles of self-organisation, responsibility, subsidiarity and regionality the strategy for soil protection should allow for independent bottom-up activities by all the actors and stakeholders. [6] The Thematic soil strategy should be designed as a long term plan of action, to achieve particular goals and it should be the beginning of a continuous process.

Within the European Soil Thematic Strategy, a new European Framework Directive for the sustainable management of soil resources was proposed by the European Commission on September 22, 2006, called the "**Soil Framework Directive**". This proposal includes:

- the establishment of a common framework to protect soil on the basis of the principles of preservation of soil functions, prevention of soil degradation, mitigating of its effects, restoration of degraded soils and the integration in other policies;
- the requirement to identify, describe and assess the impact of other policies on soil degradation with the view to protect soil functions;
- the requirement of land users to take precautionary measures when their use of the soil can be expected to affect soil functions;
- an approach to soil sealing, to ensure a more rational use of land, to maintain as many soil functions as possible;
- the identification of areas and the extent of risk for erosion, organic matter decline, salinisation, compaction, and landslides, and the establishment of national programs of measures;
- measures to limit the introduction of dangerous substances into soil, to avoid accumulation in soil that would affect soil functions and create a risk to human health and the environment;
- the setting up of an inventory of contaminated soils, a mechanism for funding the remediation of orphan sites, a soil status report and national strategies for the remediation of contaminated sites.

Even acknowledging that this proposal is not yet accepted by all EU member states, the directive will develop soil protection and the sustainable management of agricultural soils, thus promoting the protection of the environment in a comprehensive way.

Conclusions

Soil science can indeed develop the basis for the protection of the environment through sustainable agricultural soil management and will therefore have a tremendous task in the near and remote future. This task can be easily fulfilled, on the basis of the European Soil Thematic Strategy and the adoption of the European soil framework directive.

6 The Austrian Strategy for Sustainable Development. (2002). Federal Ministry of Agriculture, Forestry, Environment and Watermanagement. Vienna. p.6 www.lebensministerium.at

As a result of all the operations following the development of the Soil Thematic Strategy on September 22, 2006, 3 documents were adopted by the EC and communicated to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions:

- Thematic Strategy for Soil Protection (SEC(2006)620) / (SEC(2006)1165);
- an Impact Assessment of the Thematic strategy on Soil Protection (COM(2006)231 final) / (SEC(2006)1165);
- a proposal for a Directive of the European Parliament and of the Council, establishing a framework for the protection of soil and amending directive 2004/35/EC = Soil Framework Directive (SFD).

A Sokrates Erasmus Intensive program – **IPSOIL** – "Responsible use of Soil and Land and Regional Development" - provided an insight in the possible multidisciplinary approaches from the point of view of junior scientists. The following papers are a collection of two weeks of intensive work of a post-graduate programme following the guidelines of the European Thematic Strategy for Soil Protection.

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SOCIAL VALUES AND ATTITUDES AND MULTIFUNCTIONAL SOIL USE AND LAND USE ETHICS

Prus, T. (University of Ljubljana)

Present period is characterised with a tremendous increasing of cities. Never before in human history would such a large majority of inhabitants live in dense urban areas. Fast economy grow has developed so called urban sprawl almost around all cites where urban planning has nearly lost control. For development of global economy only space is important while the care for environment is considered as a marginal and even unnecessary brake block. The global economy is transferring material and even human resources at will all around World. Recreational needs and desires of modern citizens, like watching the birds, are allocated in tourist areas and exotic countries.

The loss of natural qualities in dwelling ambience of heavily urbanised and industrialised settlements can not be replaced with declaring protected zones in regions with weakly developed communication and traffic infrastructure and weak economic development. Even worse are one-sided and in cities generated restrictions of land use to local farmers. Protected areas can not be intended for itself because most of landscape phenomena are manmade. The varieties of cultural landscape are derived from different agriculture activities in the landscape which have replaced formerly prevailing forest in Central Europe.

Functioning of global ecosystem is already distressed due to emissions of glasshouse gasses from mostly industrial, traffic and other urban sources. Their effects on climate are obviously observable. Within those global phenomena many different environmental problems occur at regional and even local scale. The global climate change can be considered sometimes as a trigger for many local distress situations like floods, landslides and others. They are actually often consequence of human activities which are going on for longer periods and are usually concerned in bio professions as bad practises. Tramping and biking out from prepared paths, using (to) heavy machines in forests and agricultural areas, constructions in endangered areas of floods, improper use of organic and mineral fertilizers are just some of them.

Environmental catastrophes were present in human history. More or less expressed degradations of landscapes resulted in food shortage for shorter or longer periods, water shortage and even the shortage of fire wood for preparing food in the past and even now.

To overcome such situations in professions of forestry and agronomy several practices of land

management have been developed. Their basic principles are nature-based, sustainable and multifunctional. They should be applied in each sphere of human activity and living on our planet.

Nature-based human actions or interventions in natural environment are nature friendly or in accordance with nature and natural processes. Some activities are derived directly from natural processes for exp. composting.

Sustainability means that human actions are prepared and executed in a way that natural systems are not loosing their capabilities and multifunctionality in a long time period. The natural flow of matter and energy through all parts of the ecosystem is preserved. The principle of sustainability has a long history. Carlowitz introduced it in 1713. Economic reasons as deficiency or endangerment of certain forest welfares (water, game, forest functions, biodiversity, landscape elements etc.) were actually the driving forces for its introduction. There are several positive experiences based on sustainable forestry practice from Swiss and also from South-east European Karst area.

Multifunctionality is describing the interlacing functions of (global) natural system and each of its components. The system and its components do not carry out only one function but several for exp. a forest is not only producing fire wood but it is also balancing water regime, filtering the dust particles, it can be an recreation are etc.

There are many discussions should the approach to nature be more human oriented (anthropocentric) or nature oriented (biocentric or ecocentric). Not to go into many philosophical details the anthropocentric (utilitarian, shallow even technocentric) approach is cost- benefit oriented accounting of natural resources. They declare their environmental policy as the only with "feet on the ground" and their greatest achievement is the principle of minimal harm which is "accounted" through environmental or pollution taxes which should reduce the harms to the nature. Biocentric approach is based on supposition that each part of the nature and the nature as whole have an intrinsic value, a value bay itself, which is independent from actual or potential human benefits. The most respected authors in that field are Aldo Leopold and Paul W. Taylor. On the other hand the representatives of this approach can be very self-sufficient and even radical. Such a statement made many problems for protecting the good agricultural soils. Since the farmers are using artificial manure (fertilizer) and pesticides the soils are, due to their theories, polluted and not worth to be protected. Any other land use is more worth to be protected.

Actually we are somewhere in between both approaches. In real economy the profit of industry runs the political decisions. This can be considered as driving force for many actual environmental problems including the global climate change. Especially economically poor and environmentally uneducated countries are easy to convince to give their resources at the disposal to multinational firms.

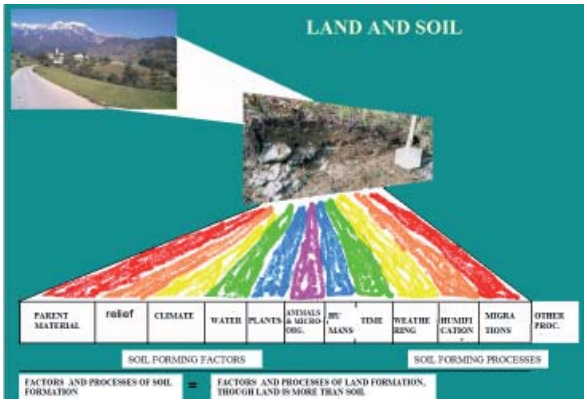
There is actually no chance to compete with omnipotent links of multinational firms and policy on short period. The only chance is the education of public and creating a positive public opinion. In a way there are fundamental differences between EU countries and other part of the world especially US and courtiers which are economically and politically belonging to their so called interest zone. On the other hand the pressures exist also in EU. The Soil Thematic Strategy is supposed to be the basic for a corresponding directive. The proposed Soil Framework Directive has a certain delay as well as some revisions are expected.

Soils are anyhow a neglected part of the environment. The discussion about importance of soils as part of ecosystem or as natural resource is only recently

present in policy when soil threats especially soil sealing became very explicit. Politicians are interested to soils as a sink of carbon dioxide. This is probably giving them a hope to avoid some already excepted restrictions in CO_2 emissions. Not to be to critical the soil pollution survey and monitoring are political themes in some countries as well.

The reasons why the policy avoids some concrete measures to protect the soils is the property. Ownership of land parcels is almost untouchable. And may landowners still act as they can do anything on their land. To overcome such mentality where individual interests cower the common we must be aware of certain common goods the soils are providing to us as they already were presented (Blum, 2006).

There are very strong linkage existing between soils and landscape. Land use and due to that even characteristic aspect of landscape depends on soil properties. Land and soil are functioning mutual. There very limited landscapes without soil but every soil belongs to certain landscape. The forming factors are the same for landscape and soils one landscape can consist of different soil types but usually the belong to same or related series.



Picture 1: Mutual dependency of soils and landscape.

Most of the soil threats are not jeopardizing just the soil on particular land parcel; they attack certain area of landscape. Also we are not able to allocate all the services and benefits deriving from soil functions. Those are the main reasons for addressing the politicians, decision makers, planners and landowners who due to the cultural level of our civilization have also moral and ethical obligations!

The politicians are directly responsible to help rise the professional and public awareness through education and media. In general we have to establish a system of values which are not measuring soils only in money. Besides the legislation it is very important to establish some self regulating rules of behaviour and treatment with soils.

At the end let me put you some question. Is the agriculture really such a burden? Is the abundance of food really so self-evident? Do we really have to transport food and water all around the World? Can we neglect the invisible functions of mud and dirt from which are the plants growing? Have our cars more rights to fuel than other humans to food?

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KICK OFF MEETING

CONTRIBUTIONS OF ECONOMICS AS A CHALLENGE FOR INTEGRATED SPATIAL MANAGEMENT AND PLANNING

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"Integrated Spatial Management and Planning" are increasingly seen as a response to growing pressures on landscape. Therefore, policy integration at different territorial levels and land use control at local level become central issues. The nature of landscape degradation, the conceptual and theoretical challenge of not separating physical aspects from socio-economic change and the conceptual and theoretical challenges of linking scientific knowledge to action in the field of landscape planning are key themes to be addressed. At the local level, this means an important challenge in terms of conventional practice as the transformation of landscapes, landscape degradation and the challenges of landscape protection can no more be understood as problems to be tackled by means of single policies alone. Action at local level requires the need to clarify the sense of dealing with structural problems at local level. On the other hand, planning on a sub-national basis touches issues directly related to urban and regional planning. Planning for spatial diversity and local specificity requires context-dependent knowledge and the centrality of 'agency'. And the constitution of agency requires leadership at partnership level in order to ensure coherence, flexibility, and the pursuit of strategic objectives when planning agents are composed of social agents (forming the partnership) with different and overlapping territorial rationalities. Finally, public investment, namely, in transport and communication infrastructures, becomes a key strategic tool in facing the challenge of increasing the control over land use for enhancing degraded landscapes in the context of 'distressed urban areas. This represents a major challenge in contemporary European societies [1].

1. Context

"Integrated Spatial Management and Planning" are increasingly seen as a response to growing pressures on landscape. Contemporary developments are accelerating the transformation of lanscapes. Urbanisation and urban sprawl, road infrastructuring or migrations are examples of European aspects of territorial distress.

On the other hand, the Landscape is a key factor in assessing the impact of climate change. Climate change is one of the major environmental issues for the coming years, both regionally and globally. Some of the regions of the world have become drier, with significant implications for both wind- and water induced erosion. Loss of soil carbon, possibly exacerbated by erosion, releases carbon dioxide into the atmosphere: this contributes further to global warming. A major goal of the programme "Climate Changes Spatial Planning" is to enhance joint-learning between those to communities and people in practice within spatial planning.

As the European Lanscape Convention stresses in its Article 2 ("Scope"), the Convention applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. The Convention also defines "Landscape management" (Article 1) as *"action from a perspective of sustainable development, to ensure the regular upkeep of a landscape, so as to guide and harmonise changes which are brought about by social, economic and environmental processes*". Finally, the Convention defines "Landscape planning" (Article 1) as *"forward-looking action to enhance, restore or create landscapes*". [2]

The contributions presented below concern the challenges of enhancing or restoring degraded landscapes in "distressed urban areas" of the urban peripheries. It suggests some conceptual and theoretical developments in linking pro-active agency aiming at sustainable development and territorial planning.

1 I thank Prof. Werner Kvarda for his very relevant comments and contributions

2 An earlier version of this paper has been presented at the European Lanscape Convention, Piestany, Slovakia, 24-25 April 2008

Policy integration at different territorial levels and land use control at local level become central issues. The nature of landscape degradation, the conceptual and theoretical challenge of *not* separating physical aspects from socio-economic change and the conceptual and theoretical challenges of linking scientific knowledge to action in the field of landscape planning are key themes to be addressed.

2. Landscape and contemporary planning problems

At the *local level*, this means an important challenge in terms of conventional practice as the transformation of landscapes, landscape degradation and the challenges of landscape protection can no more be understood as problems to be tackled by means of single policies alone.

Understood as sustainable development problems, they require a specific local response linked to all dimensions of current Municipal and central statutory action as well as the involvement of all relevant social agents.

Concrete manifestations of landscape transformation and degradation are unique in each territorial context. Therefore, action has an unavoidable local dimension as landscape transformation becomes concrete in increasingly complex, spatially diversified and local specific contexts. Also lasting changes require clarification as action will have both a local and a non-local dimension aiming at societal change given the structural nature of problems.

The incorporation of these kinds of challenges in current territorial planning requires conceptual and theoretical development. Territorial planning is a future oriented activity whose theoretical object remains on *linking* scientific knowledge to action in the public domain.

3.Territorial integration

The *territorial integration* of physical, economic and social dimensions for contextual change was the particular challenge proposed by the Community Initiatives Urban I and II aiming at the promotion of innovation in this domain. But, policy integration at different territorial levels, requires restructuring of state response which relates back with issues

involving *"decentralisation", "deconcentration"* or even *"centralisation"* in the relations with the national territory.
Also the increasing involvement of Municipalities relates back with the need to discuss the substantive nature of action making concrete the challenge of dealing with sustainable development issues when traditional state response can no longer be restricted to single policy domains.

It is being widely recognised that Municipalities are confronted with an increasing complexity of urban problems in '*distressed urban areas'*, namely, all those that relate transformation of landscapes, landscape degradation and the challenges of landscape protection with urban blight, unemployment or poverty and social exclusion.

Fig. 1: Distressed urban area, Porto (Foto: Henriques)

The complexity as well as the political and policy relevance of social problems associated to European urban areas was particularly emphasized by the European Commission in its Communication *'Towards an Urban Agenda'* in April 1997 and has later been addressed by other initiatives. Actually, 80% of the European population lives in urban areas.

4. Conceptual and theoretical challenges

It is within this kind of contemporary European challenges that this contribution has to be understood. There is a relation between lasting changes towards sustainable development and the concrete ways to cope with transformation of landscapes, landscape degradation and the challenges of landscape protection.

Linking Municipal action for sustainable development to local development and to territorial planning requires conceptual reformulation and theoretical development in what concerns the relation between transformation of landscapes, landscape degradation, socio-economic processes and space.

The *'paradigmatic transition'* in regional development theory and in planning theory, as well as the ongoing *'paradigmatic transition'* in the social sciences themselves, offer opportunities for widening the scope for this kind of analysis. Emerging alternatives to the '*hegemonic paradigm'* in Economics also open promising perspectives to the analysis of the relations between landscape, space and socio-economic processes. These contributions enable a more precise definition of the *economic* dimension of landscape problems as well as about the *economic* dimension of local development processes aiming at sustainable development.

Theoretical contributions to local development in urban-metropolitan context are not widespread. Early contributions to local development were basically concerned with *'underdeveloped' regions* and reflected the conceptual and theoretical bias of the paradigms they belong to.

Urban-metropolitan areas are, *per definition*, considered to be included in *'developed' regions* and their specificity is not explicitly approached in terms of locally induced development possibilities, namely, under Municipal initiative. And, the local relations between the specificities of local economic structures and of local functional integration in the metropolitan areas (residential specialisation, etc.) constitutes an additional challenge to the analysis of local development. Linking landscape protection and enhancement to the intentional change of the local socio-economic context in urban-metropolitan areas aiming at local development requires, therefore, specific theoretical development.

Finally, territorial planning plays a relevant role in *making concrete* the nature of Municipal action aiming at local development when understood as *intentional change.* But, current planning remains strongly dependent on 'the production of *the* plan', rather than on processes of collective self-empowerment in order to facilitate intentional change, for example.

5. 'Spatial separatism' and the 'space-time' constitution of social phenomena

Control over land use plays a central role in landscape protection and enhancement. Thus, control over land use plays also a role in *intentional* contextual change.

But, territorial planning theory remains strongly influenced by *'spatial separatism'* [3] (Gore, 1984) reflecting the effects of the 'crises of theory *in* planning. The implicit assumptions in conventional territorial planning concerning the separation between socio-economic phenomena and physical phenomena (*'spatial separatism'*), the relation between planning and regional development and the relation between the role of the state and the 'production' and 'resolution' of problems have to be carefully analysed.

This is particularly acute in a country like Portugal, where the relations between state and society have to be analysed in the framework of a *semi-peripheral* society and where the state plays a central role in social regulation. In Portugal, there are no political regions in the continental territory and regional development policy has not a strong tradition.

The 'space-time' constitution of social phenomena is relevant to our understanding of landscape planning problems. The explicit consideration of the 'space-

3 Gore, C. 1984, Regions in Question, Methuen, New York

time' constitution of social phenomena is a remarkable challenge for the social sciences. It does not correspond to more conventional understandings.

'Space' and 'time' are basic dimensions of human existence and here they are both understood on the basis of relative concepts. Human practices are the bases of the objective qualities that space and time can express. According to physicists, neither time nor space had existence before matter. According to a relative conception of space, the properties of space are not absolute, but depend on the existence and distribution of matter and energy. Space is itself defined by mass and energy, and can only be studied in terms of the relations of matter and of energy through time, that is a space-time 'field'. Therefore, the objective qualities of physical 'time-space' cannot be understood independently of the qualities of material processes. Objective conceptions of time and space are necessarily created through material practices and processes that serve to reproduce social life [4].
If a relative concept of space is accepted than *'spatial separatism'* is rejected. As introduced above, *'spatial separatism'* has been identified with the notion that it is possible to identify, separate and evaluate the spatial as either an independent phenomenon or property of events examined through spatial analysis. It is enough to remember that land cannot be seen alone as a mean of production (agriculture) or a locational constraint (manufacturing). Land also becomes an element of production (land speculation, etc.).

That is why space is not to be viewed in absolute terms. It is not an empty container that is somehow separate from the material objects located *'within it'*. 'Spatial' consists of the *relations* between social objects. From this perspective 'space' cannot be separated from 'process', and, for example, one cannot write about a *'spatial incidence'* of development.

On the other hand, the relevance of time in close interpersonal relationships is known given the need of communication among adults, between adults and children and among children. In the family, lack of time for interpersonal relation between the couple contributes to reinforcing communication barriers with emotional effects that reinforce lack of physical or mental health (psychosomatic disturbances, psychological pathology, etc.). The relevance of time in the relation between parents and children is also known. Lack of time for a harmonious relation between parents and children can be at the root of psychological, cognitive or emotional disturbance. The 'time-space' of parent-children relation is essential to their psychological development (playing, storytelling, etc.). It also raises a barrier to inter-household relations and participation in social, cultural and political life.

6. **Landscape protection, planning problems and planning agency**

This concerns, first, the conceptual and theoretical assumptions related with the emergence of landscape problemas as planning problems. Second, it concerns the nature of planning at sub-national level which covers different national, scientific and professional traditions in dealing with urban and regional planning (land use planning, urban form, location and accessibilities, development promotion, supporting collective self-empowerment, etc.).
As widely recognised, the results of conventional planning practice are not encouraging. A proposal for the understanding of regional planning as an *'empowering dialogue'* was already discussed and presented[5]. Therefore, the nature of the activity to be developed as *planning* is not independent from the previous examination of issues such as the nature of landscape problems and their local specificity; the nature of the planning agent, the planning context and the nature of "planning powers"; and, finally, the substantive content of planning and the role of planners.

The nature of landscape problems, their local specificity and the nature of action to "solve" them

If it is accepted that there is a *structural* nature of landscape problems, the very nature of *"landscape planning"* requires careful examination as the relation between *structural nature* and *local specificity* requires particular attention.

Landscape problems can be understood as *"wicked"* problems[6]. They have no definitive formulation, they have no stopping rule, there is no ultimate test of a solution, they do not have an enumerable set of potential solutions and they can be considered to be symptoms of other problems.

The choice of explanation about the nature of a "wicked" problem is not independent of the nature of the problem resolution which is previously assumed (concept-dependency of the very problem resolution). If definition is not independent from resolution, the very possibility of resolution depends on the "causal powers" of the planning agent and on the role of planners interpreting the action possibilities of the planning agent. In addition, given the "wicked" nature of the problems to be (re)solved, the specific content of the action to be developed is not independent of the nature of the social agent which can be identified as the initiator of action.

Understanding planning problems as 'wicked' has further relevant implications for planning theory. First, 'wicked' problems reinforce the *subjective role* of planners in the planning process. The information needed to solve the problem depends on one's idea of how to solve it. Second, 'wicked' problems challenge the hegemonic scientific paradigm. Epistemological issues gain a more relevant and clear role, namely, with regard the *validity* of planning relevant knowledge. Third, given the nature of effects to be aimed at, both the idea of action for social change and the impossibility of anticipating the full consequences of action represent a major challenge for the *organisational* dimensions of planning, namely, regarding the nature of evaluation issues and the possibility of continuous monitoring.

The nature of the planning agent, the planning context and the nature of the "planning powers"

The nature of the social agent undertaking landscape management and planning requires analysis, as does its relations with other agents and the environment in

4 Harvey, D. 1989, *The Condition of Postmodernity*, Basil Blackwell, Oxford

5 Henriques, J.M., 2006, *Global Restructuring and Local Anti-Poverty Action: Learning from European Experimental Programmes,* Pd D Thesis, ISCTE, Lisboa, http://hdl.handle.net/10071/273 (accessed 2008 April 25th)

6 Rittel, H. and Webber, M 1973, 'Dilemmas in a General Theory of Planning', in *Policy Sciences*, 4 (1973), pp. 155-169

the context of which planning activities are deployed (planning rationality and diverse rationalities of social agents represented at partnership level, the power of the planning agent and the powers of other agents whose reaction has to be overcome in the course of action aimed at structural change, etc.).

The definition of the key agent and the context of action, including the time involved in the action, require that the context of the action to be developed at local level is analysed previously. Clarification is required when dealing with the sense of the *"end"* of an action, namely, when the "end" of an action does not correspond with the "end" of the problem (acting on a project basis, etc.).

Action at local level requires the need to clarify the sense of dealing with structural problems at local level. On the other hand, planning on a sub-national basis touches issues directly related to urban and regional planning.

Planning for spatial diversity and local specificity requires *context-dependent* knowledge. Knowledge being local and *"total"* as linked to problems experienced and *translated* in terms of a *project of hope* for those experiencing the problems requiring solution. The constitution of *agency* requires leadership at partnership level in order to ensure coherence, flexibility, and the pursuit of strategic objectives when, for example, planning agents are composed of social agents (forming the partnership) with different and overlapping territorial rationalities.

7. Creating 'localities' and creating landscapes in 'urban distressed areas': without control over land use?

As particular 'space-time' settings of the concrete outcomes of structures and the working of mechanisms, the material basis of localities (social relations, institutions, agents, etc.) enable the conditions to be created for their reproduction or transformation.

On the basis of what was discussed above, localities can be seen as '*potential communities'* and as '*territorial development units'*. As the material basis of localities is constituted by social relations (not geographic space), it is further assumed that pro-active agency may be linked to the animation of those social relations *creating* localities and *landscapes.*

The *creation* of localities and landscapes in *'distressed urban areas'* requires the specific understanding of localities developed above. '*Distressed urban areas'* are *also* [7] *produced'*. They correspond to spatial concentrations of urban problems including diverse manifestations of poverty among inhabitants, economic decline, and physical decay.

Problems *in* such areas are not problems *from* these areas. The problem of these areas is not only one of overconcentrated poverty in degraded landscapes. Many poor people live outside 'distressed urban areas' and many people living in these areas are not poor.

But, as introduced above, contemporary developments are accelerating the transformation of lanscapes. Urbanisation and urban sprawl, road infrastructuring or migrations are contributing to acceleration in land use changes and 'producing' land as commodity through massive public and private investment.

Local direct control over land use becomes more difficult under these conditions, specially in countries that recognise the right to private land ownership and show poor conditions for public initiative in land use regulation. Direct administrative control becomes increasingly difficult.

Municipal public land supply hardly can become relevant in interfering with land values and land use. Either we understand increasing land values as a result of market mechanisms given a rigid land supply (central land), or we understand land values as a result of the institutional framework within which urban rent is created and appropriated, the local public manoeuvring space for land use control faces limits. Public supply hardly can interfere in market prices, land use regulations hardly can interfere with urban rent.

Thus, public investment, namely, in transport and communication infrastructures, becomes a key strategic tool in interfering with land values. Without changes in the overall structuring of urban-metropolitan areas it becomes difficult to interfere in land use change. However, enhancing degraded landscapes in the context of 'distressed urban areas' represents an enormous challenge in contemporary European societies. Is it possible without increasing control over land use?

7 Henriques, J.M. 1990, 'Subdesenvolvimento Local, Iniciativa Municipal e Planeamento Territorial' in *Sociedade e Território*, Ano 4, nº 12

CROSS-BORDER ADULT EDUCATION AT THE INTERFACES OF EUROPE

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At the Lisbon summit in March 2000, the Council of Europe set itself a new strategic goal for the next decade – to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. In this context, lifelong learning was defined as one of the most important components of this strategy. But lifelong learning is not only able to contribute to increased competitiveness and employment but also to the social integration and personal development of citizens as individuals. With this focus on lifelong learning, adult education gained enormously in significance at the European level. "Since Lisbon, the European Education and Vocational Training Policy received a previously unknown dynamic" – states the Commission in its latest draft for the creation of a new Integrated Action Programme in the field of lifelong learning for the period from 2007 onwards, which aims to integrate the two major education programmes Leonardo da Vinici and Socrates. The aim is to promote lifelong learning through the financial support of education projects in which, additional to the exchange of teachers and learners, the project-oriented cooperation of educational institutions plays an important part. For many adult education institutions, the continuous participation in European cooperation projects and mobility measures has become part of their daily routine. In fact, contemporary adult education work without the involvement of a "European dimension" is no longer thinkable.

Cross-border Adult Education as a Special Form of Transnational European Education Cooperation

One special form of transnational European cooperation in education involves cooperation among educational institutions alongside internal or external borders of the European Union. People looking for education and learners in border regions are confronted with problems such as different access restrictions to the respective educational systems, different administrative structures and certification systems that are not standardised. Furthermore, different languages and different cultural values as well as historical aspects all play an important role.

Adult education institutions that wish to participate in cross-border cooperation activities have to deal with legal settings and administrative structures which have little or nothing in common with one another. This is true for most transnational cooperation projects, but in contrast to these, cross-border cooperation projects take place in a geographically coherent area[1] . In border regions, questions concerning European integration have far more immediacy and influence the daily life of the inhabitants more directly. Learners and adult education institutions in border regions are almost inescapably confronted with the aspects mentioned above . Cross-border cooperation in adult education must therefore be seen as a special form of transnational European educational cooperation. As such, it is all the more surprising that cross-border adult education has for a long time been largely ignored, both in the political and in the theoretical discourse. Indeed, it has still to find its place in European educational programmes.

Cross-border Adult Education as a Touchstone for the Success of European Integration

Behind the immediate aim of the education programmes – to enhance innovation in education through the financial support of education projects and promote lifelong learning in all its forms – there is a further intention to obtain a "European added value", which concerns the "project Europe" itself. Transnational project cooperations as well as mobility activities are intended to enhance the building of a common European educational area and to diminish political, economic and cultural barriers between the European member states and thus promote the process of European integration.

Here too, border regions play an important role. On many occasions, they are the touchstone for the success of European integration and they have, in many cases, provided the motor for integration. Adult education institutions face the challenge of contributing to economic and social harmonisation and to the cultural and psychological integration of border regions.

In this context, cross-border cooperation projects in regions which share a common border with one or more of the ten new member states are of special importance. Here, there is a special challenge to European integration because harmonising economic, social, cultural and – last not least – educational standards requires much greater effort than is often the case along internal borders of the former group of 15 EU member states. In other words, cooperation projects along external EU borders are of great significance. In this context, two aspects in particular show that cross-border educational work is to be seen as a special form of transnational education cooperation. The Socrates and Leonardo da Vinci programmes stress the geographically-balanced composition of project partners as an important component of selection criteria. It is presumed that the need for intercultural understanding is bigger between geographically distinct states than between neighbouring states. Apart from the fact that the assumption that border regions have a lesser need for integration is – if at all – only true in a restricted sense, these selection criteria constitute an enormous handicap for cross-border cooperation. Also another requirement, namely that at least three project partners from three different European states should be involved, hinders cross-border cooperation. Not to mention the fact that in the practice of project selection (at least for big pilot projects) many more partners are the norm, projects in border areas are rendered impossible, because cross-border cooperation generally takes place on a bilateral and seldom on a trilateral basis.

Models of Cross-border Education Cooperation

Despite the drawbacks mentioned above, different models of cross-border education cooperation have developed and become established along many European internal borders, where the quality and quantity of cooperation varies considerably. The models range from organised study visits to the neighbouring country to common bi- or trilateral further education centres. The following forms and models of cross-border educational work can be defined:

Level 1: The Discovery of the Neighbouring Country

Cross-border educational work starts out of curiosity and interest in the neighbouring country. The very first step involves visits to the neighbouring country, mostly with a social or cultural focus (visit to a theatre, a concert or museum, to an exhibition or memorial, etc.) and which are organised by regional or local educational institutions. Typical of this level is the one-sided character of the contact and the fact that the activity is focused on a special event as well as limited to a short time-span. In many cases, the incentive for the visit comes from individuals with a special interest in the region or individuals with a personal motivation for their involvement. But at this level, one cannot yet talk of cross-border cooperation in the regular sense, even if cooperation with a contact person or institution in the neighbouring country takes place (for example, where a person from the neighbouring country acts as a tourist guide or escorts the visit as an expert). But if the activity is offered and organised by an education institution, it may nonetheless be considered to be an cross-border educational activity.

