Environmental Security in Borderland Areas: Exploring the Znojmo/Retz Transborder Region

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Preface

„NEW ANSWERS, NEW QUESTIONS THROUGH ENVIRONMENTAL SECURITY SCIENCE“

AT THE EXAMPLE OF THE BORDERLAND - REGION RETZ/ZNOJMO

In the year 2005 17&4 Consulting Ltd. was invited by Mr. Alois Hynek, who is an associate professor at the Masaryk University in Brno. We knew him as a cooperation partner from former projects and appreciated an opportunity to conduct a joint research project in the field of „Environmental Security“in the Retz/Znojmo region.

Our research started with the phrase „Environmental Security“ which we kept on using as an Anglicism as it turned out that there was no adequate translation of the term in the German-speaking countries. We found the existence of the English term especially at the global level, in discussions about risks of environmental changes under way. Climate change, environmental pollution and shortage of natural ressources are all the consequences of an un-sustainable development and their effects to an ever greater extent pose a threat to human security.

The phrase „Environmental Security” indicates these relations between environmental degradation and social, political and economic instability. It describes the interlinked problems that are already present in various areas around the globe. In addition to all ecological disasters, environmental degradation and catastrophe events often cause high follow-up costs, instability and conflicts and, importantly, force people to leave their homeland.

Science and policy have to deal with this topic, first and foremost through a coordinated action at the global level. Only then comes the phase of localization and legal transposition of the issue to domestic contexts. But the global dimension does not mean, however, that solutions and strategies can be universalised. In fact, the above remark regarding the inevitability of localization, sustainable interactions with the environment is a locally enterprise. Therefore the science tackling environmental security should be done at both levels, within the global context as the source of information for the local/regional level.

In terms of the latter, the project was centred around the Austrian-Czech borderland of Retz/Znojmo. This was the main research area and it was the link between the regional landscape, local socio-political sphere and environmental security that represented the object of study.

Security/safety characterizes a situation with acceptable risks. The classification „safe“ or „unsafe“ depends on what risks are acepted by a society or an individual, thus always being relative and relational. Any individual/societal valuation is not objective. Therefore the research topic Environmental Security needed to include - additionally to the natural science approach, a socio-political component focusing on human beings, their subjective experiences, validation of security and political stances and actions resulting from them. According to this approach the research team was interested in the existence of environmental dangers („ecosystem-sphere“) as well as in the perception of this dangers within the local society. Finally, a lot of attention was paid to the regional handling of actual and potential environmental risks („sociopolitical sphere“).

The selected research-area is of particular interest since the parallel experiences during the Cold War. The fall of the iron curtain dates back several years but the “border” is still visible and there are still many differences in understanding, conceptualisation and risk assessment of environmental dangers.

The project team of 17&4 employed an inter- and transdisciplinary, bordercrossing approach that can be seen throughout the book. The research area still contains a number of questions for a future project. In the area of Retz we could use our good and long-term contacts to create an open and cooperative climate for the researchers of the Masaryk University.

Obviously, first of all, this publication is a scientific analysis providing a picture of conducted research and gained knowledge. It will, hopefully, serve also as stimulation for other researches in the young field of Environmental Security. It should be of a great use to inhabitants in the region by its provision of an external view. In the course of this research project we became deeper acquainted with the region in which the inhabitants are convinced that they can define the direction of the regional development by themselfes and who have an optimistic attitude towards their future.

Thanks to all interview partners, particulary to Mrs. Schrolmberger, Mr. Sedlmayer and Mr. Silberbauer and to the pupils of the bi-lingual Bundeshandelsakademie & Bundeshandelsschule Retz.

Christian Schrefel, DI Regina Hajszan
17&4 Organisationsberatung GmbH

Vorwort

„NEUE FRAGEN, NEUE ANTWORTEN DURCH ENVIRONMENTAL SECURITY FORSCHUNG“

AM BEISPIEL DER REGION RETZ/ZNAIM

Im Jahr 2005 wurden wir von Prof. Alois Hynek, dem uns aus mehreren Forschungskooperationen bekannten Professor der Masaryk Universität in Brünn, angefragt, zum Thema „Environmental Security“ im Raum Retz/Znaim gemeinsam zu forschen.