Level 2: Educational Work in Border Regions: Language Courses and Thematically Defined Educational Activities

The next level typically involves courses and educational offers from adult education institutions in border regions, which have a textual focus on the neighbouring country or the border region. One example is language courses that are offered by many adult education institutions in border regions. In a simple form, these courses are carried out by language teachers from the respective region for regional learners, sometimes accompanied by a native speaker from the neighbouring country who is employed on a part-time basis by the respective institution.

These courses qualify as cross-border educational work because participation in these courses and projects demonstrates an active interest in the neighbouring country, which aims principally to facilitate encounters with the inhabitants of the neighbouring country and exchange with one another. In many cases, these language courses or thematically-focused courses are combined with activities that would properly be described as level 1 activities, for example in the form of excursions and trips to the neighbouring country.

As in level 1, these activities are also one-sided but they are already designed for a specific period (at least for the time-span of a particular course). However, such activities do not yet involve mutual contact and exchange with people from the neighbouring country and there is no project-related or institutional cooperation.

Level 3: Cross-border Project Cooperation

Project cooperation begins with activities at level 3. For a defined period of time, topically defined by the respective project, trainer, learners and management on both sides of a border work together to achieve specific project targets.

Examples for this form of cross-border educational work are training and further education in the field of vocational adult education. In this context, education institutions from both sides of a border work together for the time-span of a project to train, for example, skilled workers in a branch where there is a lack of suitably qualified workforce in the respective border region. This form of project cooperation also comprises the exchange of trainer and trainees to improve their professional qualification regarding intercultural competencies in the form of mobility projects.

The groups of learners / trainees can be: (a) monolingual, if they come from one country and want to learn about the language (or other aspects) of the neighbouring country to find a job there; (b) linguistically mixed groups, if the aim is to qualify them for the labour market of either country. On the managerial level, contacts between the institutions involved take place but they do not reach the level of a continuous cooperation independent of special projects.

Criteria for this form of cooperation comprise the definite time-span of the cooperation, the different intensity of forms of direct contact and exchange between trainer and learners and the management responsible for the cooperation activities.

Level 4: Institutional Cooperation and Cross-border Education Institutions

Characteristic for level 4 of cross-border cooperation in education is the permanent character of the institutional cooperation. This can have the form of: (a) the foundation of an independent institution that is run by a group of partner institutions; or (b) an education institution *sui generis* in the form of a bi- or multi-lingual joint venture.

A special case of institutional cross-border educational cooperation is the one-sided founding of a subsidiary company or branch office in the neighbouring country. The primary aim in this context is to offer tried and tested courses on a new market.

The above-mentioned forms and models of cross-border cooperation represent, of course, only a provisional attempt to systematise them. In practice, there are many intersections and changeovers which render such a systematisation rather complex. The diagram below allows us to identify qualitative and quantitative differences in cross-border educational work and to offer a vague classification, but this is not meant to be any form of assessment suggestion that only level 4 allows for an optimal cooperation. An assessment of that kind would have to take into consideration the context in which the educational activity was implemented, or the type of target groups involved, or to assess whether the cooperation activity had achieved the aims which it had set for itself.

Diagram 1: Models and Forms of Cross-border Educational Work in Europe

	Stufe 1	**Stufe 2**	**Stufe 3**	**Stufe 4**
Quality of the Activity	one-sided	one-sided	mutual	mutual
Duration of the Activity	singular	for a def. period of time	for a def.	in perpet.
Quality of the Cooperation	on impulse	selective	project-related	Institu-tional

All in all it can be said that adult education institutions in border regions, as much as other education institutions in such regions, take on the responsibility to promote the concept of lifelong learning and participate in transnational cooperations to enhance the "Europeanisation" and internationalisation of education and qualification. Because of their special geographical position in border regions, they also face the challenge of how to contribute to the social and economic harmonisation and cultural and psychological integration in their respective border regions through cross-border educational work. Adult education institutions in border regions are therefore an important factor in the process of European integration. Consequently, the specific conditions of cross-border educational work need to be taken into consideration in the policies, programmes and promotion structures

for adult education at the European as well as at the national level.

LITERATURE

Source:

Alfred Lang, Nicole Ehlers, Lenny van Kempen (eds..): Education across Borders.Adult Education in European Border Regions. Research Society Burgenland, Eisenstadt 2005. BFG: STUDIES Volume 4/2006 (Extra Edition), 258 pages. ISBN 3-901420-045

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1 Normally, the terms "transnational" and "cross-border" are applied synonymously, also in theoretical literature. Here, and in the following chapters, a distinction between „cross-border cooperation activities" and „transnational cooperation activities" is made.

THE SOIL USE IN MOUNTAIN AREAS AND DEMOGRAPHIC CHANGES

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The common fact in mountain areas, especially in high altitudes, is confronting to poor plant life and tree cover. Therefore, the soil remains revealed to more excessive erosion processes. Mountains are jeopardized by heavy rainfalls together with gradient of mountain slopes that make surface unstable and particularly vulnerable to erosion and rapidly moving water. Another fact is that soil formation is slow in mountain areas, due to low temperatures. Thus, mountain soils are relatively shallow and poor (F. Nachtergaele, 2002). Registering some cases in Serbian mountains and the demographic and socio-economic changes during 90ties, the correlation with erosion processes has been proved. Due to heavy economic situation in the country the mountain population moved to urban areas with their activities decreased and, as a consequence, the erosion processes diminished (S. Mustafic, The Master thesis, 2007). The changes in land and soil use are in direct correlation with soil destiny, and the basic reason is in demographic changes. The arable soil has been changing to pastures or to unused land and this fact resulted in slowing down the erosion processes.

Comparing the erosion processes with mountain altitudes, the fact is that the most jeopardized altitude zone was up to 900 m. during 70ties in XXth century, and due to demographic changes the endangered zone is not more than 600 m. nowadays. Comparing maps with population, their activities and erosion processes S. Mustafic came to arguments on intrinsic correlation between the three systems.

Tab. 1: The population and settlements distribution in the Stara planina mountain area in Serbia

Altitude in m.	No. of settlements	%	No. of inhabitants 1971	%	No. of inhabitants 2003	%
Up to 600	6	19.4	3.923	28.5	2.826	56.9
600-800	15	48.4	6.066	44.1	1.372	27.6
800-900	10	32.3	3.755	27.3	770	15.5
Σ	31	100	13.744	100.0	4.968	100

Source: The Master thesis S. Mustafic, 2007.

People who settle mountain areas are rather isolated and dependent on their own activities and production. Poor soil diminishes conditions for agriculture and husbandry in mountain areas influencing life quality and sustainability of its dwellers. Also, people living in mountain areas need to be aware of and work in harmony with the natural characteristics of soils influencing their activities, but vice versa, too often soil erosion and loss of soil fertility are misused by human intervention.

The other indicator related to soil erosion processes is the settlement population size related to erosion processes. The number of small villages with 200 – 500 inhabitants is rapidly decreasing (from 35,5% in the year 1971 to 12,9% in the year 2002). In the altitude zone 600-900 from 10 villages in 1971 the number decreased down to 3 villages only in the analyzed region. The similar is with settlements with 500-1000 inhabitants where the number has decreased from 9 in 1971. to only 1 in the year 2002. But the number of very small villages with less than 200 inhabitants has increased from 32.3% in 1971 to 80.6% in 2002 with majority in villages with less than 50 inhabitants. The changes in settlement size are also correlated to land use and activities resulting in diminishing the erosion processes in the area. The shift from agriculture to stock breeding and change in soil use from agriculture to unused is contributing to erosion processes, according to analyses prepared by S. Mustafic.

Driving Forces

Reasoned by hindering communication and erosion affected mountain slopes efforts of hillside mountain communities to achieve adequate livelihoods are greatly complicated. The mountain areas thus tend to be hotspots of rural poverty and landscapes in environmental destruction (CIAT, 1999).

The picture that young people have on agriculture in mountain areas, where husbandry and grass breeding as complementary activities are base of rural economy, is disappointing. Lack of education, especially low acknowledgment on modern techniques in agriculture, low productivity and under expected results in extensively based husbandry are strongly influenced by depopulation in rural areas of Serbian mountains.

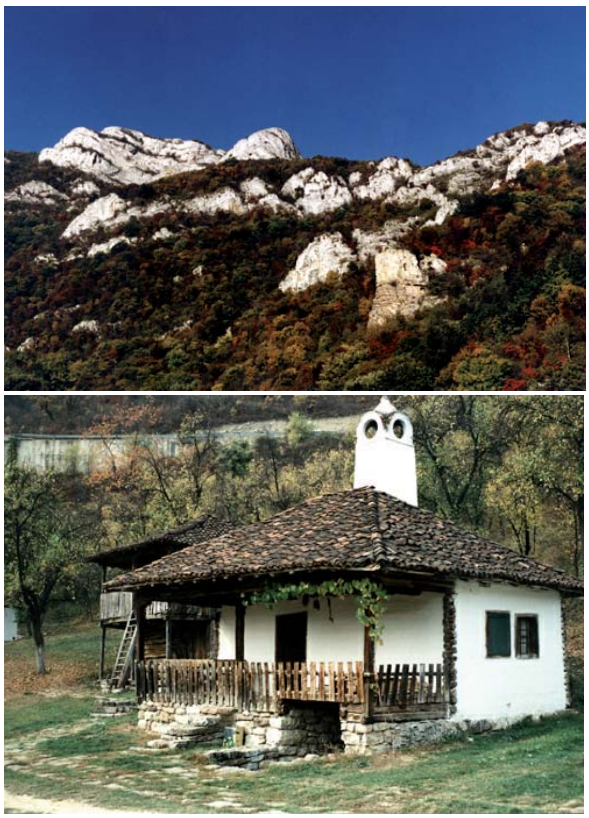

Fig. 1.: Mountains in Eastern Serbia and traditional way of lilving

Inappropriately established economical surrounding – better to be low-qualified in town industry than successful farmer in rural area – seriously harmed

agriculture in mountain areas (Ministry of Agriculture, Forestry and Water-management of Republic of Serbia, 2004). However, question: who is older – a chicken or an egg or, respectively, lack of knowledge and soil erosion or depopulation, remains.

Pressures

Eroded soils in mountain influence much wider areas than hillsides. It can increase sediment in streams and rivers, eventually causing flooding in nearby downstream areas. They could also block reservoirs, silt dams and disable irrigation channels. Even if it may take decades or centuries before effects can be measured in streams far from initiation areas (mountains), the damage is being done now, as well as consequences (F. Nachtergaele, 2002).

A scarcity of good soil often forces mountain dwellers to cut forests in uncontrolled and thus unsustainable way, afterwards over-using and over-cultivating the cleaned land. The development of transport infrastructure and extractive industries are also responsible for degrading sensitive mountain soil systems (F. Nachtergaele, 2002). But, from one side those elements are sometimes necessary in providing infrastructure and economic activity for decent life of dwellers in mountain villages. From the other side, degrading soil all these factors contribute to the cycle of poverty for mountain communities. The role of demographic factor and its impact to soil erosion processes is reflected over population size of rural settlements, their altitude distribution and the process of population aging. As higher settlements are located (600-900m), the less number of people are staying there with bigger percentage of old people, and therefore the process of soil erosion is smaller than in areas up to 600 m.

Deforestation on hillsides contributes to the loss of biological diversity and amplifying threat even of global climate changes through extensive burning. Together with soil erosion and other pressures, deforestation also increases the threat of excessive flooding and damages supplies of fresh water. Under the circumstances it is not surprising that many rural people in the hillsides lose hope of building better livelihoods and decide to seek them elsewhere. Most of those who join exodus end up in the poor city/ town suburbs. There they face new forms of low-quality life, only a few find a way to better conditions (CIAT, 1999). In Serbia, most of the people prefer to emigrate to big cities (Belgrade or Nish), while much less number settles in small or middle-sized towns. This way, chance of finding steady employment and a decent income seems higher.

State

Quality of mountain soils on which sheep breeding is based is not examined adequately. Meadows, especially pastures, in Serbia are generally unused. Its vegetation, whether natural or affected by human and animal activities, is often highly degraded with diminished productivity (Ministry of Agriculture, Forestry and Water-management of Republic of Serbia, 2004).

Characteristics of settlement network of Serbia reflect demographic sprawl (concentration) of population. Comparing to overall number (4.706) of settlements in more than a half (2.722) live less than 500 inhabitants. The presented case in Easter Serbia (the Stara planina mountain area) proves the fact. Additional problem is the fact that policy makers and experts are not engaged in mountain areas where need for their knowledge is the highest.

Fig. 2: Mountain Ranges of Serbia

Source: http://en.wikipedia.org/wiki/Image:Serbia_mountain_ranges.png

The mountain areas are usually treated from the standpoint of nature protection but with no care of people living there. The result is in endangered nature by people living there and their activities based on low level of know-how.

Impacts

It is considered that decadency of mountain agriculture are caused particularly by agricultural services emphasizing inadequate sorts, improvement measures and reorganization (Ministry of Agriculture, Forestry and Water-management of Republic of Serbia, 2004). Knowledge on mountain soils specificity was neglected thus affecting productivity in agriculture, economical diversity in mountain regions and population exodus at the end.

Further population aging in mountain households and migration towards urban areas as a consequence of inadequate social policy could absolutely destroy mountain agriculture (Ministry of Agriculture, Forestry and Water-management of Republic of Serbia, 2005).

Responses

Why should the urban majority care about small farmers in the mountain areas? And why should they be interested in giving an advantage to research aimed at helping those people? The simple reason is a growing awareness that we live in an interdependent world. Many people in the cities should realize that they have a stake in marginal mountain environments. They depend on agriculture production, water and environmental services in these areas. But they should also realize that deforestation on the hillsides is directly related to excessive flooding and mudslides in the valleys below. And, they should be aware of consequence of social misbalance in remote mountain areas, including massive emigration (CIAT, 1999).

Literature deals with two approaches how to increase quality of soil, agricultural activity as the most important economical activity in rural areas and quality of life for the people who live there. One considers perspective

of farmers in endogenous knowledge on what is the best for soil and the other ways of improvement expert's knowledge in everyday life of farmers (the education and information problem).

An essential step towards constructing better livelihoods in mountain areas is to bridge the gap between farmer's knowledge and formal science. The first is a rich collection of traditional wisdom gained through many years of experience. But this knowledge, though extremely valuable, is not always adequate to cope with the problems of rural communities and some basic processes in the nature such as the soil erosion. External experts, on the other hand, may offer plenty of technical solutions, but they are often poorly informed about farmer's needs and preferences (CIAT, 1999).

Building upon farmer's knowledge is now seen as the key to sustainable agriculture, especially in fragile and difficult environments such as mountain areas (GRAIN, 1990). Work of experts *with* farmers, not *for* them, includes complex learning approach as it is Learning Region concept. Farmers are not aimed only to listen and learn, but to actively participate and even "create" a new knowledge and innovations in cooperation with experts. The soil use, systemic links between their activities, soil use ad soil erosion is one of basic lectures to be learnt. In a process where such an active role is given to farmers they could feel more useful for the whole process and much more eager to participate and except the knowledge. Given trust demands feedback.

"Farmer's innovative capacity and their accumulated knowledge have provided the foundations for thousands of years of agriculture development." (GRAIN,1990). Therefore, farmer's knowledge must be protected; research institutions need to redirect their priorities to work with farmers and funds should be made available to support local development initiatives.

Possibility in overcoming negative situation in Serbian mountain villages and soil improvements is seen in advisory services improvements where staff is not well educated yet regarding special characteristics in mountain areas. Further on, solution is establishment of small farms thus making easier way to the knowledge, market and finding solutions for different problems; management forms to support villages and contribute development of complementary activities to agriculture (Ministry of Agriculture, Forestry and Water-management of Republic of Serbia, 2005).

Strategy of Agriculture of Republic of Serbia suggest set of measures within national and local plans for village development regarding importance of supported decentralization with different needs in flat and mountain areas; establishment of other supporting actors as NGOs, local self-organizations, assembles and advisory services; enlargement of husbandries. Connection in communication between rural and urban areas is considered as one of the most efficient ways to reduce economic disparities. Rural areas support should be organized by economic attractive programs based on ideas of local communities and initiated from above in ways of promotion and exchange of best practices from similar regions. The problem of soil use in mountain areas is one of the key issues to be treated in this context.

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NEW QUALITIES OF TEAM LEARNING – EXPERIENCES FROM THE IP SOIL PROJECT

Michalek, C. R. (University of Natural Resources and Applied Life Sciences - Vienna)

During the whole period from IP SOIL I to III different kinds of web based tools were used to facilitate the communication and learning process of the participants. The design and usage of these online activities were adapted building on the experiences of the previous intensive program phases.

Key success factors to facilitate team learning in IP SOIL and beyond

The following key success factors were identified for a successful implementation of information and communications technologies (ICT) in IP SOIL.

- Didactical concept and use of tools
The core of the implementation is designing a concept in advance which tools will be used, for which purpose and when will they be used (Salmon, 2002, pp. 110).
Normally more than one tool can be used for one purpose. Especially in *Moodle* the configuration of an activity can completely alter the character and therein the usage.

purpose	examples for tools	actors
organisation	calendar, notices forum, e-mail	organisational staff (teachers)
communication	chat, skype video conference	all
informal communication	chat, off-topics forum (Soil Café)	all
groupwork exchange	forum for group work	learners
documentation of outcomes	up-loads	learners
documentation of learning process	blog / learning diary	learners

-Roles and rules

Another vital aspect for planning is to identify the different target groups, their needs and which roles are necessary to deal with these requirements (organisational staff, technical support, moderators, teachers, students / participants / learners). Moreover it is crucial to clarify the rules as well as the obligations for the roles, thus defining everyone's place within the learning community.

-Moderation

The key role is that of the moderator. This person acts as an e-tutor who is involved in designing and maintaining the course, gives technical support and is responsible for activities such as forums. She or he initiates discussions, helps to keep it going and intervenes if necessary. Salmon defines the competences as followed: confident, constructive, developmental, facilitation, knowledge sharing and creative (Salmon, 2003, p. 54).

-Motivation

Online participation depends on a large scale on the continuous motivation of the participants by the moderators.

-Quality management

Beside from the evaluation taking place at the end of the intensive program, the quality of the student works can be enhanced by a peer-review process. In *Moodle* the so called *workshop* activity is a very flexible refereeing tool.

Web based team learning from IP SOIL I to IP SOIL III

In summer 2005, the open source course management system *Moodle* (Moodle, 2008) was introduced as a campus wide e-learning platform at the University of Natural Resources and Applied Life Sciences, Vienna. From the very start the intensive programmes of the Academia Danubiana made use of the possibilities of the new media, especially *Moodle* hosted by BOKU. During the whole period from IP SOIL I to III different kinds of web based tools were used to facilitate the learning process of the participants supported by the staff of the BOKU e-Learning Centre. The changing setting in using these tools was a result of lessons learnt and a questionnaire made at the end of IP SOIL I and IP SOIL II (see below).

From a didactical point of view the approach is based on constructivism making use of blended learning. The two weeks of face to face workshops are supported by e-learning, especially throughout the preparation and post processing phases.

During **IP SOIL I** (autumn 2004 to spring 2005) the main communication and document distribution tool was e-mail. Even though there was a document download section and a discussion board on the course page of *Moodle* the communication process itself can be described as a very traditional, unidirectional one - from teachers to students in the first phase and from students to teachers during the second phase. On the platform very little document exchange and discussion board activities took place except from a short period after the presence phase. The results of the student group works were collected centrally via e-mail and distributed on the course page in the learning management system.

As at the end of IP SOIL I a questionnaire comprising 15 questions – three of them dealing with the usage of web based tools during the intensive programme – provided the staff with a first feedback. For four out of five participants e-mail was the most imported form of communication followed by some discussion forum usage and very little chat activity (32 and 13 percent,

respectively). More remarkable was the fact that in contrast to staff perception more than a half of the teachers and students did report having used sharing tools on the e-learning platform. When asked about the support of the communication and collaboration tools, 88 percent rated it "very" or "quite valuable", hence clearly showing that a person responsible for supporting the users is vital for using a learning platform. The remark "don't stop to communicate" (Kvarda, 2005) by one participant sums up the main purpose of the e-learning beside distribution of resources and information.

The good experiences with this basic usage led to further implementations of web based tools during **IP SOIL II** (autumn 2005 to spring 2006). While e-mail was still utilized for information distribution, a calendar in the course page of *Moodle* constantly reminded the participants of important dates like paper submissions. All kind of resources could be found in the download section. Two types of discussion boards were in use. The "Soil Café" was intended to be a general forum for informal communication among all participants but eventually turned into a notice board. The group boards provided the students with closed working areas for their project works. Digital submissions of abstracts, presentations and papers were realized through the assignment module of *Moodle* and additional material could be uploaded into a searchable database. Electronic polls made the administration of the intensive programme easier.

proved to be more successful in comparison to 2005, people did not just try it, they actually began to work with it. Different forms of communication, such as discussion forums and especially chat, became more relevant. As already mentioned one year before, the importance of virtual assistance by staff members concerning technical, organisational and pedagogical questions was highlighted by more than 90 percent.

When designing the ICT tools to be used in **IP SOIL III** (autumn 2006 to spring 2007) the challenge was to further expand the new possibilities by latest developments ("web 2.0") while to overcome the temptation of exaggerating, bearing the danger of getting lost rather than creating new qualities. The aim was to apply advanced teaching methods and modern information communication technology to provide an optimal knowledge transfer to the participants (Mansberger et.al., 2008). Therefore, some changes were made on the course page in *Moodle* in addition to the established activities like the "Soil Café", an informal discussion board. Although there were still assignments and databases for file sharing, the biggest innovation was the introduction of several wikis for collaborative writing on text passages. Another novelty was the fact that moderation was partly covered by former participants and teachers of

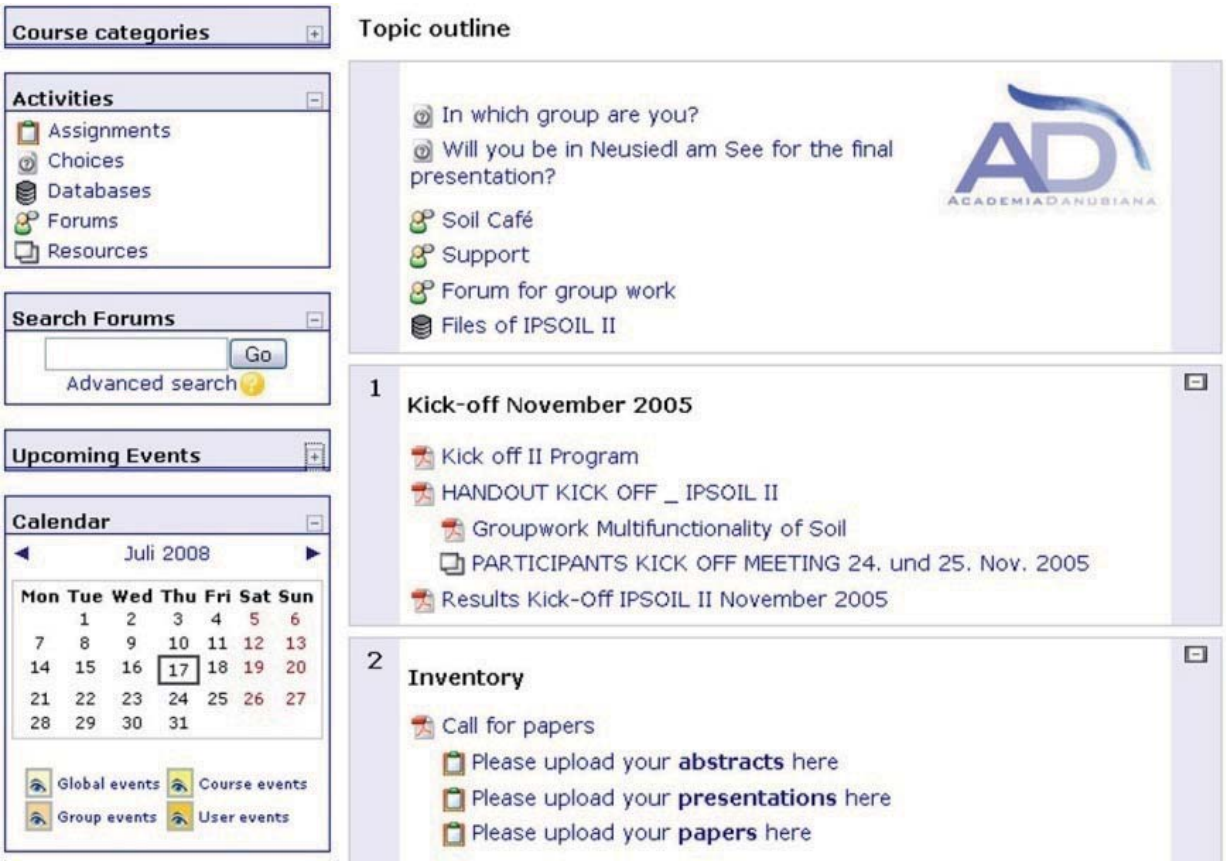

Fig. 1: Partial view of the IP SOIL II course page

At the end of IP SOIL II an evaluation with a questionnaire (Kvarda ed., 2006, pp. 104) quite similar to that of IP SOIL I was done. Once again, it provided the staff with encouraging feedback by the participants. As reported by the students e-mail was still dominantly used but the file sharing activities IP SOIL II.

Conclusion

The three successive intensive programmes with its international background proved to be an ideal experimental ground for testing the possibilities of web based collaboration and communication tools. Evaluations and other form of feedbacks by the

participants led to continuous improvements in the usage of the e-learning platform provided by the University of Natural Resources and Applied Life Sciences, Vienna and the supported by the staff of the BOKU e-Learning Centre. All three intensive programmes highlighted the importance of moderating the online phases. As a general recommendation it has to be emphasized that a person responsible for moderation is inevitable and must be accounted for in budgets of future proposals.

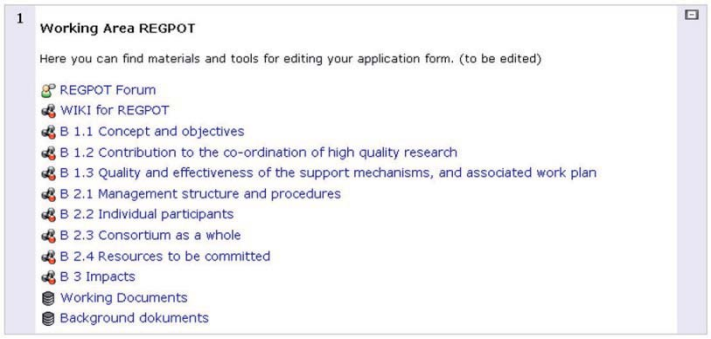

Fig. 2: Partial view of the IP SOIL III course page depicting the wikis

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PARTICIPATION AND NEW GOVERNANCE

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European Union's central aim to involve people into decision making and planning processes. Participatory planning appeared in 1960's, and planners/designers have to learn new methods and to use new kind of tools. Also there are changes in the new millennia, which make new challenges in landscape planning and in stakeholders´ roles.

Introduction

Involvement of people into decision making process, create stability through enlargement of trust and reduction of frustrations. But also participation is the most effective way of learning, and this is not a new statement. Confucius (Kung-fu-ce), the great Chinese philosopher told 2,5 thousand years ago:

"Tell me, I'll forget. Show me, I'll remember. Involve me, I'll understand„

Escalation of Anglo-Saxon socio-economical system and culture effects to European way of planning and generate multiple challanges for all EU countries, mostly newborn democracies, which have a strongly different traditional base.

Bases of participatory planning

European democracy is also based on involvement, but participatory planning is a newborn method. Its tools and methods were developed after II. World-war in USA and Europe, but today we can find professionals all around the world.

After II. World War in legal consolidation appeared two significant ch anges in national and international low. Human rights, and then environmental rights became a worldwide accepted value of society. In Stockholm Conference (1972) has born concept of „right for good environment", and in Agenda 21 (Rio de Janiero, 1992) participation is declared as a central issue. [13]

Diffusion of political power also observed at this term: a network with economic power is growing up over national states. Diffusion is also top down: local autonomy becomes stronger, social services are privatized. While power changes vertically, beside this appear green movements as alternative power. [7]

Idea of participation has born in the movements of revolution at the end of 1960s.

Milestone of participatory planning was „Arnstein's ladder" in 1969. She selected 8 levels of participation. Categories depend on level of involvement's integration.

In the rhetoric surrounding of „green" concepts and also participation embraces not only environmental goals, but also many social goals (greater equality, citizen empowerment and active public participation in environmental decision-making). These ideas effect also to official bureaucracy: United Nations and European Union's 5th Action Programme recommend to integrate participation into environmental planning. [1]

Concept of „sustainability" put participatory planning in a new system. The three pillars of sustainable development are economical, environmental and social issues. This definition economically legalised the way of thinking, which was an alternative" method before.

Tab. 1 Arnstein's ladder

Type of participation	Participatory modell
Proactive participation "involvement"	Citizen control
	Delegated power
	Partnership
Reactive participation "input"	Placation
	Consultation
	Information
Non - participation	Therapy
	Manipulation

New Challenges

Within last 50 years innumerable methods and tools were developed for citizen involvement. But also social-economical environment was changing, and created new movements, problems. These challenge both traditional "mains stream", and also public participation. The main challenges are: changes of territorial control; enlargement of mobility; changes of spaces and scales.

In post-socialist countries question of control is more difficult: because of heritage of past regime, people often do not feel responsibility and do not work for common, and still impeach central government for bad conditions. [2]

Speciality of our age, that „open spaces" become „closed spaces". Locker parks, playgrounds, community gardens and atriums are more safe, but often select groups of people and disclose others. Malls become fast as new „semiopen spaces", and also reduce users', moreover reduce direct contacts with „real" (natural) environment and space. All of these give less and less possibilities for people perceive the landscape, to have personal experiences and build relationships with it. Personal responsibility translates: some special common places become semi-personal spaces of a small, special, separated community. At the same time evolve places, which have not any relationship with people. It happened also in larger scale. While land use changes, behind the walls and banks for noise protection disappear physical and visual contacts. This effects a kind of reduced primer public control.

On the other side there is another process: privatisation of common spaces. Sometimes it works, and good for society. As a part of sustainability, maintenance – rights and responsibilities – is a central question of planning. Territories controlled by local communities are often show better quality and bigger appreciation by users and nonusers, than public parks. [4]

Sometimes groups, who control but not own the

common place handle it as own. They „privatize" it, disclose public, and make decisions often against public interests. In a civil society public oppositions and civil protestations could be effective power of public control. [6]

All of these processes rise up needs for civil control and „re-personalisation" of landscape.

Extremely fast technological development allowed an extreme rate of travels and transportation of materials and information.

Mobility creates mixed social structures both in space and time.

Urban sprawl – based on mobility – has a unique effect in landscape structure and participation in landscape protection. My experiences in practice show, that values of local landscape are protected not local people, but incomers. Many times new inhabitants have strong affection for local cultural and natural heritage, and have stronger attainments to reach their goals. This is part of globalisation: Public Policy Institute of California „Regional Perceptions" research detected also in USA, that in the last 5 year incomers protested against greenfield investments much keenly, than locals. [3]

Worldwide mobility creates larger independence from natural landscape conditions, but also –with general landscape elements – call forth a total landscape. This kind of landscape has incidentas structure and unpredictable evolution. Nobody intended this change, but it is still a planned landscape. Society is able to plan anything, but lost faith, that these plans could operate whole development of full landscape. [11] Paradoxically this effects a built, but not planed structure, which shows a new kind of natural growing, what reminds us grown cities in middle ages – in a larger scale.

In mobile society participation could hardly controlled, but new technics and technologies could became effective tools for it. Planning of this new, mobile landscape needs more flexibility. If we want to create genius loci, slow down these hectic changes or adapt it, we need new attitude and tools. Mobility also changes scales and space. In XXI. century in relation of appearance of virtual spaces people's relations to real spaces also change.

In real spaces lock people themselves in their personal space (garden, apartment even own room), and use more virtual space (radio, TV, DVD, Internet, telephone). Most of people live in cities, and most of citizens have more relationships of outer rim, then local. Social life is not in open spaces, not in the landscape. As Sorkin wrote:

„It is no longer merely physical – a matter of egregious densities or metastasizing reach – the new city also occupies a vast, unseen, conceptual space. This invisible Cyburbia… takes form as necessary, sprouting like sudden mushrooms at capital's promiscuous nodes." [12]

Participation of planning has new dimensions. Today very hard to find similar impoundments in social groups and landscape structures. Basic question of participation – who should we involve? – much more difficult today.

A problem of space and scale changes is also, that level of decision making and decision makers – and usually planners also – are physically far from users of landscape. These contextual changes create many difficulties, unsustainable land uses, which would not come forward if local people would plan they own environment. [5]

NEW PLANNERS

What are basics of participative planning in our professional? In research of participatory planning we have to keep in mind, that it is based on sustainability, what have special methodological problems. It needs diversity, partnership and networks, subsidiarity and participation. Research needs to be normative, integrative and participative. [9]
Landscape architecture had an informal system of partnership and network. It was usual in small, „familiar" professionals. Today we are too much for that. We need a new, professional network with new, effective tools.
Landscape architecture is basically an integrative professional, try to integrate all elements of sustainability (economical, ecological and social). But partnership with other professionals and local communities and organisations is also needed. Any kind of planning could not work by own today. Any kind of sustainable planning or research – because of participation and partnership – creates new tensions between planners and researchers in terminologies and methods. Base of participation is partnership between fields of science, professional practice and users, and needed to begin in education.
In territorial and spatial planning we need a new, wider, deeper and multilevel network between sectors, disciplines, practitioners and people who live in the landscape. It needs a different kind of education, where ability for polity is needed to be developed. Involved people ensure their knowledge, experiences, working potential and needs, what help to create realizable plans in a mobile society, where space, society is changing fast and constantly, and control have a multidimensional network. As Matthews said planners have to become "reflective practitioners". Interests and decisions are based on particular interests and economical „climate".
There is a chance today to bring closer different professionals with a help of participatory methods. There is a chance to bring closer planners and local people through participation. This movement helps to understand local attitudes and importance and role of landscape and planning. Also depends on planners, that adult citizens or infantilised consumers shape future of our countries.

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GROUPWORK - LIFELONG LEARNING FOR UNDERSTANDING SOIL AND LAND-USE SYSTEMS

Several groups of various scientific backgrounds and interest, were working on tangible topics and formulating questions for the Intensive program in March 2007 . The task was, to elaborate goals and objectives about framework conditions for measures raising awareness for responsible soil and land use and an enhancement of a dialogue between regional partners to create effective governance towards a learning region. The aim is to reach a common vision and to elaborate proposals for its implementation, to promote lifelong learning.

MODERATION GROUP A

Sandra Keyzlarova, Jan Travnicek, Tiraszi Agnes
Moderator: Marijana Pantić

SIMPLIFY THE LANGUAGE

To make education in time it has to start in time. To count only on knowledge available in school which starts in the age when the child is 6 or 7 years old is not enough, it might be too late. Forming of mind and awareness has its beginning before regular education that starts in a school, so **pre-start** education has important and inevitable role in raising two of them in a right way. Pre-start education is not just official education in the kindergarten but the atmosphere that should be felt by youngsters as a part of the culture they are lining in and as a way of thinking and living in the world that surrounds as.

Raising awareness is making two components in progress: **mind** and **knowledge**. Mind is component that should be awaken, not only for the moment but for a permanent or at least for the most of the time, learnt how to think and act in way to contribute to soil preservation erasing mistakes from the past, making steps in the present and looking in the future. All of these have to be based on facts and knowledge. Knowing facts without being aware of them or acting thinking of something that is partially true or not true at all leads nowhere. But, acting thinking of facts originating from the knowledge brings most certain results, combining strengths of the both components that awareness consists of.

In a course to make knowledge on soil and environment in a whole understandable for the most of the people, specialties, actors in the region **scenarios** could be used as a tool. Conditionally, there are few types of scenarios: **positive**, **negative**, realized and possible. The role of positive scenario is to show all good (positive) sides of appropriate conducting to the environment and what one can get personally if he acts in that way. Negative scenario shows repercussions in case of incorrect behavior regarding soil and all the other environmental elements. Both, positive and negative scenarios, can be based on theoretical (scientific) facts witnessing situations that could happen or, at the other side, scenarios can be witness of situation that already happened in real.

Raising and maintaining awareness in the region is more efficient if accomplished through values which attach local people personally. So, remaining the roots they were coming from spiking about, not returning to the lower stadiums, but reaching traditional way of living and conducting to the natural systems as it was in a previous times with less technical instruments harming the soil if used in inappropriate way. Magnifying good values the progenitors had provoking since to follow the same path.

If the most actors in a space (region) become aware and information get into the **public mind** successfully question is: how to use those advantages? Opinions on knowledge and information actors dealing with need a place to be shared, exchanged, put into the dialogue. Dialogue takes important place in process because idea of one can be developed to upper level shared with other people. Concerning significance of geting together and

talking about current issues on environment and soil particularly finding space and time for expressing opinions is necessary part in organization of Learning Region. The matter of fact, finding it is not such a problem as giving it. That is the reason why all actors in region have to be aware on problem, not only scientists, local people, stakeholders but government as well.

Equity in dialogue is more complex demand as it seems at the first. Something that is obvious is equal position of each person from the local community that taking part in the dialogue but equity of both sides – local people and organizators (government)- is needed too. Right to evaluate opinion by the same values is not enough if right for bringing out one is not opened wide. Position (right) of chair man should be the same as position of any other person from the community in a course to reveal their taughts about soil condition, possible solutions, remarks etc.

Sometimes awareness is not possible to be achieved observed from one point of view. More objective conclusion can be brought out if it is made by somebody from aside, who has completely different and ''fresh'' observation on things that are going on in the region. Therefore, **optic of foreigner** should be included in process of condition realizing weather it will be considered and accepted in a whole or partially.

The knowledge, more based on facts, is coming from the world of science and that source should be used for spreading information aiming raising awareness on soil, water, air etc. The issue is: how to ensure that knowledge will get to all kind of consumers – scientists from another branches, stakeholders, politicians, ordinary people, kids? How to make it understandable concerning expert terms that are used in professional levels? In two words how to **simplify the language**? The answer is will because the most of scientific words of importance for opening minds to a problem of soil condition within a public can be explained in a simple words or, even better, visual: mind and mental maps, icons, graphics, vignettes, models etc.

Changing the roles between scientists, on the one side, and politicians, stakeholders at the other, should improve results of dialogue but also results in a

practice. Scientists have knowledge but stakeholders acting in practice dealing with partial interests on the first place while politicians make final decisions weather something will be done or not. Therefore, scientists should take place of stakeholders: for a couple of hours in a dialogue process and as a second preoccupation in the real life. Combining different quality approaches and experiences could brought effectiveness in making a Learning Region.

In making and finally realizing concrete projects should be supported by **data base**: for **exchanging experiences** among different countries, regions, developing ides from the similar projects that can be applied in other region etc.

Raising awareness is a serious process best if simplified to be understood by everybody because each of as, aware of it or not, makes influence on the soil and environment in a whole.

GROUP B - THE SOIL USE FROM ETHIC TO NORMS AND POLICIES

Prof. Dr. Borislav Stojkov, Ass. Prof. Tomaz Prus, Doz. Jarmila Husenicova, Ass. Prof. Katinka Mihova, MSc. Pavlina Misikova, Porf. Dr. Jose Manuel Henriques. Moderator: DI. Roman Grunner

1. The initial question of crucial meaning for planners, stakeholders and law-makers could be: what is the distinction between land use and soil use with a soil being one of the critical concerns in the World nowadays? The answer could be defined like this:

The land use is dealing with distributing functions on the ground while the soil use is focusing on the system behavior underneath. Since the land use is dealing with **economy** (oikos + nomos = house + reason of legal), the soil use is having concern with **ecology** (oikos + logos = house + reason of logics). That could be an explanation why the soil use in planning acting and administering in urban and rural areas should get the new and increased attention of all. If so, the reason of logics for human existence, where the soil has paramount role, should be matter of education and learning from the youngest ages (kindergarten) and thus become part of the genetic feelings, something to become life-long bred, developed and practically applied as an particle within the human ethical structure with the same relevance as water and air and their use.

2. For many reasons this statement is not easy to implement, with so many different habits, lack of understanding and free market forces concentrated on land as economic commodity and commercial matter. Based on already existing world or European agendas and declarations European communities will inevitably have to regulate the **soil use** in more articulate way, distinguishing it from the **land use** in the proper way. But regulation without understanding and adequate breeding and education will be of no rational use. Implementing dialogue, organizing public workshops, involving within children-education programme, giving incentives to NGOs and spurring mass media will be inevitable task prior to regulate this sensitive issue.

3. Coming from ethical to normative framework the basic objective will be legislative codification, i.e. vertical and horizontal coordination of the soil matter in a number of different legal acts, laws and by-laws. The problem nowadays, at least in transitional communities, is where the soil is severely attacked by free market forces and pressures and where liberal or non-existent care for the soil is changed for the fast financial recovery of lagging communities by privatization of big state-owned agricultural companies. Different legal acts are usually without appropriate coordination and, instead, with sectoral land use regulation (laws on agriculture, wetlands, forest land, roads, building etc.). The soil is not protected as a public good but giving to absolute private rights to handle the soil according to individual interest (selling/baying...).

4. The soil should be treated as any natural resource (air, water, natural habitat), well protected and controlled by measures and instruments of public interest protection. This would be done by:

- Distinguishing **land use** (economic instruments) and **soil use** (ecological instruments), where the first would distributing activities but with careful approach to keeping ecological structure and possible multifunctional use of soil.
- Treating the soil use as primary aim in the whole legal system and with its protection, regulation and proper development and secondly given the right to use in agriculture, forestry, sealing etc.
- Supporting the sustainable soil use with appropriate tax incentives (and sanction), subsides in agriculture primary, and other economic and financial instruments
- Raising local government and general public awareness, organizing adequate information system on the soil and its use and increasing mass media interest
- The mediation between the soil use experts, local/regional governments and developers/ stakeholders should be led and organized by local/regional governments and their institutions.

5. One of the crucial points in the process of privatization in particular, is balancing private/municipal land ownership with their rights and duties and the public concern and interest. Two of them should not be juxtaposed and confronted but coordinated through the public – private partnership in the soil use matters. Dominance of the private interest will jeopardize the soil as up till date, and superposition of the public interests could rehabilitate former socialist formula of nationalization and expropriation by legal force. Both dominations could further discriminate the use of the soil as a matter of general concern. There cohabitation and coexistence of the two interests is indispensable.

6. Different EU charters, declarations and strategies (Landscape Convention, Lisbon Strategy) together with world agendas (Biodiversity Convention, Kyoto Declaration, Agenda 21 etc.), will inevitably be used as a foundation for national legislative framework on the soil use, but also for numerous regional and interregional strategies. The EU Territorial Agenda and the Framework programme 2007-2013 are supporting regional competitiveness based on specific identity. This should be understood by explaining two terms: **competitiveness** and **competition**.

a) Competitiveness is (regional) capacity to compete with others. The level of regional capacity will contribute to regional power to compete with other regions (economic or cultural power).

b) Competition is rather play (or struggle) between two or more actors (regions) where one could be winner and the other could be a looser. Depending on the way of playing (struggling), either offensive or defensive a region can win or loose with no excuse.

The EU policy is oriented more to competitiveness, articulating EU as a societal structure with attention to balance and to take care of less developed, compared to USA where competition is a basic principle in national/regional development (J. Rifkin, European Dream, 2004).

7. Looking at Europe with its enormous natural and cultural diversities, the next European spatial development principle is becoming more and more important to the competitiveness of the Continent in global competition. That is **identity**, i.e. abundance of regional identities in any country.

The nature and natural system are contributing to identities and the soil is the key reason for that, combined with different cultures and tradition in soil cultivation.

The diversity of regional identities based on the soil and its deliveries is severally endangered by market and big landlords, buying land now especially in transitional countries with low prices of land in underdeveloped and deserted areas, and overusing or underusing it for commercial reasons.

The soil is the major victim and destroyed regional identity is a major consequence. Loosing its identity a region is finally loosing its competitiveness as well, with landowners profit growing up until the soil is destroyed.

Educating students through European educational programmes (ERASMUS, SOCRATES…) is convenient way for better understanding the soil problem and the use of soil issues. But simultaneously, local/regional governments will inevitably have to raise their awareness and their capacities to the soil use matters. The "learning region" principle is a basic step to more efficient dealing with the soil abuse or misuse.

8. The EU Territorial Agenda 2007-2013 is about "increasing competitiveness and dynamic, knowledge-based economy, capable of sustainable economic growth and greater social cohesion"[1]. In this, increasing so called **"territorial capital** will be leading to productivity gains and generating growth by sustainable exploitation"[2] of it. What is territorial capital?

As explained in the Agenda it is regionally specific potentials, distinct from other area and determined by objective and subjective factors. The soil belongs to objective factors (economic potential, resource) but also to subjective ones (customs in the soil use, local or regional tradition etc.) protecting and enhancing the soil and building its identity on multifunctional and sustainable soil use a region can expect added value in its capacity and better standpoint for its competitiveness Europe-wide, with preserving and developing safety and quality of soil as one of the basic natural values.

Adapting criteria of the soil use to local/regional specific conditions would be a major task to spatial planning, but also with the soil use as a crossbred and even trans-national issue. National and regional policies should therefore be oriented to this European policy of better effectuating territorial capital and the soil as one of the key objective and subjective factors.

1 The EU Territorial Agenda, Brussels, 2006
2 Ibid

CASE STUDIES

REVITALISATION OF SLOVAK UNIVERSITY OF TECHNOLOGY AREA

Piják, O. (STU Bratislava)

Spaces in the area of the University are devastated and create a place without it‘s own spirit. We took this as a challenge and tried to propose new functions for it. The proposal is based on the knowledge of sustainable soil treatment, but also respects the needs of students and teachers who will use it.

Why to make a change

Bratislava goes through a period of huge construction boom. There are being sealed extensive areas of land in the city, but outside the city also. The most endangered areas in the city are those used for relaxation for the citizens, such as parks, private gardens, and playgrounds. It is common to say that this is in a competence of the local authorities. This way we don‘t have any possibilities for a change, that means we can‘t change it and we don‘t have to bother us about it. This attitude is a comfortable one, but will not bring a solution which is needed not only for us, but also for the future.

Area of STU

Each inhabitant of the city has his own possibilities, how to change at least the area he is living in. Since I am a student of Slovak University of Technology, my living space in Bratislava is mostly the area of the school. It is a big space that can accommodate much more functions than it is used for today.
Nowadays it is being used only for car parking of the employers: teachers and service stuff. Our aim was to change it into an opened space creating an area that doesn‘t increase the pressure to the soil in the city.

Parking > Relaxation

The title can be considered as a today‘s situation of the cars overtaking the relaxation space, or as our proposal for a change. Today the only function of the space is to park the car in the closest parking lot to the entrance door to the faculty and don‘t waste the time there any more than needed. It is a rough description of the problem of the space inside the block of our University. Other problem is that this parking area is mainly created of concrete. This is a nice example of sealed land that isn‘t necessary from any point of view. This brought a clean necessity for our proposal: replacement of concrete surface with a pavement.

Fig. 1: STU layout – discussed part is marked (mental map red=bad, green=good)

Pavement was proposed to be made of paving stone sat in the sand. This supports the water run off straight into the soil and reduces the sewerage system demands. Next step was the reorganization of the parking lots to approach a better land use. Here some new ideas arise, because if we wanted to find a better use for our school area, we had to avoid the car use. But this should be done at the political bases by the University authorities (for example to support the car use reduction by financial support to those using public transportation).

It needs some progress in people‘s attitudes to this question, some time is needed, but we wanted to have a solution with a high possibility of implementation with a small additional costs in a short time. Reorganisation of the parking lots created a new free space which we planed for students. The Revitalisation of Slovak university of technology area reorganisation didn‘t cut down the number ofparking lots in the area, but only used the space more effective.

New green space of the University

The school doesn‘t offer relaxation spaces where the students could rest during the breaks. Since we reorganised the parking, we freed a space for new relaxation zone in the north west corner of the inner block space. It has a good sunshine position and a lot of old trees are situated there. In spite of our aim to keep the highest possible number of original trees in the locality, there were some trees that had to be cut down. This was due to their origin (for example many birch trees were in the area, but they are not native in Slovakia). The pavement for this part is proposed also as a material allowing flow off of the rain water to the ground. It is a mixture of sand and clay. Benches here don‘t have a fixed bases to allow the users to create relaxation or work setting as they need. This also reduces the need of bases and avoids the soil sealing. Some garages made of concrete appear in the locality. We relocated those close to a small slope which allowed a good access. This brought the possibility to use also the space on top of them for benches with tables.

Green space for the civil engineering faculty

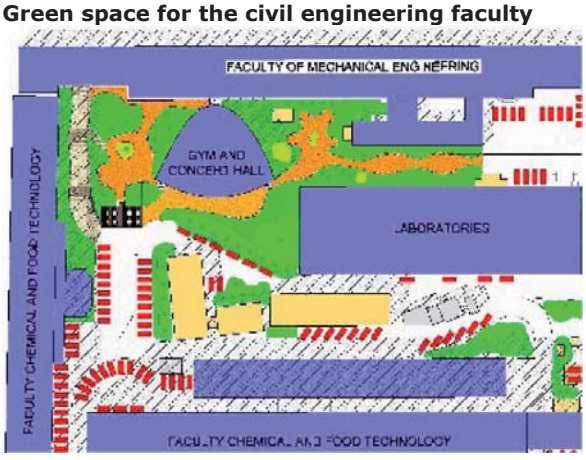

Fig. 2: Relaxation area for the students

Because we are the students of Faculty of civil engineering, we know better the conditions here then

in other faculties. We know what we like and what is important to change to meet the needs of the students. We focused the plan into two atriums from which one is closed now (small atrium) and the other is mostly used just as a passing corridor (big atrium). As the third element that isn't discussed usually we took the flat roof. We found out, that the statics of the building was planed for using it as a working area for geodesists, but due to unsufficient waterproofing it was never used.
The mental map for this three parts was simple, because there is just one of them in use now. The only green area in the map, representing friendly places was used in a small part of big atrium where the students usually talk, or sit.

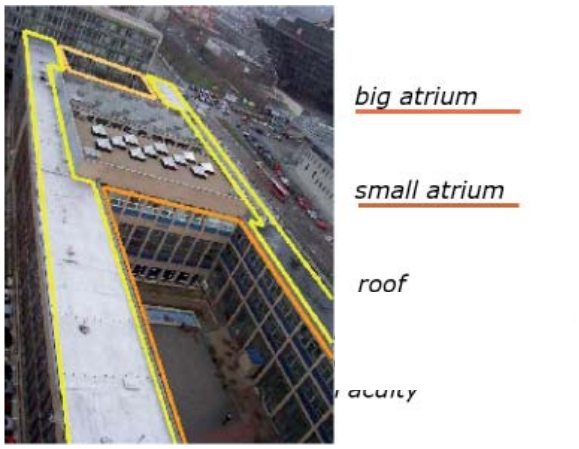

Fig. 3: Birth view of civil Engeneering Faculty

Small atrium

This space is covered by the grass and many high old trees. It fitted into our proposal well, because we needed natural surfaces. The only thing that we proposed here was a partial reconstruction of entrances that were never used before. Sometimes the things are not as complicated as they seem.


Fig. 4: Small atrium from above

Big atrium

This atrium brought us a bigger challenge. The aim was to bring new functions into this space. Crucial thing here was the green space again, but this time only with small vegetation, to have one atrium filled with trees and other one opened to the sun. Proposed were 3 types of surfaces, but all of them preventing the soil sealing by the construction. One was wood, other one gravel and the last one grass, all of them with a connection to the soil through a gravel and sand fill. The southern part of atrium attaches to school canteen.


Fig. 5: Big atrium from above

The proposal respected this and included. The new terraces are created here and enable the boarders to take the lunch outside. Here was also created the cycle parking zone to help avoid the car use. The last function in a proposal was a Caffé-Information Tower consisted of cafe, computer room and the vertical conection between atrium and roofs.

Green roof with playgrounds

The roof is covered with bitumen strips. We propose to replace it with a grass of green roof. This brings new space for students and influences the microclimate. The water hold in the soil is guarantee of wetter air and more stable air conditions. The vegetation can be only extensively planted, but the area is large enough to be efficient anyway. We created many possibilities for passive relawation of people, but active relaxation is also very valuable and here we got good opportunity to create such a space. The size of the roof allowed to integrate this new function. We inserted 7 playgrounds for team games. Playgrounds are not protected against the weather conditions.


Fig. 6: The roof overview

The net around the playgrounds is protecting it, but only from the player's fall out, and the ball fall out. The green roof by itself should be place for meeting. It has five entrances. Two of them are to be built above the existing staircases. The rest of entrances is connecting the big atrium, high-rise building and another attached Faculty building to the roof.

Presentation to the authorities

To begin this change of the areal isn't complicated. The initial costs are very low, but the final effect will be good not only for the employees and students, but also for the environment in the city. Sealing in the areal will be stopped and even new areas of free soil appear. This is just to show that small transformation can make a big difference.
Finally after we finished the project proposal, we arranged a meeting with the representatives of our school. We presented our plan and already while presenting we were getting negative attitude to it.

The main problem arose in the big atrium, because authorities wanted us to design a roof there and to create a space with a big value (the value for them is the faculty appearance and attractiveness, our value was the soil). Second issue brought the green roof design. According to them it is not possible, because the rules don‘t allow it without a wall two meters in hight. This might be true, but problem like this can be solved for example by rising a glass safety rail. This wasn‘t an issue for rejecting the plan, but it was an opportunity for authorities to do so. The thing that impressed our leaders was the new parking lot plan. At least something. Meetings such as this one are important even thou they don‘t bring an obvious results. The authorities also have to know what are the student‘s (peoples) needs.

New achievement

The new plan of the area finally appeared as a minor one, the major impact of the presentation and our work was making the firs step to change the opinions. Presenting new ways of thinking to the soil and environment is what makes the real change, the change of public attitude.

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ANALYSIS OF SOIL POLLUTION IN CASE STUDY RAČA/ VÝCHODNÉ

Smiralova, M. (STU Bratislava)

This paper is related to my PhD research with the name Using GIS in Large Urban Distressed Areas-LUDA. Analysing the soil pollution is used as an practical example to in case study Rača/ Východné perceived from different perspectives- objective (official statistics), subjective (perception of stakeholders), and the impact of soil pollution to the functional land use (derived from the Master plan). Monitoring and visualisation of soil pollution can be usefull for many purposes in decision making processes.

Introduction

The redevelopment of obsolete industrial sites has become an urgent task for spatial planning not only in the accessing countries in the central and eastern Europe, but in the leading industrial countries all over the world. Last development in the economy and society brought new types of the sites - so called brownfields. As defined by the US Environmental Protection Agency (EPA), brownfield sites are abandoned, idled or underused industrial and commercial properties where expansion or redevelopment is complicated by real or perceived contamination. But the term "brownfield sites" is used for the sites, which have been exposed to industrial activities. Reuse of brownfield sites, as the practice of many western countries shows, includes housing, commercial, mixed-use and industrial projects, creation of parks and recreational areas and restoration of wildlife habitats and open space. It needs not only to adjust the planning methods to their new needs but to derive new planning instruments, strategies and procedures. They often contain a mixture of various buildings, infrastructures, sealed surfaces, fences, walls, underground technical networks, industrial equipment and foundations, and other industrial, transport or mining residues often of varying toxicity. One of the most critical problems is soil contamination. Contamination cleanup is expensive and depend on the quantity and quality of contamination, kind of future uses, as some ofthem (housing, gardening, playgrounds) are very sensitive. The analyses of the soil contamination and its precise localisation is an important precondition for a decision about future development on a certain brownfield site, preparing a development strategy and comprehensive plan including appropriate requirements for the decontamination and for their financial assessment.(Jamecný, Petriková, Finka 2003).

Within most European cities brownfields exist within larger urban functional units which are never expressed in a large *"spatial homogeneous continuum".*

Deprivation is often found in small *"pockets"* because they are surrounded by more affluent and economically successful areas. The boundaries of brownfields and their adjacent distressed areas may be independent of administrative boundaries of city districts, but they do not necessarily need to be (LUDA Team 2003-2005).

The case Study Rača/Východné

Also the Case Study Rača/ Východné, which is situated in the northern part of Bratislava (SK) bears the problems connected with brownfields and multiple deprivation. The area suffers with different kinds of environmental, socio- economic, urban deprivation such as: contamination, problems with infrastructure and transport, natural hazards, low investment capacity, fragmented private property, loss of economic functions, unattractive and disconnected urban structure, inadequate or improper facilities, degraded housing, weaknesses in social cohesion etc., which are detrimental to the sustainable development of the city as a whole (LUDA Team Rača, 2005).

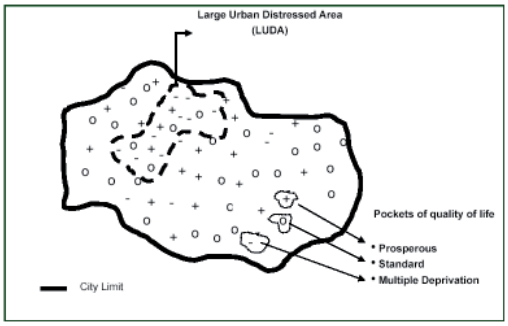

Fig. 1: Deprived areas- the pockets of deprivation within the city context (LUDA Team 2003-2005).

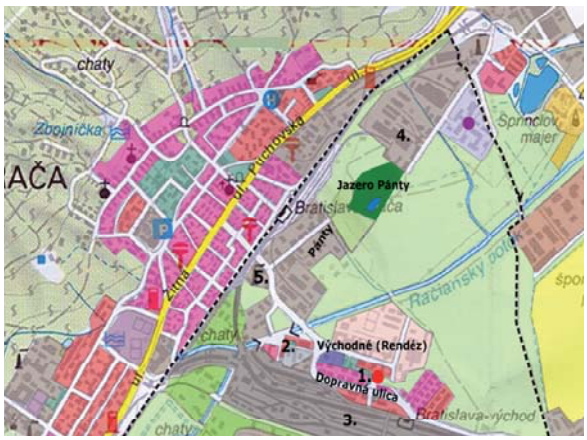

Fig. 2: Case study- Bratislava Raca/Vychodne (LUDA Team Rača, 2005)

The case study creates the independent part of Rača Municipality and it is situated in the south east part of transport and development axis of Bratislava. The area of 8,64 km² has 3580 inhabitants with the density of 555,5 pers/km². Functionally is limited and isolated from other surrounding parts due to the existing railways which create an important barrier effect. The area was founded as an important railway station with mainly industrial features. Now is mainly characterised by manufacture, warehouses, housing, commercial and businesses activities, scool campuses with the potential of free land.

The landscape of Rača/ Východné is influenced by anthropogenic factors which

threaten the natural environment, such as waste dumping grounds and a high concentration of pollution from industry processes (e.g. ammonia) and transport. But the area has also valuable natural and development sources.

The urban parts Rača/ Východné consist of structures without any linkage to each other. The strong potential of area is nowadays in land which is considered to be used for further development. The development in all parts is limited by the transport connection, technical infrastructure and environmental burdens related to the pollution (LUDA Raca Team 2005).

Main goal

The conventional planning techniques do not include flexible tools to tackle the important territorial problems of soil and land use management to be used for further development. The pollution of soil in Case Study Rača/ Východné has a detrimental impact to the quality of life and further profits and needs to be identified. The visualization of soil pollution can have an essential significance for decision makers and also can increase the awareness about soils and land use.

The main goals of this example are:

- use appropriate theoretical, methodological and practical base to bridge between the available scientific knowledge and experience of - the practical case study, theoretical conceptualising the concept about soil and land use towards a thematic strategy for soil protection and sustainable land use (IP SOIL 2005- 2006) and monitoring and assessment methodologies.

-visualise the pockets of soil pollution through GIS and describe the complex impact of this negative issue to the functional land use of case study Rača/Východné.

The quality of life

There is a parallel relation between soil pollution and the deterioration of quality of life. The larger distressed areas comprising brownfields as the case study Rača/ Východné usually suffer from a combination of several economic, ecological, social, urban structural problems as well as the problems of community capacity and governance (LUDA Team 2003-2005) which have the strong impact to the quality of life. However a certain aspect of distress might be predominant and of course there are differences in types and intensities of problems from one to another. Concerning to the quality of life, there is a need for a new planning structure and instruments towards cooperative strategic planning which is organized from bottom to up and includes participation of stakeholders. (www.luda-project.net)

The quality of life, depending on subjective perception of key stakeholders such as inhabitants, agencies, residents, end-users and employees. It is hardly measurable by quantitative indicators (mainly linked to administrative boundaries). There is a need to use new methods which will preciselly describe, compare and evaluate the pockets of soil pollution from the perspective of stakeholders and their quality of life.