Unsere Recherche begann mit der Begrifflichkeit „Environmental Security“. Es wurde deutlich, dass es im deutschsprachigen Raum (noch) keine adequate Übersetzung gibt, weswegen wir den Anglizismus weiterverwendet haben. Auf den Begriff stößt man insbesondere in der globalen Diskussion, wenn die Frage nach den Risiken gegenwärtiger Umweltveränderungen gestellt wird. Klimawandel, wachsende Umweltverschmutzung und Ressourcenknappheiten sind die Folgen eines nicht-nachhaltigen Umgangs mit den natürlichen Lebensgrundlagen, die zunehmend die menschliche Sicherheit bedrohen. Der „Environmental Security“-Begriff deutet auf diese Zusammenhänge zwischen Umweltzerstörung und sozialer, politischer und ökonomischer Instabilität hin. Er beschreibt, was bereits an vielen Orten der Welt sichtbar ist: Zusätzlich zu den ökologischen Problemen entstehen durch Umweltdegradation und Katastrophenereignisse hohe wirtschaftliche Folgekosten, werden Instabilität und Konflikte ausgelöst bzw. werden Menschen gezwungen ihre Heimat zu verlassen – unbewohnbare Landstriche als letzte Konsequenz.

Environmental Security ist ein zentrales Thema, dem sich Wissenschaft und Politik - ob seiner weltweiten Auswirkungen - insbesondere auf globaler Ebene stellen müssen. D.h. allerdings nicht, dass die Lösungen allernorts die gleichen sind. Vielmehr bedarf es eines adequaten lokal bzw. regional angepassten, zukunftssichernden Umgangs des Menschen mit seiner Umwelt, damit er heute wie künftig aus ihr seine grundlegendsten Bedürfnisse decken kann. Environmental Security – Forschung sollte daher sowohl im globalen Kontext, wie auch auf lokaler bzw. regionaler Ebene betrieben werden.

Das vorliegende Projekt hat sich im letzteren Sinne den österreichisch-tschechischen Grenzraum Retz-Znaim zum konkreten Forschungsraum gewählt und seinen Naturraum bzw. die ihm eigenen Umweltrisiken unter dem Blickwinkel der „Environmental Security“ erforscht. Nachdem Sicherheit einen Zustand kennzeichnet, in dem das verbleibende Risiko als akzeptabel eingestuft wird, hängt das was als „sicher“ bzw. „unsicher“ empfunden wird, stark vom gesellschaftlich oder individuell akzeptierten Risiko ab und stellt keine objektive Größe dar. Als Forschungsfrage impliziert Environmental Security neben einem naturwissenschaftlichen Zugang daher auch eine sozialwissenschaftliche Komponente, die den Menschen und seine Erfahrungen bzw. seine subjektive Einschätzung der Sicherheitsfrage in den Vordergrund rückt. Das ForscherInnenteam untersuchte demzufolge auch die gesellschaftliche Wahrnehmung von und den Umgang mit tatsächlichen und potenziellen Umweltrisiken in der Region.

Als Grenzregion ist der ausgewählte Forschungsraum besonders spannend, da der Fall des Eisernen Vorhangs zwar bereits viele Jahre zurückliegt, trotzdem aber nach wie vor „Grenzen“ und Unterschiede – beispielsweise in der Einschätzung von Umweltgefahren - bestehen.

Für das Projekteam von 17&4 war der hier dokumentierte inter- und transdisziplinäre, grenzüberschreitende Zugang zu der zentralen Zukunftsfrage „Environmental Security“ ein spannender Ansatz. Im Raum Retz konnten wir unsere seit mehreren Jahren bestehenden guten Kontakte nutzen, und für die ForscherInnen der Masaryk Universität ein offenes und kooperatives Klima schaffen. Diese Publikation ist natürlich in erster Linie eine wissenschaftliche Dokumentation, die der Zusammenfassung von Recherchen und Interviews, wie auch der Anregung für weitere Forschungen in dem noch jungen Feld der Environmental Security dienen soll. Sie soll aber auch den BewohnerInnen der Region dienlich sein, indem sie einen Blick von außen dokumentiert. Wir haben im Zuge dieses Forschungsprojekts jedenfalls eine Region kennengelernt, deren BewohnerInnen positiv in die Zukunft blicken und davon überzeugt sind, dass sie die Entwicklung ihrer Region selbst (mit)gestalten können.

Unser herzlicher Dank gilt allen Interviewpartnerinnen, insbesondere Frau Mag. Schrolmberger, Herrn Stadtamtsdirektor Sedlmayer und Herrn Mag. Silberbauer sowie den SchülerInnen der bikulturellen Bundeshandelsakademie & Bundeshandelsschule Retz.