DPSIR indicators approach

Indicators are measurable and observable variables or values derived from defined objectives that synthetically express the status of a current situation (André and Bryant, 2001). The European Union and other international organizations are trying to make sustainable development more effective through the use of indicators as measures of the environmental and sustainable development and by the incorporation of this measures into spatial planning. Nevertheless, although these tools provide data at municipal, regional or national scales, they are less useful for local use managers and decision makers (Picher,Romero-Calcerrada 2006). Widely used frameworks for indicator development are the Pressure-State-Response framework of the OECD and the DPSIR framework of the European Environment Agency (EEA). These indicators form the basis for spatial typologies. This offers not only additional application potentials, but also bears the necessity to adapt to their utilisation. In addition, the information provided is directly linked to concepts such as the DPSIR (Driving Forces-Pressure-State-Impact-Response) and sustainable development, and thus has to be evaluated and used in this context (Steinnocher, Banko, Kostl, Petrini, Monteferri 2006).

The monitoring and assessment

Monitoring is the regular collection, analysis, interpretation and reporting of data to lead to more informed decision-making and enables feedback and review (Beanland, Huser 1999, ODPM 2005). General aims and purposes of monitoring are to contribute to a continuous learning process, to provide best practical information to found management decisions as well as to reduce risks of such decisions (SIP Monitoring and Evaluation Unit 1997; Beanland, Huser 1999). Monitoring is an integral part of the policy process, and is closely related to policy choices and the establishment of aims and objectives on a strategic level- creating and implementing projects (Moore, Spires 2000). Usually monitoring follows an indicator-based approach directed towards identifying the area's baseline, the context of regeneration activities as well as their impacts to the quality of life (Hemphill, Berry, McGreal 2004a, 726). While monitoring includes the continuous collection, analysis and interpretation of data, evaluation is carried out at certain moments of a project. Monitoring provides basic information for evaluation, becoming relevant at all DPSIR stages for further decision making. Assessment is a general term for any process of evaluation or estimation (Moore, Spires 2000, 227). Assessment criteria provide a theoretical frame to structure the monitoring process.

Monitoring quality of life may include two approaches: objective and subjective. The objective situation is described by the help of statistical data. Statistical data can be gained from various sources such as public administrations, agencies, housing associations, service providers and others.

Quality of life in areas of deprivation can be best improved when including the area's key stakeholders into the regeneration process. Key stakeholders are inhabitants as well as local employees and businessmen. Including these key stakeholders into monitoring activities allows to exploit their knowledge potential as well as to strengthen their commitment to contributing to the regeneration process

(Müller,Westphal, Schiappacasse, Mayere, Smaniotto Costa, Küttner 2005).

GIS-based spatial decision support system for monitoring

One of the key tools for design of the decision support system based on this methodology is Geographic Information System which serve to quantify multicriterial data and represent resulting spatial data (Ponjavic, Avdagic, Karabegovic, 2006).

Geographic Information Systems (GIS) are computer based systems designed to support the capture, management, manipulation, analysis, modeling and display of spatially referenced data at different points in time. In these applications GIS provide decision makers with effective tools for solving the complex of spatial problems.

Raster- cell datas

Regarding spatial objects, the GIS contain a special feature that allows their illustration in either vector form or with grids and rasters. General spatial data model is here presented in space as two-dimensional grid of cells, or land units. This grid is created in GIS, every cell is one entity connected with one record in the database. Most important feature of grid is its resolution, because accuracy of results is dependent on it. Here will be shown how incorporation of fuzzy set into GIS is improving system's level of intelligence and have useful implications for spatial data handling (Karabegovic, Avdagic, Ponjavic 2006). A system for monitoring the soil pollution depends on the availability of data on small area level. However, often the pockets of pollution as smaller units within larger area of deprivation, are not even corresponding with administrative boundaries or statistical units. The concept based on a raster fuzzy organization of data is the ultimate solution to the modifiable areal unit problem. These method enables to evaluate precisely and compare different disperse pockets of soil pollution which are independent from any administrative limits connected with common statistics. This method requires independent location of the pockets, and their different density within the zone**.** The raster representation allows the calculation of micro scale equity.

Soil pollution in case study Rača/ Východné

Monitoring the achievement of objectives and targets requires scaling of data to reach comparable results across the two perspectives: objective and subjective situation. Data and information were transformed to values on an ordinal scale ranging from 1 representing lowest degree of soil pollution and 5 representing highest degree of soil pollution.

Objective situation is derived from official data sources-statistics of pollution. The objective eveluation consists of assessment according to normative criterias. Mostly it is connected with different guidelines, statutes, principles and regulations. The scale from 1 to 5

Subjestive situation are reached from questionnaires and personal interviews which monitor the perception of different stakeholders - inhabitants. The scale from 1 to 5

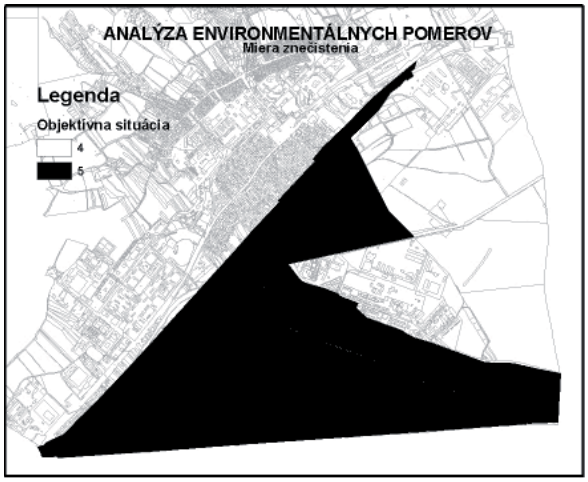

Fig. 3: Objective situation of soil pollution (information derived from statistics).

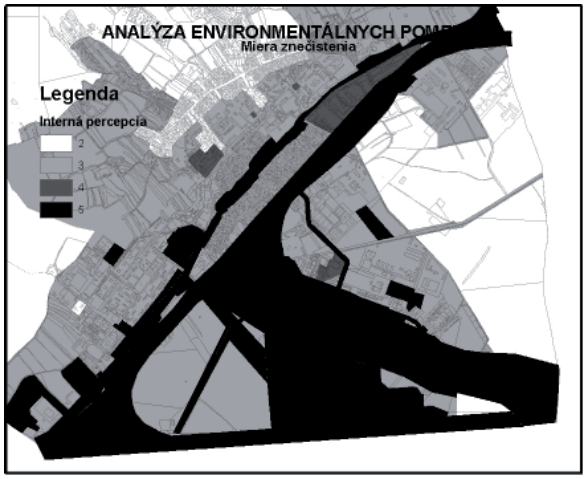

Fig. 4: Subjective perception of soil pollution assessed by stakeholders.

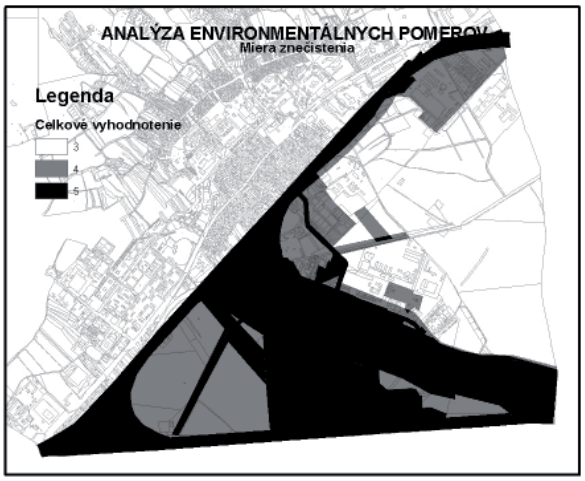

Fig. 5: The calculated average pollution of objective situation and subjective perception.

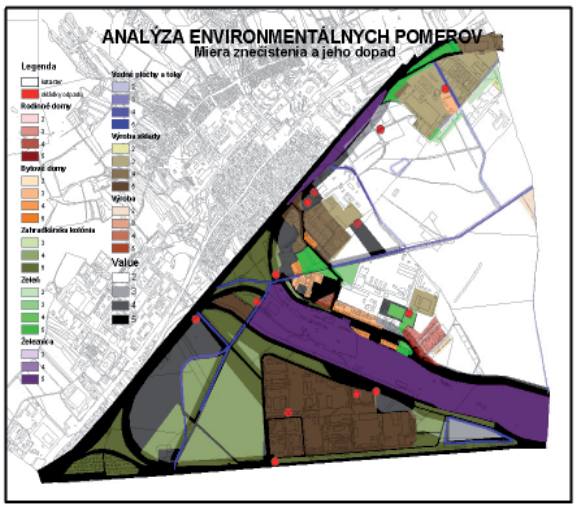

Fig. 6: Evaluation of the functional land use in relation to the pockets of soil pollution. **The Findings**

Fig. 3 Objective situation of soil pollution (information derived from statistics) shows the distribution of pollution within case study boundaries. The statistic data are less detailed, but show that the pollution reaches the highest degree in the south- west part.

Fig. 4 Subjective perception of soil pollution assessed by stakeholders shows more detailed proportion of

soil pollution but the calculated results may also show underestimation of soil pollution by stakeholders in some parts in comparison with official statistics.

Fig. 5 The cell statistics of objective and subjective maps show the eligible average pollution.

Fig. 6 The evaluation of functional land use in relation to the pockets of eligible average soil pollution show that the most problematic pockets are located in the functional areas of railways and former industrial zone which is now under the process of rehabilitation with increasing of new commercial and business activities.

Conclusion

The time consuming decision making processes for further development based on try-and-error need to take into consideration the monitoring of different aspects of quality of life between which the soil pollution plays an important role especially in brownfields areas. As Weber (2003) mentions it remains a fact that investment in contaminated land is simply not as profitable as investment in uncontaminated land, because of the specific extra costs which generally arise.

The monitoring in connection with GIS enables the visualization of real status of soil pollution and other interrelated negative aspects in all DPSIR stages.

The example of soil pollution in the case study Rača/ Východné showed the great potential to identify the problematic pockets and realistically assess the state of soil pollution in relation to the functional land use.

The analysis of soil pollution from different aspects shown above can be used for further suggestions from environmental aspect as to set the recycling measures, economic aspect as the expectation of profit for potential investors, the tax incentives, social aspect as increasing the public awareness and participation and urban and architectural aspect as sensible suggestions for functioanal usage, urban structure etc.

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CHANGING OF LAND USE SCALES FROM DIFFERENT POINTS OF VIEWS – THE BIG AND/OR THE SMALL

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In my paper I deal with the Hungarian agrarian history from the 19th century until today. Throughout this time I research how the ratio of large and small agriculturally cultivated land properties changed compared to each other. The concluded information gained are interesting of many aspects such as changing of agricultural policy, economic driving forces changing the range of biodiversity, soil fertility, habitat preservation or alteration. Apart from ecologic consequences severe effects can be detected in society also. Agriculture is one of the main player affecting directly and intensely the soil. To be able to create a learning region on sustainable soil and land use we have to be aware of our common European and identical national history and differences. I discover with the help of nation-wide statistical data what driving forces led to various governance measures in historical situations in the Hungarian agricultural property and what these situation tell us concerning our present and future.

Introduction

In order to be able to create a learning region the participants have to be aware of each other's most important features that affect the soil and land use. That is why I carried out a general research of Hungarian agrarian history focusing on the changing of ownership. Agricultural production has been overwhelmingly important throughout each period of the Hungarian economy so changing ways of agricultural cultivation affected land use and soil conditions largely in our country.

Conclusions

In contradiction with the usual structure of a scientific paper I present the research results here, in the beginning. Concluding in the beginning makes reception of ideas easier and quicker.

1. There is too much stress on economic competitiveness. According to profit-oriented economic rules large-scale cultivation methods using large pieces of land gather ground in an unhealthy measure. This way of cultivation is only sustainable from the economic point of view but not from the point of society and ecology and it interferes with European agrarian-policy.

Taking real processes into account an intense change in agrarian policy is unlikely to occur so the overwhelming ratio of large-scale properties can be taken for granted. Assisting cooperation and grouping of small-producers and family farms can be the balancing way out.

2. Neither extremity of cultivation scales are viable alone. Agricultural structure of the 1930's has shown that the domination of large-scale properties caused severe distortion in Hungarian economy. According to the present European property ratios it is also clear that the small-parcel dominated structure is not functioning. The optimal would be the balance between small family farms, medium farm-cooperations and large agricultural plants.

3. Large pieces of cultivated land properties were accumulated because of economic reasons. But we have to be aware of negative effects of large-field cultivation on the ecosystem and also the human habitats.

4. The tension between property ownership and will of cultivation has not ended but turned to the opposite. For hundreds of years there was enormous desire in the society – members of what would have been able to cultivate the land – towards property ownership that could not have been fulfilled. This desire remained unchanged until the land-reform in 1945. The achievments of the land-reform remained in power only for few years, between 1945-1949.

The enormous difference among ownership, ability and desire for cultivation was shown in its true tragedy after the system change and the restitution. 40% of the land was given back to private owners who were not any more in the position to cultivate it, they were either too aged or had not the equipment and experience so the "useless" land was sold or rent.

5. A more balanced situatuon in agriculture could be achieved with the change of the cultivation structure in accordance with the regional differences. Environmental-ecological and fertility factors divide the Hungarian land into three main groups: a, intensively used b, extensively used c, to take out of cultivation. If cultivation followed the above pattern, our agriculture could be in a more optimal position.

6. Ratio of crop growing and animal keeping dangerously shifted towards animal keeping. The two main branches of agriculture have been in quite balanced until the system change, after which the number of kept animals intensely sank. Today 2/3 of agricultural products are crops and only 1/3 is animal product. The overwhelming amount of crops is a result of the internationally high price. A lowering of the market price may cause disaster in the agrar sector. Although this unhealthy production ratio rises severe ecological questions such as soil fertility and food security.

Governance periods

Now that we know where we have to arrive in the end shall proceed the historical review of property ownership ratios. Meanwhile my research I discovered that in every period properties can be very well divided into two main groups where the division number is 50 hectares. Comparison of either the number or the area taken up by properties below and above 50 hectares show well the large tension that could be formed in certain times in the society. Looking through the history it is striking that the situation of the "few large-lot of small" nearly never changed.

From 19th century until 1945

According to statistical data in 1895 99% of land owners owned less than 50 ha and these properties took up 51% of Hungarian agricultural land while the rest 1% of the owners had more than 50 ha, and owned 49% of the total cultivated area. This means that 99% of owners used half of the land and 1% used the other half. This ratio have not changed in 40 years, as we see quite the same data in 1935. We have to know that at this time 60% of Hungarian habitants earned their living – at least tried – from agriculture.

Tab. 1 Property ratios from 1895 to 1935

	1895		1935	
	num. of prop. (%)	area (%)	num. of prop. (%)	area (%)
below 50 ha	99	51	99	52
above 50 ha	1	49	1	48

Source: Magyarország a XX. században

After the industrial revolution economy and population was booming so with the building out of the railway system international market (mostly within the Austro-Hungarian Monarchy) was suddenly wide open for Hungarian agrar products. Extensive methods and self-sufficient amount of crops vanished fast in the process of intensification. Grazing fields were transformed into cropland which caused significant change of the landscape. Intensification was started on the large properties. They needed lots of human labour power that was sufficiently delivered from the empoverished layers of society. According to economic rules cultivating machines appeared soon on the large fields.

Booming stopped during and after WW I. Small landowners sunk rapidly and the owners of intensively treated large properties needed rationalisation. This meant substitution of human labour with machines and dismissing needless people, resulting more and more paupers. This negative process led by 1930 to the "country of 3 million beggars". This amount of people meant at that time 1/3 of the Hungarian population.

For the small farmers some kind of solution was the so-called Garden-Hungary movement that urged intensive human-labour-based horticultural cultivation. Of course this was not the ultimate solution and especially not for the great mass. The large, starving mass of people was "consumed" by WW II. and after that by the urbanisation and industrialisation.

1945-1949

Land structure changed first radically throughout the history after WW II during the overall land reform started in the new political system. According to the regulations of the reform all noble properties above 570 ha and all non-noble properties above 114 ha had to be divided and shared out and the former owners could keep maximum 57 hectares.

The land reform was carried out with extreme rush, in some villages in a few hours and unfortunately injustice and violence also occurred, which were signs of the unimaginable eager for owning a piece of land. As a result of the land reform out of the 3 million "beggars" 640 000 got an average of 3 hectare and so 99% of the agricultural land belonged to 95% of the owners who had less than 50 ha of property, while the rest 1% of owners had more than 50 ha, altogether 4,5% of the total area.

Tab. 2 Property ratios in 1949

	1949	
	num. of prop. (%)	area (%)
below 50 ha	99	95
above 50 ha	1	4,5

Summing up shortly the land structure reached the other extremity: the previously used technology and machinery (e.g. 7000 tractors) was suddenly useless as the new owners didn't need machinery on their small parcels. The new feeling of ownership gave fresh impetus that led to the first „Hungarian agrarian wonder", that made possible the ending of the war ticket system in 1947. Unfortunately this wonder did not last more than 3 years, as from 1948 collectivisation of agrarian land began. Collectivisation, often carried out with violent, dictatorial and illegal methods, was steered by the socialist agrarian policy that aimed merging together all private properties in favour of creation of cooperative farms.

1949-1989

Despite the unreasonable collectivisation in this time period 15% of land remained in private ownership, 70% belonged to cooperative farms and 15% belonged to the state. Most of the cooperative farms functioned successfully as the state compensated every deficit. With the help of the state the standard of agriculture rose rapidly and in some cooperatives were equal with the international level. Parallel with the new technologies we must not forget about the immense and uncountable human knowledge and experience that was forgot and lost in the ten-thousands of eliminated private farms as well as the weakened landscape values and lessened biodiversity.

Apart from the overall existing cooperative properties there remained a last reserve of private owned land called croft garden (garden next to the house). This piece of land was 0,6 ha large in average and was left to the families to cultivate. The production in the croft gardens grew significantly from the 1970's and in some horticultural and poultry and pig sectors gave half of the national output.

Croft owners and the cooperative farms closely cooperated: cooperative farms gave the more expensive machinery and purchased the end-products and so balanced and secured the market for small-producers. Cooperatives also traded with the products that brought reasonable income for them. Although this balanced cooperation system of small and large producers was fruitful it has not survived the system change and the restitution.

1989-2007

After the system change in 1989 and the following restitution from 1991 private ownership became again determinative (92%). From this time statistics mention owners as either private farmers or economic organizations so I also use this terminology.

In the new system property ownership can be divided into two main poles and the ratio of the two are even more unbalanced as it has ever been. One pole stands of the 2,6 million private owners who gained small-parcel property after the restitution. The other pole is made up of economic organizations cultivating land on large areas. The 50-hectares border describes the present situation also well: 98% of private owners have less than 50 ha, while 98% of the land used by economic organizations is in parcels larger than 50 hectares.

According to the data of Conscription of Economy Structure from the year 2005 by the National Statistical Office 98,8% of owners have less than 50 ha, taking up 30% of cultivated area and 1,4% of owners have more than 50 ha, occupying 70% of the total area. This 70:30 ratio tells us that the unbalance between large and small property owners has never been so large.

Tab. 3 Property ratios in 2005

	2005	
	num. of prop. (%)	area (%)
below 50 ha	99	30
above 50 ha	1	70

During the research I noted an interesting contradiction between two significant data sources. The above 70 (economic organizations):30 (private farmers) ratio was recently presented by the National Statistical Office. Very different numbers, 37 (economic organizations):57 (private farmers) can be read in the National Agri-Rural Development Program.According to the EU Agri-Rural Development Strategy the family-farms are the most important stakeholders of sustainable agriculture and land use. The present situation in Hungary totally contradicts the EU policy above as agriculture is dominated by large-scale properties using industrial methods. The cause of the contradiction between the two data and occurrence of the milder data in the National Agri-Rural Development Program might be that policy-makers cannot undertake the fact in national or international publicity that the shift towards large-scale agriculture is now even larger than before hundred years. There is another possible negative consequence of the data published in the National Agri-Rural Development Program: according to those numbers Hungarian land ownership is too fragmented so even more concentration of properties is needed. The European rural development policy, which is based on family farming will hardly come true if the national agrarian policy totally contradicts with it and focuses henceforward on concentration.

Numberof properties and area of cultivated land in 2005

Area (ha)	Properties Number	Area
0	41,79	–
0 < 0,2	16,42	0,41
0,2 - < 0,5	13,26	0,76
0,5 - < 1,0	5,82	0,75
1,0 - < 5,0	13,80	5,89
5,0 - < 10,0	3,53	4,69
10,0 - < 50,0	3,99	15,99
50,0 - < 100,0	0,67	9,20
100,0 - < 300,0	0,51	17,03
300,0 **and more**	0,21	45,29
Total	***100,00***	***100,00***

Fig. 1. Property ratios by the National Statistical Office

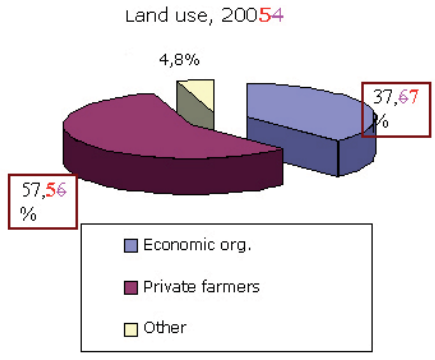

Fig. 2. Property ratios by the National Agri-Rural Development Program

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REMOTE SENSING, LEADING ON MAPPING LANDSCAPE CHARACTER AND IDENTITY

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Utilisation of aerial photographs and satellite images for land surface monitoring spread in the last four decades. Methods have been developed for financial and environmental interests exploring natural resources, calculating vegetation, thermal, aridity indices etc. The thematic area of landscape character and identity seems to be more intangible, but GIS methods, to make this area measurable and analysable, are under development at several European research institutes. Characteristics can be mapped by remote sensing techniques: patterns of land cover, cultural heritage elements or special features which are prominent eye-catching elements. The changes of these characteristics are part of processes partly affected by regional and urban development or by land use planning. To integrate landscape character into economy by analysis and assessment of characteristics on images and involve the method into plan and regulation is a huge, but likely manageable challenge.

Landscape character and the effects of its change

In our personal environment there are several elements characterising the landscape. Some objects, conjuncts and places are easy to remember, later to recognise, and day by day as we meet them, they become the part of our life, we feel that we belong to them, and they form our identity. These are landscape character elements. We are personally linked to them though emotions as a Hungarian writer, Miklós Radnóti, describes in his poem:

„I cannot know how other people feel about

this flame-surrounded little country; out

of this I grew as from strong trunks weak branches do.

It is my native land, my old childhood‘s scene;

I hope my body is to paint its soil to green.”

…

„It is a map for him who flies above this landscape‘s belt,

he does not know where Mihály Vörösmarty dwelt -

What does his map reveal? A barrack, factory?

These are grasshoppers, oxen, steeples, towns for me;

his fieldglass shows him workshops, farms which upward lurk:

I see that worker too who fears to lose his work.”

…

„I see footsteps of bygone loves here, on the street,

the kisses‘ flavor, in my mouth, is bitter, sweet;

walking to the school when I was all alone

I stepped (to pass examinations) on a stone;

well, here‘s the stone but from above, it‘s simply flat,

there are no instruments which ever could show that.”

A well-known definition is that these elements and the character itself are formed by natural impacts and cultural-economical impacts as well (Csemez, 1996. pp.279). In this sense natural elements like the grasshoppers, the stone on the street, and artificial elements like the barrack, the factory are as well part of landscape character.

An English definition sentences that the pattern of these elements in space means the characteristics in case of each landscape (Swanwick, 2002. pp.8). In this sense landscapes themselves have characteristics in the view of those who are admiring them.

In case of the European Landscape Convention (ETS no. 176 pp.2.) the definition of Landscape the character is formed and is transforming continuously according to natural and human impacts. This transformation can be so significant that they change people’s impressions, or feelings towards the landscape. The decrease of traditional landscape elements, and the increase of modern, urban, suburban, industrial or transport elements the character and identity of the landscape can totally alter in few years. In the area of Budapest Agglomeration the symptoms of this change had appeared in the last few years.

Fig. 1, 2: Changing Hillside in Budaörs in1968 and 2006 (fist photo from: Fekete et al. 1997)

“Landscape as a cultural value, as a standard of our living is rarely serious topic. We usually associate only on vulnerable natural areas” (Kerekes and Kiss, ed. 2004 pp.89.). From Konrad Lorenz we know that human-technical development can devastate natural space. We ruin the space for living of key species and the ecological system can collapse. (Lorenz,

1973 pp.25-36). Space for living is also relevant for human. A cultural aspect in space of living exists too and we should not forget about that. It is vulnerable, although it is partly made by human, it can be demolished under the press of rush technical development. We are able to ruin that space, which is exclusively offering us a certain kind of pleasure. We can devastate our natural-cultural space, which has visual impressions, refreshment for us. Human impact can result total transformation of landscape character. Traditional characteristic elements can disappear, and the relations among elements and relations between people and conjuncts can change by time.

Landscape character changes can be affected by visual pollution. Electricity lines, graffities, advertising hoardings, huge logistical buildings, or skyscrapers, as modern landscape elements can appear and spread changing landscape character. These changes are not able to be controlled by any of acts, statutes, regulations. These have visible effects only on special areas of some settlements. (Molnár, 2005 pp.78.)

Landscape can loose its characteristics during fast and uncontrolled changes, but this is not necessarily in connection with human health, or natural environment. During rush changes some unique characteristics of landscape can even be preserved and these can increase the will of some care about the land, and sustain the relationship between people and landscape. The land which totally looses characteristics and is similar to the others or can simply be characterised by supermarkets, highways, crowded housing estates will loose the emotions and relations of people and will not mean anything traditional. This way land is for production, housing is for stay, work is for survival. If none of them have characteristics people will not feel that they belong to them. The landscape identity will transform to global identity.

Global identity is unfortunately not responsive for local characteristics. For global identity towns, stones and grasshoppers are not real topics any more. Instead of these the global landscape elements, and characteristics appear at the seaside followed by palm trees, or alpine mountains with tarns. The everyday personal environment is not landscape for pleasure any more (Burel and Baudry, 1995 pp.332). The majority's opinion is that landscape, which is the only visual, connection with land and soil by now, has its place in landscape protected areas, world heritage sites, and in mass tourist areas. This signs that the scale of our identity is much wider, and we want a global landscape instead of a bioregional one. What we want is modern global landscape pleasure.

Fig. 3: „Landscape of postcards"

With global identity we are not looking for characteristics in everyday life in our home environment in the urban agglomeration to capture our fantasy, and to refresh us, but we are looking for it in the region of Mediterranean See or in the Alps or even in the third world. As tourists we actually pay to these countries to preserve and interpret natural-cultural characteristics of their landscapes.

Some decades ago this activity was relevant for small regions too and we were ready to pay attention for the neighbouring hillside to have a place there for a rest. Today we may feel responsibility towards those landscapes which have national symbols but mainly just in protected areas. The question is how could we increase responsibility towards landscape character. What kind of measures, in what system could we achieve landscape character, which is an important cultural and visual part of the environment, to become an economic factor.

Analysis and assessment of landscape character with remote sensing methods

Utilisation of aerial photographs and satellite images and GIS methods, to make landscape character topic measurable and analysable, are under development in several European research institutions (Fjellstad et al, 2002., Krause, 2001.). The images besides analysis can be used as a control of results in landscape character regulation. The success of regulations could be measured by them.

Aerial photographs and satellite images and the simple photographs offer to realize and to identify, and to map landscape character elements. They offer the possibility of unified assessments. This is one way of mapping landscape character. The result is a map which is a database at the same time (Angileri and Toccolini, 1993). The interpretation of satellite images, and aerial photographs can be done by experts and local people as well. The visibility of landscape elements offered by images makes landscape character mapping and assessment possible. Local people will be able to form their own opinion about the importance of characteristic elements.

With the landscape character map and database the landscape character value becomes measurable. In European practice there are indicators, which make the state of the landscape, and even the effects of land use changes measurable. Irena 32 is generally measuring ecological transformation of agricultural areas. It indicates the diversity of natural and semi-natural elements, and habitat patches. Irena 35 concentrates on changes of land uses, and indicates the effects on the landscape.

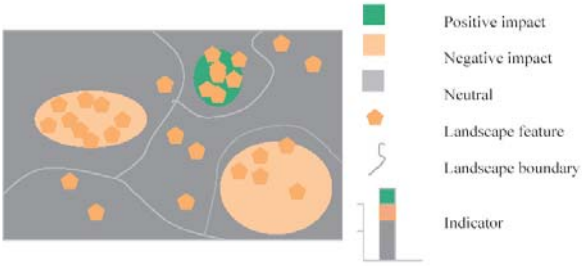

Fig. 4: Schematic model to develop the impact on Landscape Diversity indicator (IRENA 35 Impact on Landscape Diversity)

An indicator based on similar principles could measure the effect of changes in landscape character value. Decrease or increase of characteristic elements could be measured. This indicator could work as a plan

result forecast too. During planning process, this indicator can help to avoid changes which effect loss of characteristics decrease in visual beauty, in visibility of symbolic elements.

It is still a question if landscape characterisation by remote sensing is a help in adaptation of European Landscape Convention in Hungary. According to the Convention it is necessary for every country:

- to identify its own landscapes throughout its territory;
- to analyse their characteristics and the forces and pressures transforming them;
- to take note of changes;
- to assess the landscapes thus identified, taking into account the particular values assigned to them by the interested parties and the population concerned. (ETS no. 176 pp.3.).

For landscape identification and analysis we need databases like CLC or the Hungarian Á-NÉR, which should be completed, more detailed and landscape oriented. For taking notes of changes, the Hungarian Digital Ortophoto Program offers a possibility to make landscape characterisation in every 5 year since 2000.

According to the convention we have to assess the landscapes identified, taking into account the particular values assigned to them by the interested parties and the local community. Images and photographs can have a role of a mediator. Local people can simply express opinion about landscape with the help of an aerial photograph. An organized survey can make this way landscape character measurable. This kind of landscape character survey is able to be repeated and can be refreshed by local population and aerial photographs any time.

It is important to have a usable landscape character database for regional planning, architecture, local governing, and to support decision making. This way of landscape characterisation can be a common platform. Landscape character has values and should be internalized to economy. (Konkolyné Gyuró, 2006 pp.30.) Remote sensing with the help of GIS is one way to achieve internalization.

Change of Landscape character, planning and regulation

The Agenda 21, the global, national, and local action plan, describes the principles of sustainable development for the 21.th century. The chapter about the integration of environment and development into decision making sentences that the integration of environment is necessary at political, planning and management level. The countries, for the purpose of monitoring sustainable development, could develop such systems, which utilising indices could make measurable economical, social, and environmental effects of changes. (Bulla, et al. 1993 pp.72.)

The fact, that today the environmental output is not a market factor (Kerekes and Kiss ed. 2004. pp.144) is definitely true in case of landscape character too. Nowadays the loss of landscape character value can be noticed, recognised, but the local communities are not aware of measures, which could be able to preserve landscape character and to regulate the activities with a certain effect on this value.

The statute 18/1998 (VI. 25.) KTM offers in Hungary an opportunity for defining special zones for landscape scenery protection, and settlement scenery protection in Hungary in case of regional plans of counties and specially important regions. In fact these plans are not based on population opinion, are not enough detailed at local level and are not able to affect settlement development plans, and more important that they do not really deal with landscape character and identity.

Nowadays the activities with huge effects on landscape character or even on biological activity are not responsible for the consequences. The supporters of these activities feel also not responsible for that. The investors do not have disadvantages of their harmful activity, and they are not forced to take these vulnerable values into consideration, because the society has no option to collect the bills of the activity. Thus the elimination of the damage and the compensation has no real chance. A Hungarian plan of a statute about the biological activity value according to the act about the changes and protection of the built environment (Act LXXVIII. in 1997.) wants to regulate the process from the natural value side. The plan of the statute recommends to give a special biological activity value to the settlement planning zones according to the maximum amount of possible built up areas. The settlement has to deal with biological activity values during the structural settlement plan and has to do compensation in case of loss in biological activity value.

According to the plan of the statute the designation of new built up areas has to result that the biological activity value is increasing with at least 10 percent. There is a possibility for compensation on the designated zones, or in special case on other zones of the settlement area[1]. The start could be based on the same idea in case of landscape character value too. The activity which changes or ruins characteristics, determined by the local community assessing photographs, and aerial or satellite images, has to pay the fee of the loss, and has to offer compensation for the community.

It is necessary for this:

- to consider the landscape character as a value of communities,
- to built up an impulsive system for landscape character and identity oriented development,
- to create the landscape character value system,
- to manage landscape characterisation in Hungary,
- to collect opinions of local, national communities and landscape experts,
- to involve communities in mapping landscape character and identity with the help of photographs, aerial and satellite images,
- to develop the system of landscape character compensation.

It is not so easy to build up a value index for such a subjective topic like landscape character or identity. Thus it is necessary to involve landscape scientists, the local communities and those instruments (remote sensing, GIS), which offer the possibility to make the topic more tangible.

The landscape character value, could also be based on the idea of the relative habitat-diversity index (Gyulai 1999 pp. 57.). This index does not only show how many and how important habitats can be found on an area. It also indicates how far the habitat is today from the natural vegetation which could be there

1 Part of the „Biological Activity Value" plan of statute (2006) www.tagszem.hu

without human activity. It eliminates bio-geographical differences and deals with relative values. In case of „relative habitat-diversity index" each area has potential value without human activities, while the index of „landscape character value" can just refer on a former situation. There is no potential value of landscape character just a value which is better or worse than the former situation. The first step is to determine the former landscape character value and then the value of the present situation. Finally the change between the former and the present situation has to be analysed. The images and photographs of remote sensing are definitely the most suitable for assessment of the same area with same methods in different periods.

Landscape character change value could show how far we are from a former situation. It can show for example how many specimens we have cut, how much of cliff has been ruined, how much of green area we built up, how big areas became devastated with visual pollution in the last five years. Such a survey needs also field survey and photographs about the changes too.

To have a successful index we also need to map all the large vertical surfaces, high, or huge objects (towers, windmills, logistical buildings, store buildings, advertising surfaces) It is also the part of the survey to show which areas are these objects visible from, and how large area they do cover from the landscape. It is also important, to show which are those areas, where the landscape character has strong identical elements, on which areas became the landscape less characteristic, and more globalized. The percent of the strong identical area is measurable as well as the changes of them. We can involve some other measures into the index to indicate the number of those companies, enterprises, which base their profit on the values of landscape character (e.g.: tourism), or the number of those products which are in connection with landscape character.

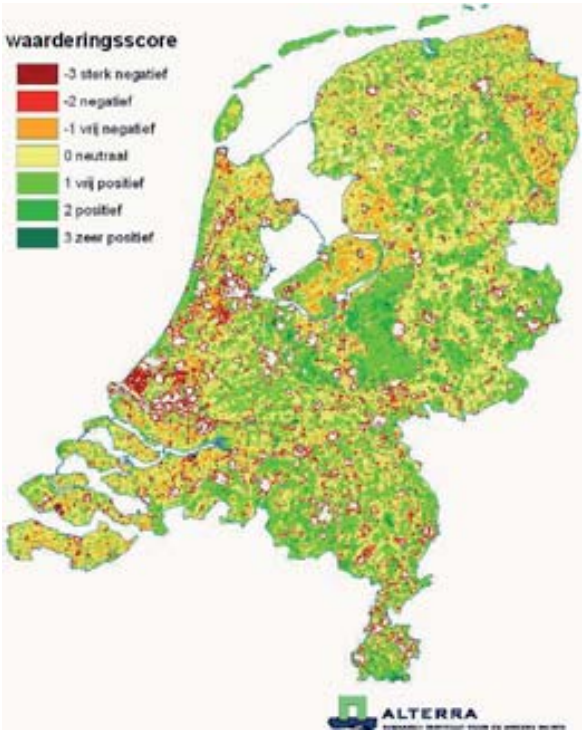

Fig. 5. GLAM: GIS based Landscape Appreciation Model (de Vries et al. 2002)

There is an obvious need for the activity of an independent civil community, to participate in evaluation of character value and its changes. A survey made landscape appreciation map according to the local population's opinion in Netherlands (de Vries et al. 2002). The local environment was evaluated according to many aspects (naturalness, historic significance, range of urbanisation, relief, air pollution, noise).

Fig. 6. Visualisation of planned windmills in the Tétényi-plateau

With a similar method could be landscape character evaluated into many different categories. (crowded, plain, depressing, sublime, scenic, identical, unique, traditional etc.) Instead of interviews a voluntary e-management of landscape character evaluation could work based on aerial photographs and GIS.

The local principles of sustainability, the partner relationships, the community oriented analysis of problems, the strategic action planning, the implementation and monitoring, and the evaluating of results and feedback as the main points of the Local Agenda 21 suggest those steps proposed above.

In case of landscape character management and regulation the partnership means collaboration between civil society and authorities for landscape character. The analysis of problems is the mapping process of landscape character in the region, and the changes affecting loss in landscape character values. Implementation and monitoring is to follow the landscape character value changes through aerial and satellite images and GIS-based re-evaluation by communities. Finally evaluating of results and feedback means the success control of landscape character value system effects in planning.

The images can help in forecast also. The planned objects can be visualised and the effects on landscape character can be estimated. The increase or decrease of landscape character value can be evaluated by local community before the approval of a plan. Windmills as objects which can have great effect on landscape character change can be visualised on the aerial photographs in three dimension too (Jombach, 2006).

The investments, developments, subventions, concepts and policies have already possible effects on landscape character. Even at the stage of an idea of them. At this level, which nowadays can be even European or global too, is hardly possible to tell the exact effect of one decision in different economic sectors and is almost impossible the estimation of potential effects on landscape character. The research of the University

of West Hungary in SENSOR project[2], which has the goal to make a sustainability impact assessment tool, tries to find the indicator for estimation the possible landscape identity changes in this huge European scale. The research on the landscape identity indicator led to remote sensing and to the databases and maps which are generated from the photographs and images (Konkoly Gyuró and Jombach, 2006). To be aware of the effects of our decisions, we have to catch also the intangible parts in landscape character, and we have to fit them into economy, into planning and regulation systems, and in sustainability programs.

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2 The SENSOR project aims the creation of an ex-ante Sustainability Impact Assessment Tool (SIAT) which should be a decision-support for land use strategy in multifunctional European regions.

SUBOTICA MUNICIPALITY AS A LEARNING REGION

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Some differences in territorial organization coopering Serbian and EU countries are obvious. Level of centralization and tradition in ideas implementation systems are differently back- grounded and those make most important facts in opportunity to realize Learning Region as a concept of the European future.

There is no part of space that should be took as unchangeable so way to better position and Learning Region concept implementation in a practice of each region in Serbia should be lead in a few necessary steps and even more. Getting aware on fasts that have been creating Subotica region as it is now is base that should be start of. Healthy future of each region we have only if we look back in the past and learn from the history. The other important thing is bench marking- learning on the positive and successful experiences of other regions, and finally, making its own concept of Learning Region adapted to local surrounding and true need of local people.

Some experiences, suggestions and comparisons will be made in this case study, in relation with one of the in a territorial way one of the Serbian municipalities the closest to EU neighboring countries.

Comparisons between Subotica Municipality and EU municipalities

Speaking about Learning Region consequently rise need for defining a term "Region" has to be defined. Concerning historical background and all political differences and Iron Curtain distances between Balkan countries and Central Europe made distinctions in territorial organizations a well. For example: Only one Austrian state Burgenland (area about 4 km^2) has with 171 municipality within itself has almost the same number of municipalities as the whole Serbia with 189 (area about 88.000 km^2). While the Austrian smallest administrative unit is municipality which consists of one city, town or village and territory that belongs to it, Serbian municipality get together 15, 20 or even 100 settlements. In a case of Subotica Municipality number of settlements is 19: one town and 18 villages. Difference is obvious and relevant in an issue of Learning Region organization.

Area of territorial unit which is the basic one is important because the level for the implementation of Learning Region tools is different. That means, approach has to be different if expected results should become visible on level of one or 20 villages. Of course, results will more obvious and all the actions with more influence if governance has a task to implement ideas on the level of one village, to smaller number of people and smaller area. This is not only a question on spatial efficiency but also question on administrative and political organization of municipalities. In other words it is a question on responsibilities that one local governance ant could get and realize in a proper way within municipality.

The other difference between Subotica and EU municipalities is level on which financier for all the actions stands at. While in EU municipalities this local administrative unit has its own budget and right to calculate how to use it for the implementation of the actions, at the other side, Subotica Municipality is part of the centralized state system in which each actions has to be vindication from the state center. It is hard to get money from someone who has to split it between so many demanding actors.

Going back to the beginning, historical situation, different cultures, tradition and mentality of the people are making one more distinction between Serbia and EU countries. Looking to the recent history, last 15 years for the most of EU countries were period of stabile development, cooperation and including new members on the unique European market. At the other side those 15 years in Serbia were period of slow decadency of belief in a better future while people lost wish to lead weather ethical or legal norms.

Conclusion is that most of the differences between Subotica Municipality and EU Municipalities are cases in which Subotica and Serbia in a whole should follow the best practices; change its own structure and approaches but necessarily taking care on ethical situation, specifics of mentality and true needs of local people. Decentralization and establishment of new levels for governing a space is future that leads towards ethical changes.

Soil State

Subotica Municipality is located on the very North of the Serbia, on the border with Hungary, in a middle of the Pannonian lowlands. These kinds of terrains are extremely convenient for agricultural activities especially because natural geomorphology of the place is contributed with highly fertile soils.

One of the soil types in Subitica Municipality is one of the most fertile in Europe and it has crucial role in wheat, corn, sunflower and other plants production. These soils are recognizable by very dark brown color, almost black. The reason for this is reach amount of humus in the soil.

The other kind of soil wide spread in this area is salty soil. As its name tells- this is the soil with higher percentage of the send than it is usual. Origin of the send in the soil is Southeastern part of Vojvodina from where winds brought it during a long geological period. Sandy soil is convenient for grape and fruit growing so, some parts of Municipality are also well known as a vine and fruit producers as a part of tradition but for industrial need as well.

Although Subotica Municipality is one of the most developed regions in Serbia this area is primarily agricultural. Agricultural production is main activity for the most of the people that live there so, from the close correlation between soil and agriculture conclusion is that contribution of the Learning Region concept has to forwarding awareness on treatment of the agricultural land and soil. Natural potentials in highly fertile soils and tradition in agricultural production breaded for a centuries has to find theirs way for realization just, Learning Region is one thing that can lead that activities on a right course. Besides of awareness on good things and potentials, local people have to be aware on bas influences and how to manage them as well.

Fig. 1: Agricultural Landscape

In Subotica Municipality those kinds of problems are high level of ground water and wind erosion. Lowland is good for agriculture but at the other side, especially in combination with big European streams Tisa and Danube, it could brings a trouble with ground water, just as it is case in this region. Except is jeopardize agricultural activities, it is also big trouble for water supplying of people in the villages. In combination with industrial production and production on the agricultural land where fertilizers are used more and more, water is contaminated. Knowing that ground water is consistent part of the soil it means that soil is contaminated in the same way.

Wind erosion is process that was intensive more in previous times. Now, there is a set of measures that could be used in a course of preventing new consequences on a soil. Again, flat terrains are good for the most of the activities; other kinds of erosion are that influence hilly and mountainous terrains are almost impossible but wind gain on its strengthens and leaving repercussions on the soil quality. Buffer zones, plant and trees zones, different kind of walls are some of the ways to deal with a wind erosion and Learning Region has a task to learn, show and educate locals how to make, use and maintain it.

Existing Lifelong Learning Tools in Subotica Municipality

Tools that can be used in Learning Region concept is possible distinct as those which are existing and those which are not existing but have to be developed and finally put in implementation. Tools that already exist can be distinguished as those which are already in use and others that are not in a service for soil and Learning Region concept.

To the first group of existing tools belong different varieties of plans and planning: from the level of urban planning to spatial planning, from the plans made for the certain parts of the space (natural protected reservats or so) to the spatial plans of municipality. Subotica Municipality has 4 Natural Protected Reservats (12% of the territory) in a three levels of protection. One of them is Palić Natural Park which needs planning the most because its closeness to the Subotica town and touristy role it has. Existing functions of the lake Palić and whole Park are bringing a lot influences on the soil, water and environment and that is the reason it needs a special care within future Learning Region concept in this Municipality.

Following the planning procedure there was made some mistake: instead of planning for the whole Municipality first, work on Master Plan of Subotica started before. That way, the same year Spatial Plan were starting Master Plan was officially accepted by Municipality Parliament. Doing like this existing tool was used in an appropriate way bringing possible consequences. Instead global planning and that going into the more detailed particles of the space it was done oppositely. Spatial Plan is still in a process of finalization so if there are going to be some misunderstandings with a Master Plan it will be recognized in the future or on the pubic review of the plan.

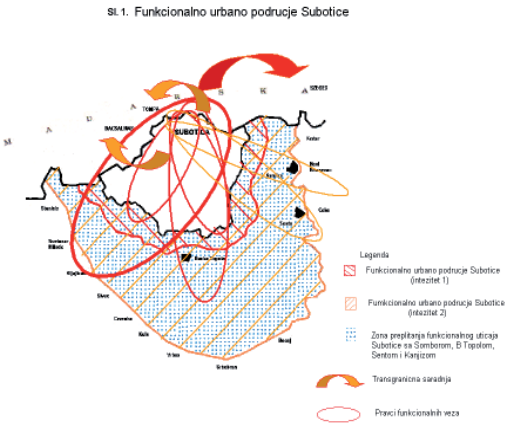

Fig. 2: Functional Area of Subotica Region

The other existing tool for implementing Learning Region and making it possible are NGOs. Non Government Organizations are established in these area and some of them are consequently devoted to the nature protection. In a close cooperation with the governance that will control and plan realization of the Learning Region NGOs could bring relevant contribution.

All together, existing and future tools are the most certain way in bringing up concept of the Learning Region and making results in raising awareness on soil quality, state, importance and expected treatment. Wishing results could come only if strengthens of synergy comes out: urban planning, spatial planning, NGOs, awareness on soil among local people, politicians and stakeholders.

Introduction with No-existing Instruments

No-existing instruments are those which are very useful in establishing concept of Learning Region but still not realized or used in Subotica Municipality.

School education is not typical in this group because it would be wrong to tell that there is no education or education where soil and environment in a whole are not implemented or mentioned in some way. The thing is that it should be done in a different way, with new approach and more accents on this kind of topics. Separate subjects that concerns only soil sustainability, endangered water cycles etc. could bring more serious echo within a students and coming generations.

Also, there is possibility for studying this kind of subjects at the faculty level not only on the specified faculties but a well at the faculties of social sciences. If sociology and philosophy can be studied within geographical sciences than there is no reason environmental sciences not to be studied at the Faculty of Economics, Law.

The second tool within this group is marketing. Usually people need lot repetitions, visualization to become aware of something. That is the reason for establishing separate marketing champagne on soil,

water, air protection and expected behavior of the citizens concerning those elements of environment. Commercials and billboards sponsored by local governance, places from the playground to the roads.

Publicity in each action that is in relation with a protection of the environment is tool for the future as well. Public has its place in a process of planning but publishing the dates when citizens have a chance to participate has to be more aggressive. One little part on the bottom of the page in local newspapers usually is not enough. Other Medias have to be included in the process as well because somebody who works in the field doesn't have a time to read newspapers every day or to do it in details. Radio, local televisions should be a part and co-operant in the process of implementing as idea of Learning Region.

Fig. 3: School in the Nature- Ludaš Lake

One more necessity is more responsibility and awareness in using already existing tools. It is not enough to know how but to really act, if we aspect to prevent consequences on the 8 main soil degradation processes. Planning hierarchy and NGOs are very important but if they have all the qualities that could bring, not in a half of theirs strength. Some process that has been done for years becomes a habit and that is a moment where sharpness and overview on new relevant details and surrounding changes disappear. So, if awareness has ever existed it should be refreshed.

Future Steps

For the beginning future steps are exploring varieties that could be useful in a process of Learning Region implementation.

First there is collecting best experiences and practices. There is no need to go from the very beginning. Developing countries have that opportunity to learn form others mistakes and experiences, not passing trough the same situations. The way to improve could be shorter.

After getting experiences from the others comes time when Subotica Municipality will get its own experience where process of learning on own mistakes in inevitable but with positive effects that should be used in a future.

Besides searching for the experience in the theory and practice collecting direct suggestions from the side of the partner countries or from the experts or even laic opinions in the Serbia takes appropriate place in the future. Each suggestion doesn't have to be implemented and taken without considering consequences but can be inspiration and push to some new, good idea which is seriously acceptable.

Fig. 4: Steps in the Future

Comparisons between good and bad examples, EU countries and Serbian Municipalities are also the part of the process.

After those basic and global steps are coming much more concrete and detailed steps that will be developed accordingly to previous list of steps and real need of local people.

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MEASURES FOR AGRICULTURAL SOIL USE REGULATION IN BELGRADE REGION

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Last decades there was not development controlled and planned construction of peri-urban areas, in Belgrade and Serbia. In dependence on different factors, urban area of Belgrade sprawles on fertile agricultural soil, often taking to accelerated or progressively changes agricultural soil use. Evidently, that kind of city development is not sustainable from the viewpoint of natural resources protection (agricultural soil protection in the first place), neither from the viewpoint of entire environment protection. This paper analyses measures for agricultural soil use regulation in Belgrade region. Those measures imply protection of such soil and at the same time considere impact of functional (like measures against construction) and environmental measures. The attention was drawn to protect agricultural hinterland of Belgrade region by basic planning arrangements. It is possible that, with organized and responsible planning arrangements, can be found compromise. Most quality agricultural soil needs to be protected and kept for its basic purpose, and less quality soil can be left over for urban purposes.

Preface

In pass 100 – 150 years, the major city characteristic has been its accelerated spatial, demographic and economic growth. Thereby, not only that it occupies agricultural soil on its hinterland , but it also changes way of soil use. On direction and pressure on agricultural soil the most influence has planning system and the other public soil managing and controlling systems [1]. The city as a whole cannot be observed independently from its closest surrounding, because its rural surrounding becomes city periphery with time, that is its peri-urban area. As Commission on Sustainable Development (Sustainable agriculture and rural development-SARD) stresses "urbanization has dramatic impacts on peri-urban zones, including on land use, the structure of family farms…"[2]. The impacts of agricultural soil occupation are magnified by unplanned and inadequate human activities, including insufficient safety measures. Advanced and integrated land use, planning and natural resource management play a critical role in reducing non-adequate soil use.
Problem of peri-urban areas in Serbia, especially in Belgrade, is very unattended in social and legislation sense, which is related to non-planned, non-regulated and non-controlled construction. Present individual housing is often insufficiently racional by population density nor infrastructural and suprastructural equipment.

Land use planning and measures for soil regulation

On Belgrade territory covered by General plan, most presented purpose in 2001. was agricultural purpose (Table 1). A projection for 2021. is decreasing of agricultural area by 36% (16 400 ha).

It is necessary to point up that situation on field is very different from projected situation in General plan and Cadastre. Cadastre and plan show only legalized changes in land use, but there are significant part of land, that is still officially agricultural, although it has been changed into constructed land. Last seventeen years in Serbia, as a consequence of tragic scenes in Balkan region, many refugees from Croatia, Bosnia and Kosovo, as domestic dwellers with unsolved residential, tried to reach they own "roof above head" by illegal house construction on agricultural soil in peri-urban area of Belgrade. This is consequence, above all, of competent managing and planning agency negligence. Unfortunately, for such situation of illegal construction, only that people pays and are sanctioned, though they are not the only one to blame.

Table 1: Planned purpose and soil areas in 2001. and 2021. year
(from Belgrade General plan)

Purpose	Current 2001. (ha)	Increase 2001-21.(ha)
Residence	12.571,65	1.570,25
Economic activity and zones	1.595,22	1.929,35
Commercial zones and city centres	667,98	1.147,6
Public serves, objects and complexes	1.123,1	257,04
Sport objects and complexes	685,87	502,01
Green area	11.365,27	9.044,64
Agricultural areas and objects	39.657,32	-16.463,32
Water areas	4.071,05	101,16
Cemeteries	344,69	144,51
Transport areas	4.424,15	1.503,56
Communal activity and infrastruc. areas	345,3	436,4
Non-constructed areas	750,39	-750,39
TOTAL	77.602	

Urban territory sprawl can be avoided, especially in case of such a big city as Belgrade is, and that implies on agricultural soil occupation, undoubtedly. It is possible that, with organized and responsible planning arrangements, can be found compromise. Most quality agricultural soil needs to be protected and kept for its basic purpose, and less quality soil can be left over for urban purposes.
Land use planning and management is the most commonly used instruments for regulation of land use, which in urban areas means dividing land into zones (such as residential, commercial, industrial, etc.) and enforces standards and legislations for construction. The creation of an adequate institutional framework for agricultural soil use regulations and the mechanisms to put them into practice are of the utmost importance.

Functional measures for agricultural soil regulation in Belgrade region

These measures are essential for the protection and future prospects of agricultural soil that is diminishing because of urban pressure and lack of care. Agricultural soil in peri-urban areas could be "a key element in regional planning as prevention of unlimited growth of cities, fashion and landscape" [3].
Appropriate tools and measures should be applied wisely in order to implement soil degradation reduction and long-term development. There is a need to cooperate planning of peri-urban area and agricultural soil in the same region of Belgrade. As European Economic and Social Committee (EESC) stresses, objectives for the conservation and development of peri-urban agriculture must be done. One of three objectives is "preventing peri-urban agricultural areas from becoming part of the urban process, through regional planning and municipal initiatives". That implies using regional and urban planning, land use instruments, municipal funding in protection of peri-urban agricultural soil from "city's constant demand for land (for urban growth, etc.) and to prevent any land degradation…"[5].

Institutional responsibility for reduction of illegal agricultural soil use lies, at first with development departments and ministries (ministries of urban and spatial planning, transport), who are supported by coordinating institutions (e.g., ministries of the environment and natural resources, commissions for sustainable development), and local governments. There is clear need for institutional strengthening and more efficient coordination and enforcement mechanisms in Belgrade region. As each stakeholder has different interests and needs, and the administrative organization has an inflexible approach, it is difficult to collaborate with other stakeholders. In many cases, national agencies suffer from weak institutional structure, and poor coordination of activities often leads to conflicts among the institutions.
Responsibility for basic agricultural soil management should be decentralized and delegated to local levels, supported by adequate oversight and coordination at the national level. Especially attention must be drawn to municipalities that have the most agricultural soil in Belgrade region (Palilula, Zemun and Vozdovac). The role of municipalities and community organizations in soil protection is crucial. National authorities should establish standards and regulations in soil management, and coordinate and oversight_local efforts. However, it is not enough. There should be unique strategy on agricultural soil, on the city level, as a part of integral rural development policy. That strategy would control development of Belgrade agricultural sector in total. This strategy could be strengthened by improving access to agricultural soil management information, and enhancing the capacity of the local level for implementing preventive and mitigative_measures.
Of course, political commitment to reduce the urban sprawl on agricultural soil is essential. That includes development actions, legislation, allocation of financial and human resources, political decisions and actions.

Environmental measures for agricultural soil regulation in Belgrade region

Soil is a limited natural resource that renewes very slowly. EESC pointed out that "the environmental, social and economic role of agricultural areas is more important in peri-urban areas than elsewhere" [5].
Reached urbanization data for Belgrade peri-urban settlements are not entire nor always correct, because urbanization process is constant. It is evident that comprehensive construction in last decades was out of all control. That kind of city development is not sustainable by nature resources preservation, agricultural soil at a first place, neither by infrastructural systems loading aspect and environmental preserving in whole. Agricultural and the other green areas in Belgrade peri-urban area actes as a "green lungs". Preserved, high-quality and productive agricultural soil is often ruined under the huge urbanization pressure, and yet somehow, that same soil should prevent urbanization.

The agricultural sector in Belgrade region is increasingly confronted with pressure coming from the population, illegal construction and poor coordination of competent management agency and planning and their lack of responsibility. Also peri-urban agriculture area has an important role in food provision, the preservation of the landscape, the ecological functioning of this Belgrade area, and that is what multifunctional role of agriculture and agricultural soil consists of.
It is important to analyse policies to support the development of agriculture in peri-urban zones. Efficiency and effectiveness of policies in promoting multifunctional role of agriculture is crucial.

Conclusions

Agricultural soil must be regarded as a economicly potential part of settlements in peri-urban area and Belgrade in whole. Besides obliged agricultural soil protection, it is necessary to stimulate agricultural production, especially in peri-urban areas where is high soil standing. In that case, agricultural soil in Belgrade peri-urban area could be important resource of city development, and it should be constantly preserved and promoted.
The main limits for implementation of agricultural soil regulation measures in Belgrade region is a high illegal construction performance on, previously, agricultural soil, and unproper construction control and use of urban and peri-urban area. The basic start should be change of legislation framework and identification of necessary regulation, protection and construction rules. But without adequate institutional capacity, plans are never effectively realized, nor can enforcement be properly conduct into practice.

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LECTURES

EXAMPLES OF SOIL PROPERTY RIGHTS ISSUES IN SLOVAK REPUBLIC

Husenicova, J.; Korvin, P.; Smiralova, M. (STU Bratislava)

There is needed permanent research system of possible territorial settlement structure for vision construction of European Union States within next future 15- 20 years. There are the regulations followed as result of scientific and research activities as a reflection of their results to the organisation of social systems and governing processes. Slovakia has extremely fragmented ground (land) ownership as a result of Theresian cadastre processes. This represents strategic disparity comparing EU other counries. This fact causes less development of regions, especially eastern outskirt of the country (approximately 400-450 km far from Bratislava).This is great burden for Slovak implementation of european regional funds in planning period 2007- 2013.

Introduction

Vision construction of European Union States for next future 15- 20 years has been of great importance not only from political content and form but also because of wide complex of questions, too. There are the regulations followed as result of scientific and research activities as a reflection of their results to the organisation of social systems and governing processes.

As consider to this there should be the permanent research system of possible territorial settlement structure developed and supported.

The thesis of research:

Mode of interpretation and common understanding of EU territorial settlement structure and comparison with Slovak practice. Tendencies of demographical changes from global, European and Slovak points of view (natality, mortality, migration). The vision of capacity structure of territorial development of Slovakia and its settlement clusters:

- demo-ecological potential (Zibrin P. 1988: Spatial Structures of Settlement Systems)
- economic profile formulation
- territorial morphology
- infrastructure

As a result of this there should be new sustainable development configuration created.

4. The analyses of used development methodologies in Slovakia and European states (European treaties evaluation in the field of territorial settlement development regulations)

5. Main sectoral structures of Land Use capacities:

- water management
- communications
- energy supplies
- technologies
- culture

6. Territorial potentials and settlement structures advantages in Slovakia, variability of offers and use standards.

7. European Development Settlement Poles Levels and their comparison with Slovakia:

- production
- market
- culture
- social relations
- city concentration of inhabitants

8. Evaluation of advantages and disparities balanced and non-balanced European Regional systems.

9. Management education for settlement territorial development in Slovakia.

10. Pilot project of certain settlement cluster of Vienna, Brno, Bratislava, Gyor

Slovakia **has extremely fragmented ground (land) ownership** as a result of Theresian cadastre processes. This represents strategic disparity comparing EU other countries. This fact causes less development of regions, especially eastern outskirt of the country (approximately 400- 450 km far from Bratislava). This process of investment placement today need 10- 15 years, which is from the aspect of economical effectivity non acceptable. This is great burden for Slovak implementation of european regional funds in planning period 2007- 2013.

Slovakia has extremely fragmented ground (land) ownership. As a result of Theresian cadastre processes. This represents strategic disparity comparing EU other countires. This fact causes less development of regions, especially eastern outskirt of the country (approximately 400- 450 km far from Bratislava). This process of investment placement today need 10- 15 years, which is from the aspect of economical effectivity nan acceptable. This is great burden for Slovak implementation of european regional funds in planning period 2007- 2013.

Territorial Planning and Building Codex Act (so called Building Law) deals with expropriation process. The aim of **expropriation** after this is to change or to limit property rights to the grounds and constructions on them or institution, abolishment or limitation of Cause burden of tenure property right.

Expropriation cause process is the activity of Building Office. Concerning to the expropriation Cause process Builoding Office Declares Expropriation decision. Competency of Building Office is the Municipality. The activities of building office are transferred power of State governance.

There is possible to expropriate or to limit property rights to grounds and constructions on them needed to construction realisation within precautions of public interests.

There has been accurate **list of activities** listed in Slovak Building Law public interest buildings after approved territorial planning documents e.g.:

- creation of protected areas and protected buffer zones (nature protection etc.),
- conditions creation of inevitable access to ground and building,
- localisation of State environmnetal monitoring network,
- construction of highways roads and local communications,
- construction of infrastructures and their buffer protected zones,
- preservation and proper use of cultural heritage,
- realisation of investments which are considered as strategic investments ?!

How to visualise different aspects of property rights?