Christian Schrefel, DI Regina Hajszan

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The contributors

Roman Bohovic (1984) reads for a bachelor's degree in Geoinformatics and Sustainable Development at the Institute of Geography, Faculty of Science, Masaryk University in Brno, the Czech Republic. His thesis deals with the construction of a historically-informed interactive map of landscape changes in the Velké Karlovice area.

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Vladimír Herber (1952) is a senior lecturer at the Institute of Geography, Faculty of Science, Masaryk University in Brno, the Czech Republic. He teaches physical and regional geography, ICT in geographical education and conducts field practices within the area of regional studies. As far as his research is concerned, main focus is on environmental and geographical education and regional development.

Al**ois Hynek** (1940) is an associate professor at the Institute of Geography, Faculty of Science, Masaryk University in Brno, the Czech Republic. He teaches sustainable development, urban, rural and regional studies, landscape ecology, geographical thought and geographical education. His research is conducted in the fields of political ecology and environmental policy, regional development, landscape spatial patterns and new human geography. He has done a number of projects in South Moravia and Austria, both as case studies and comparative studies.

Nikola Hynek (1979) is a research fellow and PhD candidate in Political Science at the Department of Political Science, School of Social Studies, Masaryk University in Brno, the Czech Republic, and the Department of Peace Studies, School of Social Science at the University of Bradford, United Kingdom. He teaches and conducts research in areas of human and environmental security, methodology of social science, theories of IR and Canadian foreign and security policy.

Petra Karvánková (1981) is a PhD candidate in physical geography at the Institute of Geography, Faculty of Science, Masaryk University in Brno, the Czech Republic. Her dissertation tackles local environmental issues in Znojmia, with particular attention to the Dyje river area.

Kateřina Keprtová (1979) is an assistant and PhD candidate at the Institute of Geography, Faculty of Science, Masaryk University in Brno, the Czech Republic. Her thesis examines the use of satellite maps of selected protected areas/natural reserves. Her research focuses

on thematic and computer cartography, remote sensing and digital processing of satellite images.

Sandra Keyzlarová (1982) is a PhD candidate at the Institute of Geography, Faculty of Science, Masaryk University in Brno, the Czech Republic. Her dissertation investigates environmentally stabilising aspects of urban landscape and the issue of landscape profitability in the city of Brno.

Christian Schrefel (1958) is the managing director of 17&4 consulting, the president of Eco Counselling Europe and a boardmember of Arche-Noah. He has been active in various research projects and studies and has published in the field of public participation, local agenda 21, SEA, EIA and ESPOO convention. His professional interest has been regional and mobility planning and he has long-time experience in transboundary cooperation with partners in the Czech Republic, Slovakia, Hungary and Romania. He is also a university lecturer in public participation and environmental management. Christian lives in Wolkersdorf im Weinviertel.

Břetislav Svozil (1978) is a PhD candidate in regional geography and regional development at the Institute of Geography, Faculty of Science, Masaryk University in Brno, Czech Republic. His thesis applies communitarian approaches to the study of small islands with a special attention to the case study of Čečen Island in the Caspian Sea.

PROJECT DESIGN

Alois Hynek and Nikola Hynek

AIMS

1. To compare changes in environmental situation in both parts of the Austrian/Czech borderland after the fall of the Iron Curtain of 1989, environmental loads and risks/hazards in particular

2. To fulfill this aim, Vienna and Brno research groups will be established for joint environmental survey in RZA (Retz/Znojmo Area)

3. To empower initiatives in the field of environmental cooperation between Retz and Znojmo which will pursue sustainability, security, stewardship and sound science at the local level

4. To apply principles of multilevel governance and governmentality (local-regional-national-the EU; non-state actors will become subjects of governance) which will render possible the dissemination and transfer of the gained experience regarding environmental security at all levels

5. Publication covering joint environmental research and survey in Retz/Znojmo Area intended for target groups in public administration (Znojmo, Retz regional bodies), rural communities, business/entrepreneurship, education, nature/landscape management(national parks – Dyje/Thaya), stakeholders/citizens, visitors with texts, photos, maps, tables

ACTIVITIES

1. To conduct an environmental survey portraying physical and cultural landscapes of Retz/Znojmo Area (RZA), landscape ecosystems and their capital provisioning goods as well as services in the light of "The Millenium Ecosystem Assessment" and "Ecosystems and Human Well-being: A Framework for Assessment"; intended output: a report containing maps of RZA landscapes, interviews, visual documents (video + images)