The need is as follows:

- Control and overview of the area visualisation of different aspect of landuse – ecological, economic, social, urban...as well as different programmes, plans...
- Systematisation of information about property rights 2D, 3D models accessible for the professionals and non-professionals
- Monitoring
- Visions (Scenarios)
- Planning
- Implementation

Fig. 1 Traditional maps- separate parts (Bratislava masterplan example)

Fig. 2 Nowadays visualization

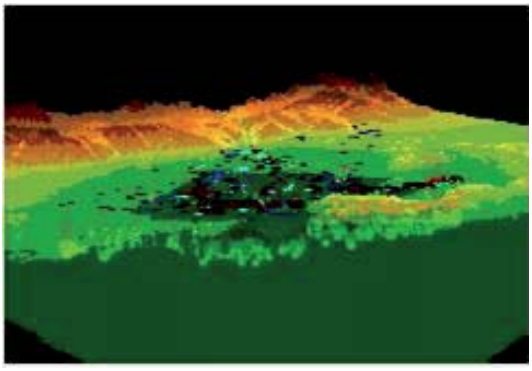

Fig. 3 Comprehensive 3D models visualising some aspects

Very complicated information for public can be simplified by visualisation for decision making bottom up processes

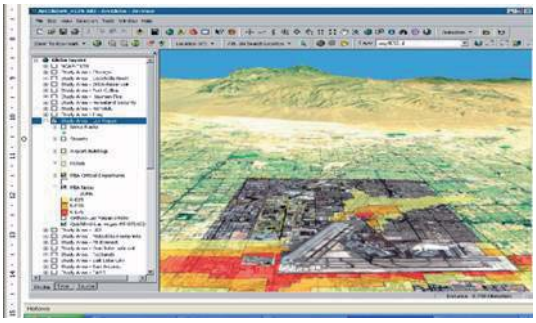

Fig. 4 Simplified visualization for public information

Bottlenecks for visualisation of property rights:

- Administrative boundaries= Data Boundaries
- Geo- morphological bariers and continental climate limits
- Updating of data still time consuming
- Using and understanding data still difficult for public
- Various sources of data, various formats, no coordination
- Low data availability at local level
- Lack of permanent updating information system at Municipality level
- Fragmentation of ground ownership
- Property rights to grounds and buildings on them
- Uncertained immobilities property rights
- Bad quality of communication systems
- Lack of partnership, co-operation, networking
- Lack of legal avareness
- City concentration of inhabitants
- others…

Goals concerning to visualisation of property rights:

For ICT (information technologies) experts

- Build/Improve common geo (info) infrastructure as a basis for cooperation
- Good maps and good models- 2D,3D visualisation- assessment, comparing, evaluation of geo- spatial information concerning to land and soil use
- Defining standards for dealing with geo-information within the region
- Open, continuous update, upgrade
- Common rules for IS- cross border co-operation
- Common platforms and standards across administrative borders allow comparison of plans and projects
- Spatio- temporal monitoring

For users

- Consistent data uncomplicated to use, available for public administration, planning, regional development projects, private companies

Efficient exchange of information

- Support public awareness, participation in decision making processes by visual articulation different aspects (problems, potentials, trends,

Conclusions

Strategic multiplication effects have communication systems in Slovak Republic because of mountainous geo-morphological relief of terrain and strongly prolonged shape of the country with its capital localised in the western outskirt of the country without operational quick connection possibilities to the eastern part of the country, today.

Industrial revolution period massively begun on the territory of Slovakia in fifties of 20th century, which caused that the transportation network is often on medieval ages level (e.g assess to Banska Stiavnica which dies because of communication lack).

Problemacy of immobilities lots size and shape within Slovak Republic has been markantly to small and not suitable for building wthok previous allotment. This is the reason of consequenses of too big devastation, unfair and unproper sealing of soil especialy within landscape outside of compacts setlement structures of cities and villages in the nearnes of highways and railways.

Suitable grounds for bigger investments, for industrial parks as asconsider to its shape and size represent estates and properties of the state ownership (i.e. army), private churches (especialli forests), grouds belonging to municipalities common ownership (i.e. „urbariat" and „composesorat") and state ownership grounds and municipalities grounds, which where trasformed from the state-to municipality ownership (for inst. river goods port in Bratislava).

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A HOLISTIC VIEW ON FUTURE WATER MANAGEMENT STRATEGIES IN THE DANUBE REGION – MORE THAN POLICIES

Dorner. W.; Spachinger, K.; Schrenk, C.; Schürer. C. (University of Applied Sciences, Deggendorf)

River basin management sets a new boundary for water management. The jump into the catchment confronts engineers and planners with the needs of different stakeholder groups affected by plans. The classical instrument of sectoral planning and a linear process from planning towards implementation must be substituted by the definition of a catchment strategy and a new form of process management for different planning levels. Water management in the Danube catchment is facing several threats. Climate change, flood risk and sediment transport are the scientific buzzwords expressing the major problems from a water managers perspective. But they only address sectoral scientific interests Behind each of these words also social and economic questions and concerns are hidden. Water is always closely related to land use and land property. Not only water and its services are a scarce resource, but also land or soil and its functions. Demographic change and climate change as social and environmental stressors will influence both land use and water bodies. To achieve future objectives water management has to address land owners interests and take into account inter-temporal and spatial effects.

Introduction

Although water is a present good in Europe it seems to become a scarce resource. Scarcity is not related to the availability in general but in relation to a adequate quality, temporal distribution and especially linked to functioning eco systems and ecological processes. Water management and especially the management of related human and environmental processes is becoming of more importance. Several national and European initiatives are picking up this need. The awareness for this topic is high, while practical experience in a holistic management is small. For earth bound processes water is always related to the catchment of a river and the processes and human activities taking place in this catchment. Human impacts influence run-off, water quality and morphology of rivers. On the other hand flood affect human land use and assets. The paper reflects land use and its interaction with water from a catchment perspective and shows how practical management can be established to implement water policies.

Flood risk management

Risk management is part of the Flood directive of the European Union, but it is also quite an important actual topic for the water management authorities, insurance agencies, etc.

Risk is often defined as a function of hazard and vulnerability. Research of the last years focused on hazard research. As a result of mapping, measurements and modelling, hazards, recurrence intervals and related magnitudes can be predicted up to a certain extent; and design values for protection measures are derived. However, the analysis of vulnerability in the risk assessment process is still an open question and mostly ignored so far. The project RISKCATCH, funded under the ERANET Crue initiative by the French Ministry of Ecology and Sustainable Development and the German Federal Ministry of Education and Research addressed the issue of vulnerability assessment in the focus of the risk management process. Using the results of an ex-post analysis of past policies and flood events, the effect of policy, development of land use, protection measure and natural hazard have been evaluated. The idea was to enhance future risk management strategies by taking also vulnerability into account. In this context risk management was seen as a dynamic process reaction to dynamic factors of the environment but also human actions and objectives. In Bavaria the river-system Vils and its tributaries which is a tributary of the Danube and springs up near the conurbation Munich is the considered project region. The area is characteristic for developments in the landscape concerning settlement and agriculture. Trends such as tourism, economic growth together with urban sprawl, intensive agriculture and the development of infrastructure changed the characteristics of the catchments, river systems and damage potentials. The analysis of past events and hydrologic and hydrodynamic models showed that damage potential is concentrated along the borders of the 100 year and 150 year flood plain respectively. Flood prevention policies like restriction in spatial planning and urban development succeeded in preventing damages up to this event design level. Due to the concentration of assets the vulnerability of society to extreme events increased. To reduce this vulnerability the assessment of extreme flood and torrent events must be taken into account. Especially non-structural measures can help at this level of risk management.

Flood protection and flood risks – a conflict

The proposed European Flood Directive opened a discussion on hazards, risks and the risk management of floods. The fact is, that mainly the risks for human settlements and assets are taken into account, as well as the consequences for regional economy. A closer look at a specific river basin and historic floods shows that environmental areas and habitats are highly exposed to the "human factor" of floods. Oil tanks in settled areas used for heating or petrol stations, chemical warehouses and industrial facilities are posing a threat to the environment. But also the increased transport of sediments, erosive material and agrochemicals is a major threat. Although settled areas and industrial sites are protected against floods of a specified recurrence interval the residual risk must be taken into account. The understanding of risks for environmental and ecosystems in the context of flood protection and flood risk management is still little. Different flood events in the past few years showed, that for example the one-hundred-year flood, as the relevant design event for flood protection measures in Germany, is not sufficient for the evaluation of risks. Especially the residual risk for the environment seemed to be increased due to a concentration of assets in the protected areas. In an actual research project the cause effect relationships of hazard and vulnerability also in terms of environmental risks are evaluated. The project area is located in the tail water of the river Rott, a tributary to the Danube river in Germany. Most of the industrial parks and

the commercial areas are located in the wide and flat flood plain and are protected by different measures. All measures are designed to protect against a 100 year flood event. Hydrodynamic simulations based on actual hydrologic data showed, that bigger floods could heavily affect these vulnerable and partially dangerous assets. The objective of the project is to identify the processes behind human and environmental risks and analyse the efficiency of non technical measures of flood protections. Flood and risk maps as one of these instruments are intended to communicate the flood risk to different stakeholder groups and sensitise for flood risk and vulnerability. In this context also the possibility to indicate environmental risks and threats is evaluated. Therefore the project will deliver outputs to fill a gap between the proposed European Flood Directive and the existing Water Framework Directive, fostering the protection of water bodies

During the last century flood protection was established for long river sections. Depending on the period of planning and intended objectives of the system, the level of protection and the used measures vary. Due to economic circumstances, rural development and land consolidation the reclamation of arable land was a major task. River development and protection of agricultural land have been enforced in addition to the protection of settlements. The landscape of river valleys changed completely. Technical channels and constructions, small river corridors without flood plains and intensive land use in the former flood plain are now characteristic for a lot of river valleys. Due to increased floods because of climate change and changed land use, imprecise assessment of hydrologic values and new construction criteria old constructions do not fulfil modern standards. Morphological changes are an additional occurring problem, which is in the mind of certain authorities, but not in the main focus. Sediment erosion is reaching an alerting value, and further consequences of these rapid changes cannot be forseen. In the ILUP-project Lower Vils (Spachinger et. al. 2006) a common approach between morphology, flood protection and environmental demands was made. Different variants were taken into account to analyse the connectivity between morphological aspects, flood protection and environmental demands and finally to show the effects of certain measures - at large as well as individually for each technical field. But the driving force is always the cost comparison method and the cost benefit analysis, and therefore they had to be part of the examination as well. 1) Maintenance of technical structures versus river redevelopment, 2) technical flood protection or increase of floodplains for better run-off and detention 3) how to cover the costs of land use for river redevelopment. The study assessed the technical and economic planning alternatives to enhance the flood protection level for settled areas on the one hand side and the methods to redevelop the river systems on the other hand side. Results show that river redevelopment and the destruction of agricultural levees would fulfil two criteria at the same time: 1) Re-establish an ecologic river structure and flood plain and 2) lower water levels so that old levees could fulfil their full functionality for flood protection of settled areas. It is possible to develop different measures and opportunities for water management authorities to demonstrate the effectiveness of a certain measure as well as to show the overlapping advantages and effects, confirmed by different cost analyse tools.

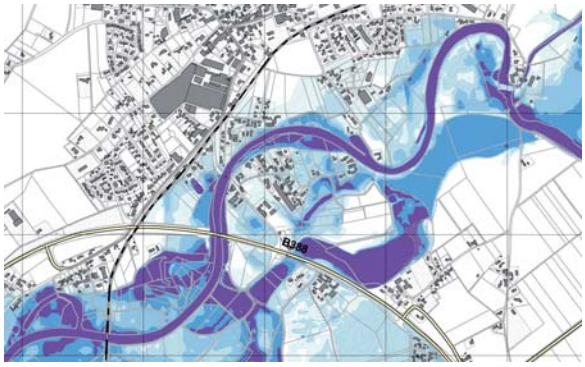

Fig. 1: Flood hazard map indicating different water levels

Flood hazard maps are an instrument of flood risk management to collect and present flood related information. As a model project for Bavaria a set of maps for the Lower Rott (Dorner et. al. 2006) was derived from existing data sources. Intention of the project was to identify the necessary parameters like relevant water levels, recurrence intervals and information content for a distinct area. As a determining factor changing discharge from an upstream detention reservoir with a flexible control strategy was taken into account.

The Lower Rott was chosen as project area because of its wide flood plains on the one hand side, and the high values at risk in urban and industrial areas at the other side. The upstream detention reservoir Rottauensee has a flexible control strategy for small flood events up to the 20 year flood. Resulting variable flood plains for distinct flood events had to be taken into account, because resulting maps should also serve as an information instrument for the control of the reservoir.

Flood related data, as a result of mapping or hydrodynamic modelling, is often available, but not ready for use. Flood hazard maps are a modern planning and information instrument of flood risk management, presenting these data in an edited form for different user groups.

In Switzerland and other German States experiences have already been made with flood hazard maps. These achievements had been picked up and evaluated for use in the Tertiary Hilly Landscape. Three types of maps were derived from data of actual hydrodynamic models:

- Water depth maps
- Flood recurrence maps
- Flood zone maps

The resulting maps showed very well that a global standard can not fulfil the requirements of local needs. The choice of recurrence intervals and water levels depends on local geomorphologic conditions and the intended use of maps. Especially fixed water levels in steps of 0.5 or 1 meter showed to be impractical for the purposes of disaster management or detention control.

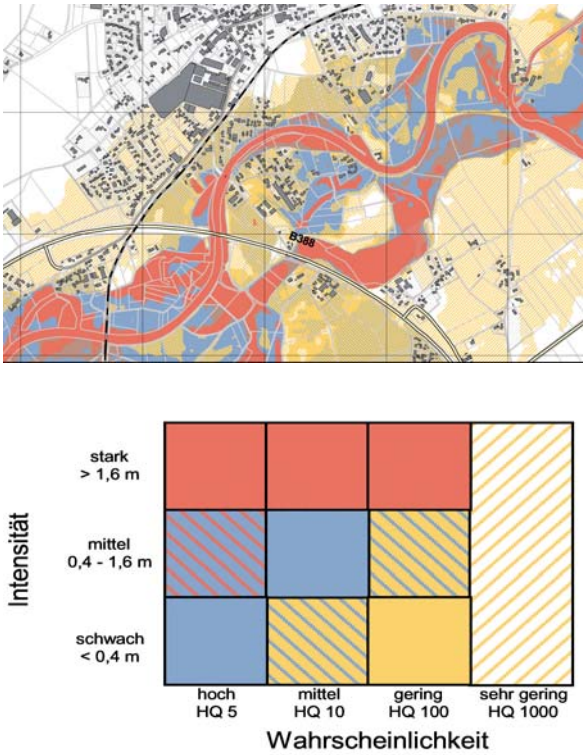

Fig.2: Flood hazard maps indicating different zones of hazard combining intensity and probability of a flood event

Land use management and planning

Most water related problems, like flood risk or water protection, have a spatial character and are located in the flood plain or the catchment. Solving them requires changes or restrictions of land use and the reallocation of land parcels or types of land use. Therefore water management needs first a planning instrument to define spaces with a water context and second a set of instruments to influence, avoid or change negative activities with spatial character. Land property and maintenance costs for public areas also require new strategies for a sustainable and optimized land use of these environmental or functional areas.

In the history of hydraulic engineering projects often "created" new space for different forms of land use through flood protection, river training and draining. In contrast modern water management strategies create restrictions for land use and need space to develop detention, avoid the development of flood risks and renaturalize river systems. Measures do not only affect the closer flood plain but also have to take place in the wider catchment, to reduce surface run-off , diffuse pollution and develop networks of habitats along water courses.

This need for space along the water courses, the optimised allocation of land use types in the flood plain and the preparation of spatial measures in the wider catchments requires a spatial planning instrument. Four types of activities with spatial impacts can be identified:

1. The purchase of land for river renaturation and the building and realignment of flood protection works
2. Reallocation projects to optimise land use structures in the flood plain from a land users and water management point of view to reduce flood damages and diffuse pollution and allocate available land for river renaturation along the water courses
3. Restrict land use and urban development in the flood plain to reduce flood damages
4. Influence agriculture to reduce diffuse pollution, the delivery of erosive material and surface run-off

At the Upper Vils a land use plan was developed together with the farming community and representatives of the municipalities. The main objective was to allocate available areas along the main water courses to protect and develop habitats, protect the river against diffuse pollution and renaturalize trained sections. The project resulted in a joint reallocation project, which in addition also provided an optimised allocation of intensive and extensive agriculture in the wider and farer flood plain. This project and also other measures showed the need to visualize and communicate the spatial objectives of water management authorities.

These analysis resulted in a hydrologic based spatial management plan and a zoning concept, with four different zones indication a rising importance of the areas from a water point of view. For the definition of the zones established or well known technical and legal criteria were used. Therefore the results of GIS-calculations, erosion models and hydrodynamic flood models were combined.

Zone 1, as the core zone of water management authorities, includes the water bodies and a section of the closer flood plain restricted by the border of the one year flood and settlements in the 100 year flood plain.

Zone 2 is defined by the 5 year flood plain and settlements in diked areas to identify residual risks.

Zone 3 100 year plain and Natura 2000 areas with water context

Zone 4 the area of the probable maximum flood and agricultural field with a high erosion risk.

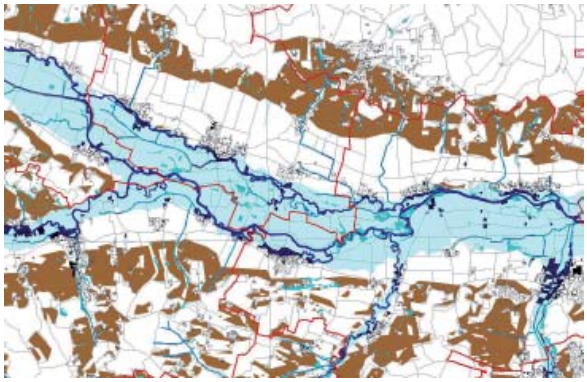

Figure 3 Definition of management zones from a water perspective

A hydrological oriented spatial plan can be used to integrate water related objectives in other spatial planning activities like rural development, land reallocation projects, urban development or the development of agricultural policies. Within the different zones water management authorities will purchase or rent land to influence the land use. In other zones it will bargain with land users to motivate them to change land use practices or reallocate property or use.

In a lot of cases ownership, the protection of discharge corridors and the habitat management is bound to maintenance works. To avoid or reduce related costs

new land use strategies are necessary and possible to provide environmental functions on the one hand side and cover the costs on the other hand side.

Spatial management is an important topic for municipalities, because they are in contact with land users and land owners and are responsible for different types of spatial plans on a local a level. Therefore they are the key for success for an implementation in the whole catchment. A general implementation of actions can only be achieved if water objectives can be integrated in policies, strategies, plans and implementation projects of other sectors. Rural development, urban planning and different stakeholder groups can therefore become important partners for implementation.

As a result of ILUP a lot of municipalities now picked up the idea of catchment management. This was a consequence of the bandwidth of topics addressed by ILUP, which included 35 lead projects and over 100 subactions. It is also a result of the publication and participation strategy, which addressed politicians as well as citizens in the catchment.

Hydroeconomics

Not only the use of our water bodies but also intensive land use are all representations of economic activities. River basin management as a driver to improve the situation within a catchment and with respect to the water bodies can only work, if we recognise and integrate economic interests. Therefore economic evaluation methods have been part of subprojects. We understand well the analysis of individual businesses as well as the evaluation of implementation projects for example through cost comparison calculation. A general economic assessment on a catchment scale and the integration of environmental economic theory is still missing in practice and even needs to be the topic of future research.

Economic interests can be a main driver or obstacle for developments or environmental damages. Therefore these aspects can be both a risk but also a chance in river basin management, if they are recognised. ILUP subprojects (Dorner et. al. 2006) dealt directly with the economic situation of stakeholder groups or regions whereas others were confronted during a planning or implementation process with business interests. From the beginning the interests of farmers were monitored as a part of the agro economic evaluation. This meta-project served as service for other implementation oriented subprojects. The economic evaluation of farms delivered important hints, how interests of individual businesses as well as groups of farmers can be considered.

During the project ILUP the discussion about renewable energy sources and the necessity to improve the ecologic situation of water bodies (Water Framework Directive) grew. This was reflected in two subprojects. The cattail project dealt with the technical and economic feasibility of cattail growing in the project area and its processing. The study delivered important indicators in what regions and under which framing conditions in general cattail growing can be an agricultural alternative in the flood plain and which renewable energy and resource stock it could provide. (Schätzl 2006)

The second study covered the conflicting area of hydro power and river ecology, identified long ago as a problematic field. For the main river reaches the need to establish fish ways, to allow again fish migration, was analyzed from the technical and ecological point of view. In a second step for each facility the economic situation before and after the installation of a fish pass was calculated. The result was a system of incentives including compensation from the Renewable Energy Sources Act. (Roland & Lang 2006)

It was recognized that economic evaluation must go beyond classic market theory and deal with environmental economic questions. Within a river basin river systems can work as transfer-mechanisms for unidirectional externalities. Rivers link head with tail water. Activities in the upper catchment, like for example farming, have a lot of consequences. Erosion and sediment delivery, transport of fertilizers and pesticides as diffuse pollutions impact downstream riparian owners or bodies. Public costs like the maintenance of river systems are only an indication of the total externality of upstream land use.

Future research must therefore concentrate on the environmental economic interrelations in river basins. Also consequences for the implementation of the Water Framework Directive can be indentified. The Directive addresses at the moment only water services, but not other forms of environmental economic relations, which could be of even greater importance.

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GREEN MAPMAKING FOR SUSTAINABLE DEVELOPMENT

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The status of environment in development debates and the role of planners in this context is a rather complex issue as planners can play different roles promoting diverse interests and development strategies. One way to overcome this potential dilemma lies with communication implying the comprehensive visualisation and distribution of development strategies and outcomes. A Green Map is a locally charted map of the natural and cultural environment aimed at the promotion of environmental awareness and social justice, which uses a set of icons to mark the different ecologically and socially significant sites. It is a useful tool for planners in search for common ground for future development processes as it allows for the comprehensive visualisation and description of ideas.

Introduction

The concepts of environmental protection and sustainability have been adopted enthusiastically in planning theories on the one hand, development at the cost of green areas, urban sprawl, and congestions are just a few results of contemporary planning practices on the other.

Development processes in the early 1990ies suggested that the challenges for spatial strategy can be summarized under 10 points: Contemporary planning can be seen as (1) an interactive and interpretative process (2) undertaken among diverse and variable "*discourse communities*", or cultures (3) in a respectful discussion with an emphasis on trying to understand others' values and arguments. The focus is (4) on the arenas of public discussions or where problems are identified, evaluated and mediated, (5) on the claims themselves made for policy attention, (6) on the modes of evaluation of these claims and a demonstration of what to do and what not and finally, (7) on ways of developing this strategic discourse into a participatory and inclusionary process. Through this new ways of planning discourse people are expected to (8) learn about themselves, their relations, interests, values and understandings as well as (9) to collaborate to change present conditions. Therefore the situation can be transformed through the power of the better argument and the power of ideas, metaphors, images and stories. Planning therefore is (10) imagining our future focusing on how to start out in a mutually acceptable manner for the parties involved contrary to the planners' "*dreaming the destination*" (Healey 1996). This requires that every member of the community can be represented and has a voice, even if he or she can not be present for the discussions.

A Green Map is a locally charted map promoting sustainable development and is based on a set of icons displaying sites where nature is interlinked with local economy and culture. Green maps display local resources as and their potential use to stakeholders enhancing chances for common ground in negotiation processes. In other words, "*Green Maps illuminate the interconnections between society, nature and the built environment, helping residents get involved and make smarter lifestyle choices while also guiding visitors to successes they can replicate back home.*" (Wendy E. Brawer, GMS Home 2006)

Yet, evidently, there is a gap between planners' wish and realty. Therefore it is necessary to investigate the potential of Green Map in relation to the concept of sustainable development and the degree to which this tool can support development goals and processes.

Planning for development that is sustainable

The first globally acknowledged definition of sustainable development was proposed by the World Commission on Environment and Development (WCED) - also referred to as the Brundtland Commission - in 1987 (WCED 1987). In its report to the United Nations General Assembly, *Our Common Future*, the Commission identified sustainable development as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (UN DSD 2006).

Rephrasing the definition given above, sustainable development can bee seen as development that is sustainable (Gallopín 2003). This concept is considered a response to global change and an attempt to answer the central question of what is to be sustained and what is to be changed by the international community.

Political commitments

The political concept of sustainable development however, is rooted in the prominent role of environmental issues ranking high on the political agenda ever since the 1960ies and has been shaped by three global conferences during the past 35 years.

In 1972, at the United Nations Conference on the Human Environment in Stockholm, environmental degradation and possible impacts were in the focus of attention of the international community for the first time in history.

In 1992, representatives of 178 countries joined *Earth Summit*, the World Conference on Environment and Development in Rio de Janeiro. For the first time in history, representatives of over 1.000 non-governmental organizations (NGO's) were invited to join the conference and to develop their own visions of the future. The following major agreements were signed at or just before the conference:

- The Rio Declaration
- Agenda 21
- The Framework Convention on Climate Change (UNFCCC)
- Convention on Biological Diversity (CBD)
- The Statement of forest principles

The Rio Declaration comprises 27 universally applicable principles and is a confirmation and an extension of the Declaration of the United Nation Conference on the Environment, held in Stockholm in 1972. Agenda 21, UNFCCC and CBD are legally binding treaties

embodied into national legislation upon ratification and thus of major importance regarding international and national policies.

The World Summit for Sustainable Development, *Rio+10*, finally, took place in Johannesburg in 2002.

The summit ended with the adaptation of a political declaration and a plan for establishing better governance. The signing parties agreed to ensure the sustainable management of natural and environmental resources, the promotion of fair trade combating poverty and promoting social development. For the successful implementation of the agreements, partnerships between governments, the private sector and NGOs were announced (Scad Plus 2006).

With respect to the European Union, the concept of sustainable development has been increasingly integrated into European policymaking during the past three decades.

The implementation of the first of six subsequent Action Programmes in 1973, amendment of the EC Treaty in 1997, resulting in Article 6 demanding the integration of environmental issues in all fields of policymaking and the subsequent implementation of this article within the *Cardiff Process* are just a few milestones on the EU's way towards a comprehensive management of nature and the environment.

The participation at the World Summit on Sustainable Development in 2002 and the subsequent implementation of the Lisbon Strategy in 2005 are further political commitments towards sustainable development (Scad Plus 2006).

Modelling sustainable development

Figure 1 sketches the concept of sustainable development as a balance between ecology, economy and society. Sustainable development occurs in the centre of the triangle. This is a widely accepted way of sketching the relationship between the three major aspects of the concept.

It must be pointed out that development in this context does not necessarily mean growth, as it is a qualitative process and affects the realisation of potentialities. This does not necessarily involve economic growth, either. Consequently, material growth context is not necessarily synonym with economic growth, either. Thus, development can be understood to be about the improvements of quality of life. The experienced quality of life in turn, is based on the satisfaction of human needs, both material and non-material, as well as the fulfilment of human desires and aspirations (Gallopín 2003).

Applying the concept to planning, the question arises whether the concept of sustainability is a useful one for planners. Critics argue that it is not always clear what is meant by sustainability let alone sustainable development, adding that goals may be too abstract and too general to be operational. Countless examples of planning practices suggest that calling a plan or development strategy sustainable does not necessarily mean that it is indeed sustainable.

Advocates of sustainable development on the other hand, argue that the concept can help to keep the socio-economic system in balance defining long-term goals for society. The ideal of development that is sustainable also represents the values attained to economy, the natural environment and equity. Consequently, it can be argued that the concept of sustainable development can be refined to become useful for planners (Campbell 2003).

In figure 2, the triangular model of sustainable development adapted to planning identifies three types of priorities leading to three major positions with respect regarding a site. Certainly, there are more fields of interest intervening in local planning such as architecture, culture or circulation. However, the triangle is meant to show the three major fields of interest underlying each planning process and the interrelationships between these in a very general and schematic way. Following the requirements of sustainable development, planners have to encourage economic growth, promote fair distribution of this growth and may not deteriorate the environment in these processes (Campbell 1996). This overview on planners' diverging priorities and the resulting conflicts clearly demonstrates that the reductionist view of controversies as a universal economic – ecological clash between man and the environment has severe limitations as it fails to recognize the social aspects inherent to these conflicts.

The three major points of the triangle represent three divergent interests, which may occur in various combinations and have impacts on all stages of a planning process. In an ideal world, planners would do their best to achieve all three goals equally. In reality, however, they usually represent one aspect neglecting other interests at the same time. Consequently, planners have to deal with at least one of the following three types of conflict identified within the scheme.

The property conflict occurs between the demand for economic growth on one hand and social equity, on the other. It is based on concurring interests regarding property, e.g. between urban planners working for the local government and stakeholders protecting their property rights. To complicate the matter further, each of these groups is reliant on the other and defying it at the same time. The private sector resists the regulation of its property by government policy but needs the very same measures for the functioning of economy (Campbell, 1996). To give an example, private property such as housing or land is a private commodity on the one hand and dependent on governmental interventions, such as land use plans, on the other. Evidently this leads to tension between private interests and public good.

The resource conflict is characterised by the poles of economic growth and environmentalism. Therefore, this type of conflict occurs due to demands within society for economic benefits and ecological utilities. Rephrasing, natural resources are used and need to be preserved for present and future demands, equally. The boundary is a dynamic one, though, as different interest groups extend pressure to some extent. However, there is a lack of evidence for a single, universal, economic-ecological conflict. Instead, these apparent conflicts between economy and the natural environment differ from case to case as there are always intrinsic implications for the people involved. Therefore, these so-called resource conflicts are always rooted in social issues, such as inequity and the imbalance of political power.

The development conflict, finally, occurs between the interests of society and the preservation of the environment. Generally said, this conflict can be found at every stage of the material-cycle. As natural resources are turned into consumer products, waste caused by these processes is returned to nature. The very reason for this conflict can be found in the discriminating nature of environmental impacts on the poor and powerless (Campbell, 1996).

Although conflicts always seem to occur between two poles of the triangle, these are only the dominant aspects of a particular type of conflict. The model suggests that no point of the triangle can exist on its own just as no point in the sustainability triangle can be on its own. The three types of interest are mutually dependent on each other. This allows for collaboration between these extreme positions counterbalancing the evident trends of opposition to some extent.

Conflict management

According to the model presented in figure 2, sustainable development occurs whenever a balance between the three poles is reached. However, reaching the centre is more difficult than to identify it. What should planners do? Campbell calls for a dual strategy for planners in order to successfully engage in planning for sustainable development. First, planners should manage, and resolve conflicts and second, they should promote creative solutions on a technical or institutional level.

For a successful resolution of conflicts it is necessary to understand their nature. Political debates are characterised by three sorts of structural aspects. First they are determined by the rules of discourse which state which normative principles and modes of argumentation are valid and legitimate. Second, debates are situated by organisational platforms. Examples include a court room, the national assembly or a public hearing. And thirdly, the specific resources connected to the debate, such as media access or executive power, also play a major role. (Van Koppen, 2002)

The entanglement of different types of discourse – discourses of interests as well as discourses of political reasoning or direction – can lead to misunderstanding and increase the number of conflicts unnecessarily. TO complicate matters, the structure and quality of debates are highly influenced by power relations. At the same time, power relations themselves can equally be influenced by the structure and quality of debates. In negotiation and conflicts, a common ground is established at the negotiation table. The best possible outcome is a win-win situation for all parties involved. New, innovative ideas are frequently the result of the negotiation process that would not have been achieved by confrontation or classic top-down planning methods (Healey 1996).

However, conflicts can not always be solved through negotiation as conflicting demands may be the result of incompatible interests. As it has been pointed out before, conflicts may also indicate disparities in the distribution of power among the stakeholders involved. Additionally, those in charge can refuse to participate in negotiations or even exclude certain interest groups. According to Healey, conflict resolution therefore, is most likely to be successful if:

- there is a specific topic being disputed and not an ideology
- all parties agree to participate
- they are on equal ground
- there are possible varieties and the possibility for compromises
- and there is a skilled facilitator

Planners can fulfil a variety of roles in conflict resolution and the promotion of new solutions.

When resolving conflicts, the role of the planner is that of a facilitator, guiding the decision making procedure. Planners in this case do not determine the actual outcomes by themselves. The question, whether the planner should remain neutral or represent the interests of a certain party can not be answered easily as planners most frequently are working for someone following a set of rules and instructions.

Maps, in particular land use plans, are very effective tools that can steer the outcomes of development processes and be used for conflict resolution by planners. Land use design and control allow for a balance between the quantity of building land and green areas. Planners in this case become designers of outcomes, not specifying the means by which these results should be achieved. However, this does not represent a universal solution because not every conflict is rooted in spatial problems. Consequently, a solution provided by design may be of cosmetic of nature neglecting the actual problem. As a way out, planners can try to resolve conflicts through land use planning by solving the conflicting logics of human and natural habitats at the same time: *"…Planners need better tools to understand their cities and regions not only just as economic systems, or static inventories of natural resources but also as environmental systems that are part of regional and global networks trading goods, information, resources and pollution."* (Campbell 1996 in 2003)

Green Mapmaking

What is known today as the *Green Map System* (GMS) started as a single Green Map, the *Green Apple Map of new York City*, created by Wendy Brawer and Modern World Design in 1992. GMS was officially launched in 1995 as a global network linking locally led Green Map projects. Since 2000, the organisation has operated as NGO with not-for-profit organisational status in the United States of America.

The movement serves as framework for environmental mapmaking inviting people to chart the connections between natural and human environments creating a so-called *Green Map* of a given area. The network aims to promote the ideas of sustainability and participation, ideas that are specified on their website:

- "*Help people of all ages represent and share their local eco-cultural resources*
- *Promote model greening efforts underway in communities across the globe*
- *Build inclusive networks that expedite progress toward sustainability*
- *Employ the info-web in service of the web-of-life*
- *Learn from the beauty, brilliance and diversity of nature*" (Green Map System, 2006)

As of 2006, there are some 350 projects active in more than 45 countries.

Ideally, Green Maps are created locally by members of a community. To start a project, mapmakers have to register their project at the GMS office in New York. They receive a kit of Green Maps, a resource disk, containing the icons and support during the project period. Each project is directed, funded and evaluated separately by GMS.

Charted areas range from neighbourhoods to cities or even complete states or bioregions. The time allotted to a project may also vary significantly as it can take months or even years to publish a single map virtually

and printed-out. Virtual maps can be interactive and show layers of information with the help of GIS software, or just represent the digital copy of a printed map. In recent months, the use of Google Earth has gained in popularity as well.

Printed maps often contain additional information and may vary significantly in size and appearance.

All Green Maps however, share a visual language using a globally designed set of icons. The present edition, version 2, was released in 1999, after four years of development. A new edition has been scheduled for 2008.

Green Map Icons indicate various kinds of green sites and cultural resources. The official set of icons comprises categories representing beneficial green and cultural sites, infrastructure, and information resources but also toxic hot spots. Even though, there is general agreement on each icon's meaning, exact definitions have to be designed by mapmakers locally. Additionally, the official set of icons may be completed by locally developed symbols indicating specific sites. Mapmakers thus, independently produce unique images that fulfil local needs and can be shared globally at the same time.

The underlying idea of Green Mapmaking can be summarised, as follows. "*When people see, they connect, then value and take care of a place*." (GMS 2006)

Discussion

The general nature of the definition of the concept of sustainable development and possible implications allow for manifold interpretations. Unsurprisingly, there has been no agreement on an exact definition by the international community deemed acceptable for all parties. Ecologists tend to have different views on what is important than ecologists, sociologists in turn will not necessarily have the same view on the topic as nature scientists, and so forth (Gallopín 2003).

During the past decades however, it has been increasingly acknowledged that social, economic, ecological, cultural and political factors need to be integrated into the concepts of sustainability and sustainable development. This implies the increased coordination of top-down development approaches with bottom-up grass-root movements. Considerations should not only include intergenerational equity but also justice within the generations themselves (ibid.).

Goals for sustainable development should be achievable and feasible. The integration of diverse groups of stakeholders is prerequisite to setting these goals. Therefore, diversity has been identified as the second key element of the sustainability concept, as the diverse interests of the people affected have to be taken into consideration for development to be sustainable. The German philosopher Jürgen Habermas holds that our self-perception and our sense of others are determined by our relations and communicative practices (Healey 1996) and that the power of what he calls the "better argument" confronts and transforms the power of authorities and capital. His concept of participatory argumentation is based on the underlying assumption that the contributions of all participants in a given political discussion are accepted, their values and knowledge are recognised.

This process however, can prove to be a difficult, especially on the global scale (Gallopín 2003). When dealing with environmental issues the question of the appropriate scale is ever present, in the spatial as well as in the temporal sense. The scaling down of development goals to multiple regions implies the individual definition of aims and goals in each region. Naturally, first, appropriate criteria for a region need to be identified. In the context of sustainable development, bioregionalism is frequently offered as a possible solution. Its basic idea is that rescaling communities and the economy in compliance with ecological boundaries of a physical area favours sustainability. Small scale regions will enhance environmental awareness as inhabitants of small-scale, self-supporting regions will be more aware of causes and effects of their actions with respect to the environment. Green Maps have been successfully applied on various scales in this context. Particularly in North America, there are numerous editions of Green Maps promoting the ideas of bioregionalism (GMS 2006).

This approach however shares some shortcomings with the concept of sustainability, as it lacks a clear and universally accepted formulation of strategies. It may also fail to address major issues because not all conflict is rooted in geography. It is also assumed that in a worst-case scenario, self-reliance promoted by bioregionalism could lead to underdevelopment of a region in an otherwise well developed area (Campbell 2003). Still, the concept can be effective in visualising sustainable regions within an interdependent world and allow for the demonstration of the difference between healthy interdependence and parasitic interdependence. This perspective can provide insights into a region's conflicts among its interconnected economic, ecological and social networks (ibid.).

The purpose of Green Maps is to display economic, ecological and social values of a place, thus to promote sustainable ways of living. In general, the design of a Green Map can contribute significantly to an enhanced level of awareness accounting for local conditions within a given community. A Green Map is not meant to be one time project with invariable outcomes transfixed in time and space, but rather a milestone in a community's dealings with sustainable development.

Any interest group can develop maps to represent their ideas, e.g. on a youth map. Open communication of future development and outcomes of these processes allow for the representation of local resources as well as green and social potentials of an area to stakeholders. The involvement of various groups of stakeholders is a basic requirement, allowing for a common basis rooted in the design process of the Green Map itself.

In compliance with the treaties signed at the Earth Summit in 1992 the European Commission initiated in cooperation with the International Council for Local Environmental Initiatives (ICLEI) the Charter of European Cities and Towns Towards Sustainability, *Aalborg Charter*, signed at the European Conference on Sustainable Cities and Towns in 1994. The document represents a specification of Agenda 21 adapted to local level processes within Europe and was signed by 80 local authorities and 253 representatives of international organisations, national governments, scientific institutes, and representatives of civil society. The signing parties commit themselves to enter into Local Agenda 21 processes and develop long-term action plans towards sustainability.

Yet, one of the biggest challenges is to start discussions before members of the political community have a chance to decide on arenas of discussion and on stakeholders represented in these arenas. Therefore, it has to be kept in mind that even though public

participation in local development processes may be required by a series of acts, the arbitrary decision on who is to participate and to what extent is frequently made by authorities and politicians. For a successful cooperation therefore, "…*There needs to be a moment of opportunity, a crack in the power relations, a situation of contradiction and conflict , which encourages people to recognize that they need to reflect on what they are doing, that they need to work with different people, that they need to evolve different processes.* " (Healey 1996 in Campbell 2002, p 244)

Conclusions

Green Maps represents a tool aimed at the raising of awareness and the strengthening of local identity by highlighting sites and places where culture and activities of local residents are interlinked with the natural environment.

Generally speaking, sustainability results from the balance of social, economic, and ecological interests forming the three poles of a triangle. Therefore, Green Maps can raise environmental awareness within a community and initiate further discussion on the future development of a municipality. Improved communication within the community in turn may lead to a common ground for future negotiations.

The combination of the two approaches, i.e. conflict resolution and innovative planning practices, can lead to both political and substantive progress. Remaining outside the triangle, planners can act as mediators, supporting the design process and facilitating discussions among stakeholders and with authorities, if required. Joining the centre as shown by figure 2, they could promote their own visions on economic-ecological development influencing the design of the map. Green Mapmaking is about charting the natural and cultural environment to promote sustainable ways of living. Both behaviours are possible and needed.

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THE ROLE OF UNIVERSITIES IN REGIONAL DEVELOPMENT

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Deggendorf region is a role model how University and Regional development are linked and can support each other. The focus of a rural region on scientific development and the investment in education as well as the development of high-tech industries can result in economic growth and development. For regional development besides rural topics new methods and strategies are necessary, if these regions want to succeed in the future. The competition between regions on a European and global level will increase the need for integrated strategies and the definition and management of regional unique selling points. The paper presents a case study as well as instruments and methods how these strategies can be identified, developed and implemented as part of regional development.

Introduction

Globalisation, the internationalisation of Europe in the context of the integration of new countries and the consolidation of economical contacts with the old member countries of the European Union lead to a strengthened competition between enterprises and in particular between regions as business locations. The change from production enterprises with downstream trade to highly integrated value chains with international supply relations leads to a new meaning of the term economic- and structural development on a regional level. The cross-linking of enterprises along the value chains, with research and educational facilities as well as associated service industries is a quintessential point of a modern, regional economic policy.

Concentration of knowledge in specific fields always resulted in a regional competitive advantage on the global markets. Since Porter (1998) identified the dependencies of regional strategy and success on global markets, clusters are an emerging concept in regional development. A cluster is defined as a concentration of companies, related service industries, research institutions and other related businesses, resulting in a competitive advantage in a specific industry or technology. Besides natural clusters also cluster policy can result in the development of these structures.

The glass industry of Venice or the Bavarian Forest in medieval times or early montane industry in England the German Ruhr-Gebiet can be seen as early forms of naturally established clusters. The software center Bangalore or the Biotechnology park in Munich are forms of politically developed and supported clusters. The concentration of knowledge of existing companies, education and research facilities can be important factors for other companies to decide for such a region for a new factory, research center or sales point. The concentration of companies along a value added chain results in an optimization of development of products and production processes. Side effects are regional brands associated with the companies located there, such as the Silicon Valley.

For German regions also other aspects are of relevance. During the last years export increased constantly, while the unemployment rate rose and growth rates stagnated. Sinn (2005) called Germany a Bazaar economy, which imports the majority of goods and values added and exports the goods in combination with related services. This explains the inconsistent economic development. For regional development this means that growth rates that support regional economy can not be achieved through classical strategies such as rural development, support of production and manufacturing. In Germany new strategies must therefore focus on the development of integrated value chains (clusters) on the one hand side and future oriented sectors and segments of these value chains on the other hand side. This strategy can be support through a strong cooperation of regional administration, industry and university (Höpfl et. al. 2007).

As part of the project RISE - regional Identity and culture, Strengths development & Environment action, the subspace Deggendorf Plattling mandated the management center at the University of Applied Sciences Deggendorf, to examine the economic structures of the subspace in the context of a study, taking into account the situation in the adjacent county area and in Lower Bavaria, and to provide a development concept for the region. Here special attention was drawn to the development of main networks (Bartscher et. al. 2006). Suggestion were the experiences and developments in the RISE - partner regions Aichfeld Murboden (Austria) and the co-operation area Seeland - Jurasüdfuss - Jura Bernois (Switzerland).

Basis for the creation of sustainable structures is the knowledge of the regional trade relations and the development potential of sectors, industries and current topics. The central question for the subspace is, how rural areas are able to economically exist beside the population centres. In particular before the background of the development of the Bavarian Clusters mainly settled in metropolitan areas was the danger of an uncoupling of the peripheral regions.

The area

The subspace Deggendorf/Plattling consists of the cities Deggendorf and Plattling, the markets Hengersberg and Metten as well as the municipalities Niederalteich, Offenberg, Otzing and Stephansposching. The county Deggendorf is involved in the working group of these cities and municipalities. The subspace is the geographical centre of Lower Bavaria and is located at the southern frontier of the Bavarian Forest at the estuary of the Isar into the Danube. In the region meets the mainly flat Gaeuboden and the mountain range of the forward Bavarian Forest with differences in the altitude of over 800 m. In the past two decades the economic growth and the increase in population was significantly higher than those of the county and district. The cities Deggendorf and Plattling have, in accordance with the land development program, as a dual city, the function of an upper center. The dual city is located in the intersection of two supra-regional development axis. Because of the historical orientation of Deggendorf towards the Bavarian forest as well as Plattling towards the Gaeuboden the potentials and interests of two completely different residential areas are united in the dual city Deggendorf/Plattling.

A distinct city – hinterland problem interferes with the changed circumstances (globalisation, structural changes, opening towards the Central and Eastern Europe, European enlargement)

METHODOLOGY

Interviews with regional experts

As a first step of a bottom up approach regional personalities from politics, administration and federations were asked about known focal points and networks in the region. These statements were integrated into the following evaluation. A goal was, by integrating regional personalities, to get an impression of the self-view as well as to prepare substantial key players for the future development process and to integrate them from the very start.

Company interviews on the management level

Based on the expert interviews as well as an analysis of the enterprises in the region, selected companies were identified which are representative or image carriers of the subspace and the managing directors of those were interviewed. Because no relevant statistic data of the input output relationships was available, this step should help to identify the most important supply and trade relations as part of the value chains in and through the subspace. Thereby the entrepreneurs were asked about the situation and development of their enterprise as well as the integration into regional and supra-regional value creation chains. Furthermore questions about the region were asked to identify their estimate of the strengths and the weaknesses as well as chances and risks.

Analysis of the partner-regions

The region Aichfeld Murboden in the Styria/Austria is one of the central areas of the Wood Cluster Styria. This Cluster covers several hundred enterprises along the entire value chain "wood". In the Swiss partner region numerous Swiss Clusters are located in Berne. Since both regions already have longer experiences with Cluster Management as well as the development of networks, the developments and experiences were analysed and their transferability to the subspace was judged.

Evaluation of regional and supra-regional developments

The investigated region is economically, politically and infrastructural part of a larger area and strongly affected by supra-regional developments. In particular the positive development of the metropolis Munich in the past affects the subspace. Activities in neighbour regions offer thereby not only risks, but open also numerous chances, e.g. synergies for co-operation, externalities or the production of supra-regional interest. Therefore it was tried to identify supra-regional developments and integrate them into the further evaluation.

Evaluation of statistic data

As a basis for the evaluation of the economic and demographic development of the subspace, statistic data was consulted. Since not always dedicated data for the subspace was available, often data of the county Deggendorf was used, which should correlate however very well with those of the subspace. Substantial

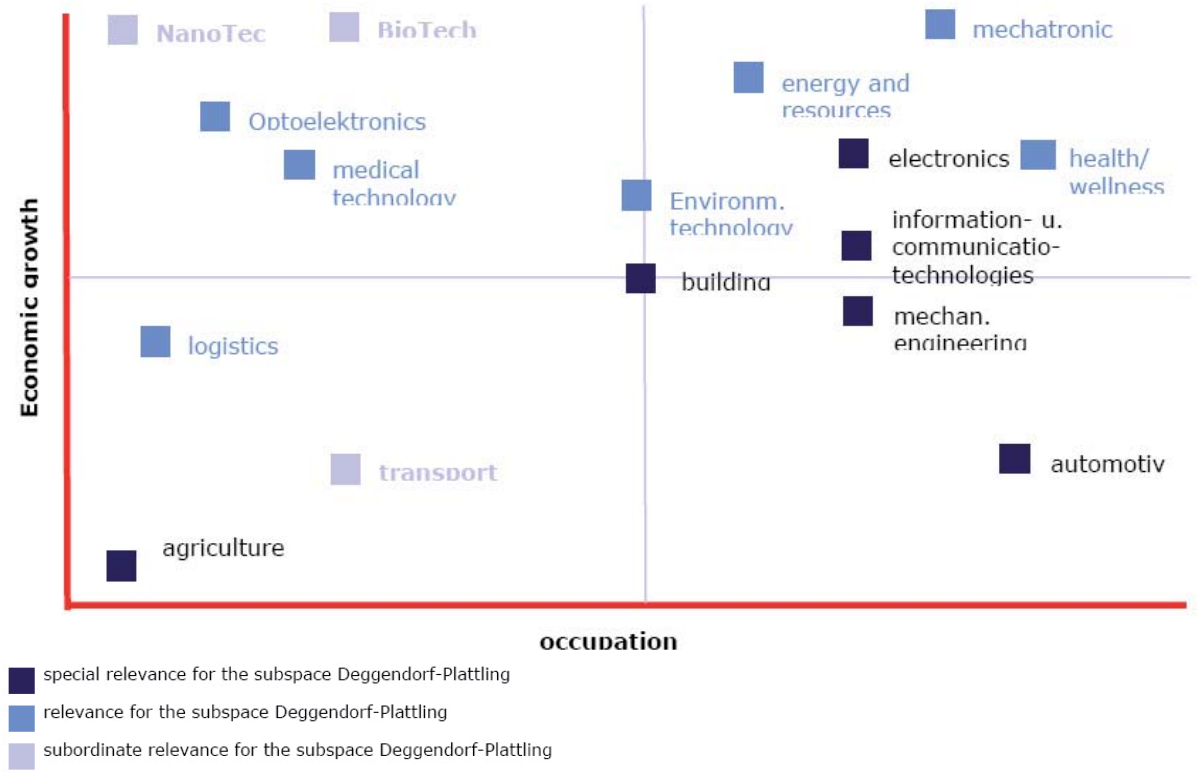

Fig. 1 Industries, their potential for occupation and growth as well as their relevance for a regional strategy

characteristic values were land use, also considering the sectors agriculture and forestry, demography and commuter behaviour, occupation and gross value creation.

SWOT analysis

With the help of the classical instrument SWOT analysis (Strengths Weaknesses Opportunities Threats) the results of the data acquisition were structured, assigned to one of the four categories and evaluated. Strengths and weaknesses are all factors, which can be influenced by own measures taken by the investigated object. All exogenous factors, like politico-legal developments, world market etc., which can not be directly influenced by the investigated object, are assigned to the chances and risks. For the development of a strategy it is crucial to work out, how strengths can be developed, and what can be undertaken against weaknesses. A goal with chances and risks must be to recognize them in time as well as develop measures to decrease or avoid consequences or to take chances. By using this methodology a structured picture of the situation was created which at the same time formed the basis for further recommendations.

Derivative of recommendations for action

On basis of the results of the SWOT analysis, an evaluation of current developments in economics and politics and with consideration of the regional aims, which were worked out in the interviews, a strategic concept was compiled. This should serve as basis for the further development of the subspace to a common area. Apart from the emphasis topic networks, also recommendations for cross sectional topics such as education, research and organisational structure of the subspace, were developed, that should support the process of the network formation as flanking measures.

Analysis

In the subspace numerous economic emphasises can be determined. Major emphasises are the building of special machines, the building industry and building craft, supplying industries in particular in the field of automotives as well as companies from the sectors microelectronics with emphasises in the areas opto-electronics and embedded systems (Fig. 1).

Evaluating existing emphasises and current economic trends, with reference to growth potential and occupation, draws a picture, as shown in Figure 1. The economic action takes place very broadly in different sectors and industries, what opposes a regional specialisation or support of one sector. Despite a certain concentration in the future economic and settlement politics a promotion of several sectors should be supported, to fulfil the requirements of the actual situation.

Regarding the economic data of the district, states very quickly that agriculture plays no important role for the gross value creation and the occupation. Compared with Bavaria the portion of production is clearly higher and the service sector less pronounced. The high amount of persons employed in agriculture with a clearly lower gross value creation than in the other sectors, represents a substantial risk under the criteria of the agrarian reforms as well as the developments of the world trade, since an omission of subsidies would affect with a lever effect the occupation. The strong emphasis in the production sector is to be likewise evaluated as a risk, since straight production enterprises are affected by misalignments. One must stress however that all entrepreneurs expressed a high satisfaction with the location factors, in particular the motivation of the co-workers as well as the low price level.

During the last years a change in the economic development can be detected. The University Deggendorf was founded in 1994 and provides today with over 3000 students a solid basis for human resource development and applied research. Since 2000 about 20 spin offs emerged from the University and over 200 new jobs in high tech industries resulted from these foundations. The close cooperation between the University and the business incubator is one of the success factors. The close cooperation between the University and regional companies in the field of applied research and product development is another important driver. Several established companies already decided to settle in Deggendorf because of the concentration of companies and scientific assets in several technology fields.

Conclusion

This positive development will be fostered in the future through a clear regional focus on future oriented industries. Here a close cooperation between University strategy and development as well as the definition of regional strategy will be an important factor of success.

As a conclusion can be stated that regional development can optimize a region's position in a globalised world. But it becomes of importance to follow a well designed strategy and concentrate on defined branches, value chains and technologies. Classical approaches focusing on rural development must be accompanied by modern concepts for regional development. The presented project (Bartscher et. al. 2006) but also the general economic development in the Deggendorf region show that Universities can play a crucial role in regional development.

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NEW STRATEGIES FOR COMMUNITIES IN WATER MANAGEMENT

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The broad implementation of water protection objectives can only be achieved, if municipalities foster spatial measures. As the main responsible bodies for spatial plans and the representatives of citizens they can not only offer support, but be the main drivers of a change process.

Introduction

In Germany municipalities are responsible for the management of rivulets and small rivers. In Bavaria these systems make 87% of the total river system of. In sum over 2000 communities are in charge of 60.000 kilometers of rivulets in this single state. The splitting of responsibilities also results in a split management of the catchments, leading to upstream-downstream conflicts and inefficiencies.

In Germany as well as in all countries communities have a broad range of tasks and thematic fields:

- Administration of municipal property
- Levy of taxes (Steuereinhebung)
- Assistance and rescue services
- Maintenance of municipal roads, paths and bridges
- Preparation and development of land utilisation plan
- Town planning (Bauleitplanung)
- Construction and maintenance of schools
- Maintenance of rivulets
- Other administrative work

Between these different tasks as well as between neighbouring municipalities many synergy effects arise which are left unused. Economy, administrative work and ecological topics are strictly separated. The overall point of view is missing, and therefore no integrated ideas and planning can be established. The main problem is, that within this approach topics directly related to the economic efforts and incomes of a municipality are treated much more important than other topics, e.g. ecological demands. Ecological aspects are only taken into account when certain damages are occurring, citizens complaining about a certain situation or a flood is effecting a settlement. Often no precaution measures are realised or even taken into consideration because of the uncertainty of a probable event or damage. Because in the beginning of ecological degradation no citizens are affected the pressure for action is low.

Herzogbach - a case study

In general can be stated that many preparatory work has been done, many data for analysis is available, but left unused, because the integrated approach of a municipal management has been left unseen. It would be the necessary work of a municipal manager or regional manager to combine all this available knowledge with the knowledge of problems and the ongoing processes inside a municipality. The responsibility of communities for spatial planning like urban development, land use planning and landscape planning offers also opportunities from a water management perspective. Idea of a research project, funded by the State of Bavaria and a consortium of communities, was to use chances and avoid risks of the actual situation. The formation of municipal alliances for individual basins should compensate the administrative fragmentation of the catchment, a joint management plan would be the basis for the integration of water related objectives in other sectoral and spatial planning.

In the project called "River basin management at the rivulets Herzogbach, Angerbach and Lindenbach" a first approach how to implement a river basin management within different municipalities was developed. Many different topics like flood protection, soil erosion and sediment delivery as well as river redevelopment were integrated in a common concept working over municipal boundaries. Synergy benefits came up and were implemented in a final measure catalogue, which was an instrument for the participating communities to coordinate their future plannings and activities.

The project area in a rural part of Bavaria is characteristic for parts of central Europe and the Alpine foreland. The fertile plains and modest hilly landscape are mainly used for agriculture. Settlements developed from the embankments of small river valleys towards the flood plains to save the flatter areas around for farming. Intensive agriculture and land consolidation of the past 50 years increased surface run-off, erosion and non point pollution. River training of the past in agricultural areas induced high public spending for maintenance of river .embankments and the removal of sediments and seemed to increase the flood risk for settled areas. Therefore the proposed approach was in a first step a combination of hydrologic, hydrodynamic, erosion and sediment modelling. In a second step a flood protection plan for the whole catchment was derived, combing structural and non-structural measures of flood protection. Especially ecological measures, like changes in farming techniques, river redevelopment and flood plain management have been considered and their effect to reduce erosion, non point pollution and reduce maintenance costs was assessed. All measures were combined in an overall management plan. For all riparian communities in the catchment this plan is now the basis for future sectoral considerations and implementations. An interdisciplinary working group, including governmental and municipal officers responsible for rural development, water management, farming and nature conservation as well as representatives of different stakeholder groups accompanied the planning process and took over the plans for implementation. Advantage of the integrated planning approach and intersectoral participation is the possibility to implement different elements using sectoral instruments. Especially smaller communities without own planning capacities and restricted budgets stood to benefit from this approach using synergies and knowledge resulting from the planning process and integration of partners for the further implementation process.

Linking rivulets and river catchments

River basin management can take place at many scales. The project ILUP (www.interreg-ilup.de) had a closer look on three of these levels: The catchment of a river system (1000 km² like Vils and Rott), subcatchment or sections (100km² or 10 km like Upper Vils or Lower Vils) and local scale (Vilsbiburg or Sulzbach).

The catchment level is of relevance for general data collection, the definition of strategic objectives and the identification of focal areas. Using hydrologic, geomorphologic or land use data, a catchment can be subdivided in characteristic subunits. Within these subunits (subcatchment or section) often identical land use practices, hydraulic circumstances or quality problems can be found. The bargaining process with stakeholders or other authorities about the need for measures, availability of land or the change of land use practices can therefore set up on a defined and regional common level.

On a local scale the willingness to participate in a planning and implementation process can differ. The definition of measures and the preparation of implementation projects must take into account professional needs, the availability of land and the willingness to implement measures resulting from a subcatchment analysis and identification of individual objectives. Here the major task is to prioritise professional needs, identify the willingness and available space and to use other implementation projects like urban development or land reallocation projects to integrate water related objectives and measures.

River basin management is more a management than a planning task. Major activities are therefore to bring together technical or professional requirements (project idea), the necessary space, funding and the willingness of different parties to participate in a planning and implementation project. This means to define the framing conditions and professional requirements for a subcatchment, having available the necessary data from a catchment perspective and always to take into account the overall strategy and objectives.

Municipalities are the main administrative bodies dealing with spatial questions and problems. Because of their close contact to citizens and responsibilities for the small river systems and water courses they are the perfect organisational structure to implement spatial activities.

ILUP addressed a lot of these aspects integrating communities in subprojects. The main idea was to motivate communities to show responsibility for their water courses on the one hand side and raise awareness for the implementation of actions initiated by the water management authorities on the other hand side.

Three types measures of ILUP were of importance for these developments:

- Tourist and recreational projects
- Integration of municipalities in water management projects
- Initiation of subprojects to address municipal problems

In a first step councils and political representatives were invited to discuss planned projects. To give a better impression of the local situation and problems meetings were often organised as excursions. A second step was the integration of municipal interests, like cycle paths, urban development or tourist attractions, in water management projects

The close integration of local administrations had an multiplying effect. The started participative process now initiated an implementation of water related projects on a local and municipal level.

River basin management on a catchment scale, recommended by the water framework directive, must be accompaigned by a local process, a municipal river basin management (MRBM). As an implementation oriented planning and management it could be the driving force to address and solve spatial problems. Municipal alliances on a subcatchment level offer the possibility to follow the catchment approach. Therefore not only water management related issues, but also local economic, social and environmental problems and interests need to be addressed from a water perspective:

- Flood protection
- Water protection and water quality management
- Recreation and tourism
- Habitat management

MRBM can be seen as the implementation oriented downscaling of ILUP. In parallel to urban development plans and spatial planning MRBM could integrated water related responsibilities in the municipal decision making processes.

Conclusion

Besides this theoretical-practical approach and development many other thematic focuses have to be taken into consideration. Climate change, flood risk and hazard management, different frameworks of the European Union are demanding additional man power and management work. State of science is developing much faster than the implementation of the created knowledge. New approaches and scientific knowledge is left unused because present planning on the basis of foretime-orientated data. Communication problems and administrative boundaries avoid better and much more realistic planning. In the next future the shown approach will be extended and equipped with new knowledge and developments.

ILUP had a focus on different types of actions in river basin management: Generation and computation of basic data, strategy development on a catchment scale, bargaining and joint planning with stakeholders and other planning disciplines, preparation of implementation and joint implementation.

The results show very well, that the sectoral instruments of planning and implementation are well understood. Within the process from strategy development on a catchment scale towards implementation the bargaining process with stakeholder groups and even other planning disciplines becomes the major bottleneck or even obstacle, retarding successful implementation. The actual focus of planning theory and practice misses to address the interests, objectives and fears of people or groups affected by plans. As a result the emphasis for the future must be the management of processes including the steps data gathering, stakeholder participation, spatial management, planning and implementation.

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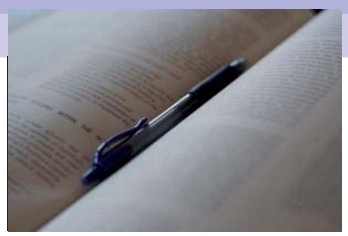
PROJECTS



SUSTAINABILITY AND RESPONSIBILITY IN LANDUSE -SURELA

Berdis, J. (STU Bratislava)

The IP SOIL project has resulted in many lectures, workshops and publications, but also in cooperation between universities and institutes from many countries. We have used this network to apply for the Learning Partnership in the Grundtvig program, which is oriented in lifelong learning and so, very suitable to the idea of dissemination of the results of more then three years of the IP SOIL project. This will help us to bring the results closer and to make them understandable to the non-scientific public. The Learning Partnership is: "Sustainability and Responsibility in Landuse – SuReLa".

In the last three years the IP SOIL project has produced numerous results in form of lectures, workshops, excursions and publications about the Responsible Use of Soil and Landuse, but after the third year it could not be prolonged for another year in frame of Socrates Intensive Program. It would be pity if it would end by this. It was meant to continue. The results are to be brought to a more secular and public, perhaps smaller level. Somebody once said:"If you want to protect nature you have to start in your own garden." It means for us: in a smaller scale, at the beginning, at the source. Every body should have the latest information and understand that it is his up to him, to behave and act responsible.

Besides lectures and publications the IP SOIL project has created also a partnership and cooperation between universities and institutes from many countries. We have used this network to apply for the Learning Partnership in the Grundtvig program, which is oriented in lifelong learning and so, very suitable to this idea.

The Learning Partnership "Sustainability and Responsibility in Landuse" – SuReLa - is composed of various organizations and institutions, from different European countries, which are all aimed in education, especially in lifelong learning processes. Unfortunalely the grant was approved only for three of them: Sokoro Ecological Park Foundation in Hungary, Permaculture Austria, and Slovak University of Technology.

The aim of the Learning Partnership is to promote the responsible use of natural resources, i.e. of soil by using the results of the previous IP SOIL projects, simplifying the language of scientists, conveying experiences and knowledge to different target groups with the help of "Learners", who are actually teachers we want to educate. For this we want to address and mobilize as diverse and balanced groups of learners as possible, in relation to age, gender, education, occupation and income situation etc. as possible, in cooperation with organizations experienced in lifelong learning and the empowerment of stakeholders.

We want to bring together students and university staff members and practitioners in order to encourage efficient and multinational teaching of special topics, enable learners and teachers to work together to gain new perspectives on the topic being studied. These key challenges and opportunities for learners enables them, so that they are able to work together effectively, combining expertise, knowledge and experience to transform places into communities where people want to live and work, now and in the future. For example, the planner needs to interact with community groups, the farmer has to be able to work with those who will be maintaining the infrastructure and the economist needs to consult also new experiences of soil scientist.

Based on knowledge, experience, and skills of the partners and accounting for the specific needs of the groups of learners the Learning Partnership will be aimed at interdisciplinary adult education related to regional issues focusing on empowerment, or the ability to control decisions having an impact on one's everyday life and consequently, on the sustainable use of natural resources, in particular multifunctional soil and land-use. We are accustomed to seeing teachers as lecturers and teaching a scholastic profession, each role insulated in its own way from everyday life. But the quality of interdisciplinary knowledge cannot be independent from the quality of interpersonal relations within the learning partnership. The pleasure of interacting inside the group may be determinant of the imagination and of the creativity that the group may be able to develop.

Scheduled meetings, workshops and seminars will support direct contact and information exchange between the partners. The partnership is also making use of the virtual learning environment will be implemented on the server hosting Academia Danubiana. Additional tools, such as messaging, VoIP and e-mail are widespread and used by all members of the Learning Partnership. The communication language of the partnership is English, but we plan to produce publications and flyers also in native language of the participating partners, to bring the information closer to the non-scientific public.

The grant for the Grundtvig Learning Partnership was meant to cover mainly travel expenditures, but it is possible and enough to finance the publications (printed and electronic) from the granted lump sum too. We were given the money to spend within the next two years and were friendly advised to spend it all for this partnership and its aims.

The SuReLa Grant is destined for two years; the SuReLa Learning Partnership shall go on.

TRANSFER OF KNOWLEDGE ON RESPONSIBLE USE OF THE SOIL IN THE WESTERN BALKAN COUNTRIES

Dorner, W. (University of Applied Sciences Deggendorf); Kvarda, W. (University of Natural Resources and Applied Life Sciences Vienna)

Soil is one of the most exploited and threatened resources in the Western Balkan Countries (WBC). The key reasons for this include the dynamic process of green-field investments, (re)privatisation of land, lack of an appropriate cadastre, the outdated land use planning and low awareness of the soil problem in local communities and their governance practices. Therefore the trend towards the soil demolition, extensive land surface sealing and obvious damages to the soil of one of the paramount and unrenewable resources and assets is continuing. The project aims to establish preconditions to work out a common understanding in the development of measures against soil damages in the WBC and to foster measures for integrated land utilisation and environmental education. The overall goal of the project is to provide the opportunity to develop partnerships through actions of responsible soil use, with existing centres of excellence in the EU's convergence and outermost regions, the Member States (MS) and the WBC. The common vision of this project is to work out measures against sealing and reasonable soil and land use, intending a balanced production and also developing palpable measures for an integrated and multifunctional soil and land utilisation. The behaviour and technology for the use of soil in WBC will be analysed and evaluated through joint research and education activities (specialised training in MS for PhD. students and/or post-doctoral researchers) organisation of workshops and conferences. The whole research will result in elaboration of concepts and models for the future in the WBC. The project will initiate specific actions for policy support, to integrate the ´thematic strategy for soil protection´ from the DG Environment in to a dialogue in the WBC. Consequently the project will create awareness among the participants of the WBC allowing for a responsible use of soils and initiate mutual learning among participants of the WBC and the MS alike.

Concept and objectives

Soil is one of the most exploited and threatened resources in the Western Balkan Countries (WBC) undergoing a period of social and economic transition. The key reasons for this include the dynamic process of green-field investments, (re)privatisation of land, lack of an appropriate and well organised cadastre, the outdated land use planning and low awareness of the soil problem in local communities and their governance practices. Therefore the trend towards the soil demolition, extensive land surface sealing and obvious damages to the soil of one of the paramount and unrenewable resources and assets is continuing.

The project aims to establish preconditions to work out a common understanding in the development of measures against uncontrolled soil damages in the WBC and to foster measures for integrated land utilisation and environmental education.

The overall goal of the project is to provide the opportunity to develop partnerships through actions of responsible soil use, with existing centres of excellence in the EU's convergence and outermost regions, the Member States (MS) and the WBC. The common vision of this project is to work out measures against uncontrolled sealing and reasonable soil and land use, intending a balanced production and also developing palpable measures for an integrated and multifunctional soil and land utilisation.

The concept foundation of the project is:

(a) to gather data on situation of soil use focussing on weaknesses, opportunities and threats in the WBC

(b) to select best practices of responsible soil use of some MS for the sake of benchmarking

(c) to define criteria for sustainable soil use in the WBC

(d) to exchange know-how with respect to soil (and land) use among WBC and MS

(e) to come upon the basic instruments for implementing responsible and sustainable soil use in the WBC

The behaviour and technology for the use of soil in WBC will be analysed and evaluated through joined research and education activities (specialised training in MS for PhD. students and/or post-doctoral researchers) organisation of workshops and conferences in both WBC and MS. The whole research will result in elaboration of concepts and models for the future in the WBC. The project will initiate specific actions for policy support, to integrate the ´thematic strategy for soil protection´ from the DG Environment of the European Commission in to a dialogue in the WBC. Consequently the project will create awareness among the participants of the WBC allowing for a responsible use of soils and initiate mutual learning among participants of the WBC and the MS alike.

The aim will be to make an umbrella of study exchange between the EU MS and the WBC. This shall foster the initiation of capacity building, enhanced communication and improving networking, developing partnership through action, exchange of know how and research of high quality.

Problem definition and core question

Soil protection has never been ranking high among the priorities for environmental protection in Europe. Soils are generally not well known by European citizens, particularly since only a small fraction of the European population is currently living in rural areas having a direct contact with soils.

Therefore the question of the sustainable development of the Danube region and the WBC– our common living space – requires intensive co-operation especially in the fields of ecology, economy, social sciences and culture. The future of Europe depends on the quality of its human resources. Nowadays, this means a population that is well educated and highly skilled, capable of leading the change of the knowledge economy and society. The goal is clear: our universities and research institutions must become more attractive, to cooperate with regional development issues and be aware of cultural, economic and social questions. University teachers and students, planners and concerned citizens in administration, business and politics are expected to co-operate. We need to create conditions so that they can deliver their full potential.

Therefore it is necessary to implement measures improving access to knowledge and the information society, which will be promoted by mutual learning, interactions and transfer of knowledge between the participants. Learning as integral part of planning has become an important area of practice. We must become involved with group processes that develop dynamically in ways that cannot be foreseen.

The DPSIR Framework developed by the European Environmental Agency (EEA) allows for the comprehensive modelling of complex soil and environmental systems thus answering key questions. The soil indicator framework, or DPSIR approach as a theoretical basis and its application in practice help us to understand complex systems and soil related processes and to react by developing responses and solutions for strategies and operational procedures, for fostering responsible use of soil and land . Indicators allow for the monitoring of key objectives like ´responsible use of land and preserving the landscape´.

Soil is an asset that is extremely short and cannot be reproduced and which has always been the subject of strong conflicts with regard to utilisation. Moreover, driving forces of land and soil degradation have effects on the dimension of space and long term temporal scales."

The question is how to bridge between the available scientific knowledge on one hand and those who need it for defining policies, and operational procedures, such as stakeholders, and politicians and decision makers on the other hand. Within the Socrates Erasmus project "Responsible use of soil and land and regional development" (IPSOIL), this question has been worked on since 2005. The first results can be found on the following website: http://www.academia-danubiana.net/projects/IPSOIL%20II.html. Therefore the main target will be to carry out actions for knowledge transfer, such as awareness campaigns, education and interpretation of economic systems related to environmental problems and to develop methodological approaches, in order to initiate a dialogue between those who own soil and represent economic interests and those who are interested in keeping soil multifunctional as a public interest. The concept for a ´learning region´ was agreed to establish a sustainable learning support and mobilise regional and local actors, authorities, organisations and associations to a committed and effective involvement, utilisation and support for developing new concepts of responsible land use.

To transfer good practices and facilitating knowledge transfer the project will organise the external communication on the Internet by the website http://www.academia-danubiana.net Internal communication will be supported by an e-learning platform (based on the open-source solution Moodle) which comprises various tools for online collaboration, including discussion boards and chats as well as for data exchange.

The social aims of the project shall enhance the ability to manage complex social matters. Therefore the project will stimulate the mutual learning process for sustainable land use and also foster the creation of social structures for a constructive encounter between persons with contrasting interests. If we want to bring society into the art of governance and to encourage the creativity of all social groups, then people must be made aware of their intellectual potential for solving complex problems related to soil and land use.

The development of partnership will be realised through improved networking and the exchange of know-how as well as experience between research centres in Portugal in the West of Europe, Austria, Hungary and Germany in Central Europe and Serbia, Montenegro, Bosnia & Herzegowina, Albania and Mazedonia in the Western Balkan region.

Additionally, efforts will be made to achieve greater international collaboration, competitiveness and problem-solving skills within the scientific community at the service of sustainable development. In compliance with the demands of sustainable development, inter- and transdisciplinarity, participation and networking must be promoted.

Transdisciplinarity requires methods to conceptualize the integration of knowledge for different, systems, disciplines, qualities and interests. Basic principles for sustainability are guidelines that should be taken into consideration by all the stakeholders in their decision-making. This requires a continuous process taking economic, social and ecological qualities into account.

- Social justice and co-responsibility means to support participation and networking, enhance local identity and assure a living model of fairness and solidarity by the means of appropriate soil use.
- A viable economic system for the future strengthening the economic structure to generate and secure employment supports rationality and subsidiarity on the one hand, and enhances educational and permanent learning about the soil use on the other.
- Finally, a responsible management of the natural environment is needed for the preservation of the diversity of species and landscapes as well as for the protection of environmental media and climate in WBC, where soil has the key role.

The objectives of this program comprise the development and introduction of tools for the elaboration of spatial integration models, new environmental technologies and the implementation of environmental education with a special emphasis on soil as a major subject into all sectors of activities, among others. The results are to be communicated to the political-administrative and the educational system in order to improve the knowledge between universities, local authorities, the public sector, industries and non-governmental organisations.

The real necessity and role of this project is to be seen as a factor for the establishment of real opportunities for applied scientific research for ecological sustainable use of soil in order to gain experience for the specific usage of environmental tools already been in operation in EU and to allow new possibilities to be developed in the WBC.

Objectives

With the Decade for Education for sustainable Development from 2005 to 2014 the UN proclaims that education will help to develop widespread understanding of the interdependence and fragility of planetary life support systems. Within the Comenius 3 network of Sokrates, the SEED project "School Development through Environmental Education" facilitates European school systems preparing the UN Decade in Education for Sustainable Development. The general aims of the basic program ÖKOLOG from the Austrian Federal Ministry for Education Science and Culture (BMBWK) in Vienna are, to improve the

quality of environmental education and to involve the students actively for ecological awareness. All of these take into consideration soil, the use of soil as a natural resource and related problems. The most important consequences could be damaged biodiversity and water and its systemic links to the soil.

The University of Natural Resources and Applied Life Sciences (BOKU) in Vienna emphasises teaching and learning as the merits of internationalisation (see also the White Paper of the European Commission). The development of International Cooperation Networks should be considerably strengthened, as defined within the ´Strategy for the Internationalisation´ of BOKU.

In the year 2002, 15 European Environmental ministers have outlined first steps towards a strategy to protect soils, on a level corresponding to water and air. The European Parliament resolution on the Commission's Communication "Towards a Thematic Strategy for Soil Protection" is targeting land use development, preventing sealing of soil like other protected targets. As a first step the project will try to integrate the strategic goals of soil protection and to implement it within an urban and rural framework. Threats to soil are often caused by social and economic damage, with the result of distressed urban areas are produced. They correspond to spatial concentrations of urban problems including diverse manifestations of poverty among inhabitants, economic decline and physical decay.

The objectives of the project have been identified as follows:

1. Establishment of a basis for research and for the exchange of information on responsible soil and land use between researchers and stakeholders in the MS and WBC, through trans-national two way secondments of research staff between the selected centres, with in-built obligatory return mechanism Structure changes in agriculture and their implications for rural areas clearly has shown in recent years that it is not enough to protect agricultural land from sealing but primarily from agriculture itself. However it has also been found that urbanization related "development" in rural regions and construction and land use practices also have significant impacts on biodiversity. These direct impacts are caused by human activities. Therefore, precise and strict analysis of different land and soil uses and their impacts on soil ecosystems, biodiversity and potential soil multifunctionality is therefore one of the major tasks not only for experts in agriculture but also for spatial and urban planners in particular. Good land and soil use planning depends on a good selection of criteria and indicators. The fact of global soil decay is that decision makers must understand the soil quality as a paramount responsibility for the attainment of goals of sustainable development in rural areas. If not, the regional well-being and general social benefits will obviously decrease significantly sooner or later. Besides the changes in land use and the human impacts on soil, especially in the countries in transition like WBC, there are also consequences for the hydrological cycle. Sealing, compaction and missing natural cover is an evident problem in WBC with reduced infiltration and retention capacities of the landscapes. The problem of floods is more than often dependent there on wrong surface structures and soil disturbances. It is especially evident in rural regions with strong impact on planting and plant run-off.
2. Implementation of innovative environmental research and development (R&D) from abroad based on a benchmarking survey to integrate it with the needs of local development in the WBC for fostering territorial identity and culture as well as to influence the social, technological, economic and ecological framework of environmental strategies Education plays a key-role in learning constantly about us, our potentials, our limitations, our relationships, our society, our environment, our world. Henceforth the UN is proclaiming with the Decade for Education for Sustainable Development from 2005 till 2014, that education will help to develop widespread understanding of the interdependence and fragility of planetary life support systems. Education for sustainable development is a life-wide and lifelong endeavour which challenges individuals, institutions and societies to view tomorrow as a day that belongs to all of us, or it will not belong to anyone.
3. Implementing new technological and behavioural approaches for sustainable development of soil by professional training for Ph.D. students in MS and/or post-doctoral researchers and knowledge transfer as well as sending scientists from the WBC centres for short stays, to laboratories abroad Particularly the WBC require new skills, technologies and even new ways of thinking and working with soil. This is something that can be regarded as an added value of the project, since the use of soil and the related natural systems within are rarely taught in schools, and there are few professional or academic qualifications addressing these issues explicitly. The Lisbon and Gothenburg strategies in combination with the Territorial Agenda – draft – give directions to increasing competitiveness of European regions by better use of the territorial capital including soil as one of the main resources. This is also of great importance for the WBC. Therefore transdisciplinarity offers the prospect of generating the relevant knowledge which implies cooperative research driven by social needs and mutual learning. It is generic skills - such as leadership, community engagement, project management, partnership working and effective communication - that underpin the technical and specialist expertise, helping WBC to overcome obstacles and leading to a greater understanding of how to make places truly sustainable.
4. Facilitating local/regional sustainable development by disseminating environmental technologies, implementing EU environmental policies of responsible soil and land use and best practices of the MS' research centres If the problem of soil degradation is to be solved and understanding of society for sustainable use of soil and the creation of a multi-functional land management system is to be developed, the selection of interdisciplinary and transdisciplinary methods is inevitable. Multi-functional land use implies a substitution of the zoning principle of the physical separation of urban and rural activities by a true mix of patterns, which function in order to benefit life in all its forms. Multi-functionality of soil means that soil can be used in all its main functions, i.e. biomass production, filtering, buffering and transformation of materials, as a gene reserve, as a geogenic and cultural heritage and of course also as a physical basis. Explaining the meaning of multifunctionality to the WBC and also to all European countries is therefore of utmost importance.

5. Elaboration of summary conclusions of the TRUS-WBC project and their effective dissemination to have an impact on the academic circles in WBC but also to the practical system of activities where soil is the main resource – agriculture, forestry, water management, …etc. Population growth and increasing energy consumption, transport and agricultural activities, linked to pressures such as global climate variability and warming are adding further pressure on the reserve of natural resources in general and on the soil environment in particular. Europe loses several square kilometres of fertile land every day exclusively due to soil sealing. As a follow-up to the EU Communication, the European Commission DG Environment, decided to formulate a "Thematic Strategy for Soil Protection". Soil has to become the common concern primarily within local/regional communities in WBC and within their state public enterprises and offices.

The benefit of the TRUS-WBC project were expected as follows:

- Exchange of know-how and experience of multifunctional soil and land use between the research centres in MS and those of WBC through trans-national two-way secondments of research staff between the selected centres, with in-built obligatory return mechanism. Further development of National Scientific and R&D networks as advanced communication between universities, research units and industry
- Bringing together various R&D programs of soil and land-use, incoming experienced researchers having left the country and mainly young scientist of the Western Balkan centres with the aim of ensuring the synergic effect and international collaboration, for teaching, training and joint research activities.
- Increasing the mobility of scientists with a view to establishing "Science without Borders" initiative, to facilitate knowledge transfer at national and international level under the scheme at international conferences, workshops to expose them to a more international environment.
- Development of the RTD Capacity of the Western Balkan centres due to scientific knowledge transfer, awareness campaigns, education training and implementation and dissemination of demonstrating environmental technologies/systems.
- Improving networking and exchange of know-how and experience between the WBC and the MS
- Preventing :"brain drain" phenomena from rural parts of WBC
- Upgrading the research capacities for responsible soil and land use of highest quality
- Link towards EU projects ERANET Crue, IP-Soil, ILUP

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ENTERTAINING FINAL PRESENTATION OF IP SOIL

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It is often neglected to address the public during a research period. Interpretation of research results for the public is usually the task of the media. We tried to rise interest and entertain people to make the summary of our work more understandable and enjoyable for everybody. This article explains the creative work that was done by the IP Soil Summary Group to interpret our three year of work and its results.

Introduction to final presentation

The task of our group was to present the work in a way that would be interesting not only for experts. That meant for us not only to show the presentations we produced during the three years work, but also to present it in such way that is interesting for the general public. It is generally known that media affect public opinion. They make it by rising the attraction of broadcasted programs. We defined the main task of our group to rise public knowledge in the soil and land use issue. This issue is not discussed in public almost at any level. The public should be informed about soil threats to activate themselves in soil keeping.

"In the ancient time we had several threats to be frightened of. Some thousand years ago we had predators, wild animals, like wolves to fear of."

"Today we do not have to worry any more. They are domesticated."

"Sooner we had other threats as cold weather. Ice and snow meant real great efforts to survive."

"But we have no problem with that any more. We have places to get cold."

"We had challenges like floods to solve also."

"More or less we have the solution for that too."

"We had nightmares, ghost, dragons, and other mythical creatures to fear of."

"By now we managed to get rid of most of them. They are transformed to something else."

"What we did not solved up till now is something totally different. The main unsolved problem is the human activity itself, which can be dangerous for the environment and even for the whole human population. We cause several problems all around the world, and we rarely manage to solve them, even though if we know the right way to do. Some of these problems have global origin, but some of them could be solved also at local level too."

Choosing the best presentations

To choose the best presentations of the three years of IP Soil, the group was considering all the final presentations of IP Soil I. and II.
Various topics were appreciated during the selection period. One of the three best presentations was about water management, and another was concerning visual aspects, and the third was mainly architectural planning. These presentations were represented in the final presentation on the 16th of march in 2007.

Gaining the final view

The development of the program structure started with a discussion in the group with all of the members and some of the previous year's members. Those from year 2006 brought up the idea of a theatre play performed by the IP Soil members and it was very successful. We took the basic idea from this project. This was the overview of soil problem. The group has to present problems in such way, that the public didn't expect it.
First, our thoughts were oriented into creation of a short theatre play as it was done before, but we kept a place for new ideas. We started from our individual thoughts, we looked at what could increase our interest, if we were watching a TV, switching programs... We reached a decision, nothing clear enough could gain our attention.

Secondly, the scenario started to be produced at a round table, where everyone introduced his, or her thoughts. It was decided to start with short clear overview of problems, that people had faced in the past, but they managed to reduce them into little ones. This part consisted of understandable pictures provided by live speech.
The group made the introduction of the final presentation through images, music and live speech. The idea was to interpret a top to bottom approach to soil. The essence was that nowadays the threats are not coming from the wild world, but are caused by uncontrolled human activities. These are what mean threats to environment and to soil.

Animations of soil threats

Next step, according to our intention to introduce the topic of sustainable soil use to the public, was an aim of explaining what exactly the threats are to the soil. We took the main threats which were common to us, but most probably not to the public. Later on we created plenty of drawings to each of them. They were inspired by the main soil threats. The final version of each one was made in a group again. We came to a consensus and started to create an animation with a technique for cartoon tails. This was finalized in a program that allowed us also to add music, creating a funny atmosphere.

Process of making animation

Goals of animations:

- visual presentation
- clear understanding of the reason-result process in the time
- emotional contact (experience)
- entertaining

Phases of creating animations:

1. ideas
2. drawing the ideas
3. specifying materials, format, details
etc.
4. implementation
5. taking photos of the drawing process
6. to join the material in a computer programme

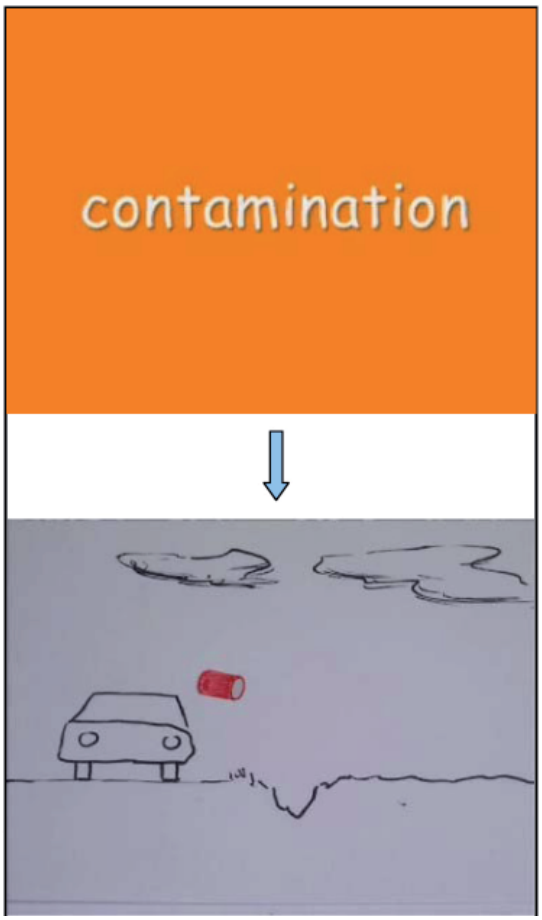

Fig. 9: Part of animation contamination

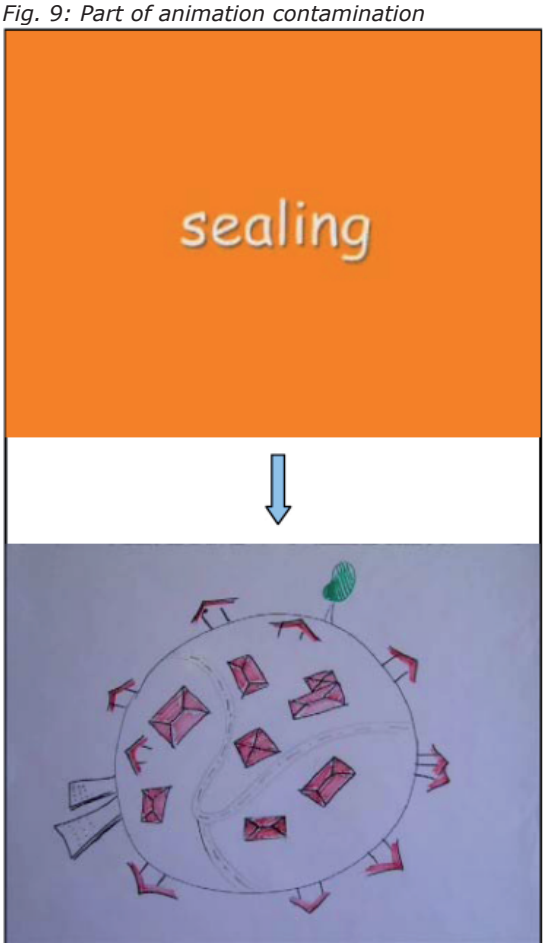

Fig. 10: Part of animation soil sealing

Interview with the participants

To introduce the concept of the people engaged in the project, is a good way how to bring out the advices for everyday life. By recording the opinions of our colleagues we wanted to give a clear picture of the possibilities that the ordinary life offers for public to live in a sustainable way towards the soil. The question for our fellows, students and teachers was: Please, give us two practical advices for sustainable soil and land use. We recorded the answers and produced five and a half minute long video. This video wasn't provided with any additional music. One of the reasons for it is to keep the focus of spectators oriented into the answer. Because IP Soil rose many questions for the sustainable land use, we wanted to show, that some of them are answered too.

Since we were supposed to prepare also the final evaluation of the past three years of IP Soil, we had another question for the participants. Answers to this question gave us a picture of the value of the program that the participants perceive. The participants here usually only repeated the learned phrases, but in some moments also the real ideas came up. This part of the presentation was not prepared only for the public, but for those who want to prepare such intensive program as IP Soil and the potential participants, but are having hard times by finding the reasons to do it. The aim is to give them a good reason for participation.

Fig. 11-13: Excerpts of the interviews.

The purpose of making videos:
- highlight information
- give a chance to the experts and program participants to express themselves in a more direct way
- entertaining people

Interview video material was divided into too parts:
- Video concerning the first topic:
Practical advises for sustainable soil and land use
- Video concerning the second topic: The most important things that participants have learned, and the message that IP SOIL has given to them.

The last video sequence in the presentation was an informal invitation for next programs that we started to prepare for the next period. Here we cut out the best parts from some clips. Fun was the main message of this very last part. It was only one and a half minute, but a happy end.

Conclusion of the work at the presentation

Our summary of the presentation in the past three years brought out interesting presentations, opinions of real people, overview of sustainable soil use and the threats. It consisted of many different topics all related to soil. But sometimes the main conclusion of the work is not the one presented. For everyone it is something else. The idea that impressed us the most was the answer to one of our question for Prof. Prus: ‘The most important thing of this program probably is that You will use everything you learned here in your practice when you come back home‘‘.

Work in the international group

Working with different nationalities is an interesting job. IP Soil Summary Group consisted of Hungarian, Slovakian, Slovenian and Bulgarian participants. All of them had their own point of view and ideas but in the discussion process and compromising the differences decrease so at the end (during the presentation) everybody was satisfied and proud of the group work.

Literature

Blum, W. E. H., Büsing, J., Montanarella, L.,: 2004, Research needs in support of the European thematic strategy for soil protection, in Trends in Analytical Chemistry, Vol 23, Nr 10-11, Elsevier Ltd. Fig. 11-13. Excerpts of the interviews.

APPENDIX

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INTENSIVE PROGRAM RESPONSIBLE USE OF SOIL AND LAND AND REGIONAL DEVELOPMENT

Within the third phase of IPSOIL III in March 2007, we were working on case studies and targeted projects to initiate specific actions for policy support, to integrate the ´Thematic strategy for soil protection´ from the DG Environment of the European Commission into an empowering dialogue on a regional basis. The main aim of the IPSOIL idea is to disseminate the results of a three years intensive project work reducing the damage of soil and land and raising awareness among politicians and stakeholders and all the people living in the region.

In cooperation with graduate students, PhD. students and professors from ten countries (CZ, HU, SK, BG, SI, YU, FR, DE, PT, AT) we were elaborating case studies and proposals related to the three topics, multifunctional soil and land-use, explaining new governance and the learning region concept.

ACADEMIA DANUBIANA
A network of excellence called ACADEMIA DANUBIANA has been established to promote a higher degree of territorial integration with the accession countries within the Danube region. The ACADEMIA DANUBIANA focuses on a scientific and educational network within various disciplines and paradigms in planning and systems design. It is addressed to all members of the socio-economic, ecological and administrative community in the broad sense – local authorities, students, teachers and non-government organisations.
The aim of this program is about the working out of visionary concepts and projects, offering postgraduate study programs and seminars to promote mutual learning within a dialogue between municipalities, universities, concerned industries, business, non governmental organisations and the society. The results should be communicated to the political-administrative system and the universities in the Danube region.