    - Terrain mapping of physical and cultural landscape in the scale of 1:100 000 in RZA
    - Tables of generic landscape ecosystems providing goods and services
    - Social research/interviews in villages and towns of RZA
    - Two workshops: May 18 and in the first half of September (Znojmo-Retz)

2. To establish a close rapport with local communities in order to find out their environmental imagination and perception of RZA (incl. environmental hazards) as well as performed actions. The output of this rapport will be the production of mental maps done by local communities and ethnographic thick description done by students and activists

- A survey of environmental perception in rural and urban communities based on questionnaire (environmental mental maps)
- Talking to people for ´thick description´ of environmental performance in RZA

3. To examine social capital of RZA, reveal environmental practices, and analyze the degree of public-private cooperation in environmental stewardship; the means of this activity: a joint workshop and group discussions bringing together the following stakeholders: representatives of public administration/councils, The Thaya/Dyje-river National parks Management, NGOs, firms, group and individuals initiatives as well as students and teachers.

SCIENTIFIC RELEVANCE AND METHODOLOGY

1. Environmental security is a new and dynamic topic which links previously separated realms of the "political/social" with the "environmental/ecosystem", thereby strengthening the concept of sustainability in risk society. The key assumption is that environmental security should be aimed at individual and communities and solved locally, and only those issues that cannot be solved at the local level will be passed onto other levels in multi-level governance structure (reflects the principle of subsidiarity). The attention to environmental security is supported by answering the question concerning the global warming manifested first of all in growing frequency of natural extremes – long cold winters, floods, short summers etc. This approach provides us with an integrative perspective on landscape ecosystems as they :
   - provide goods and services
   - regulate benefits of ecosystems processes
   - support services that maintain conditions for life on earth (common good)
   - obtain cultural non-material benefits – spiritual, recreational, aesthetic, inspirational, communal, educational, symbolic
   - natural hazards in environmental performance – floods at the Dyje/Thaya river, measures/adjustment to mitigating their consequences
   - risks of drought, flash floods, air/water quality, accelerated soil erosion
2. Sound science of environmental security will posses the following characteristics:
   - juxtaposing quantitative and qualitative methods of research (methodological triangulation)
   - tackling absolutely essential questions appertaining to nexus between environmental practices and regimes of governance and governmentality, e.g. politics of landscape
   - the scope of the analysis includes six interlinked dimensions/prisms through which any examined area can be conceived of: economy, society, culture, ecology, politics/policy, and technology

- furthermore, the proposed analysis will investigate into these linkages as informed by the notions of coproduction and dominance/oppression and power/knowledge relations

THE EUROPEAN PERSPECTIVE AND FUTURE PROSPECTS:

1. The proposed project is informed by the EU activities leading to support integrative, environmental sustainability projects, e.g. FP6
2. The project as outlined reflects the increasing vertical dynamics which meshes localities with regional and global changes; as a result, a new hybrid phenomenon of glocality/glocalization needs to be examined (its local impacts in particular)
3. The proposed project is informed by other European projects such as the EECONET, the NATURA 2000, or an implementation of the AGENDA 21.
4. The strengths of the location of the proposed project in the Austria-Czech borderland can be summarized as follows:
    - ecologically sensitive landscape ecosystems (The Thaya/Dyje-river National Parks)
    - country towns of Retz and Znojmo with their suburban fringes
    - similar rural environment of arable land with different spatial pattern in Lower Austria and South Moravia, minor landscape protected sites, vineyards and villages settled after World War II by newcomers
    - differences in the watercourses network management, especially the Thaya/Dyje-river, irrigated/meliorated tracts
    - remarkable history of cultural landscape and its heritage as a part of culture
5. The proposed project is designed as the first and the most important phase for potential future cooperation in Lower Austria/South Moravia focused on environmental security, the topic deepening the concept of sustainability
    - Sustainability is one of the targets in EU FP6 – common research investigating landscape ecosystems from the point of view their production/reproduction
    - Respect to European Convention on Landscape covering landscape planning, education, awareness and The Aarhus Convention on public approach to environmental data, management
    - Both countries – Austria and Czech Republic have their own state environmental policies including environmental indicators, The Lisboa Protocol applications etc.

Sustainability includes not only nature but also society, culture, economy and technology changes not threatening future generations

WORKSHOP I. - ZNOJMO

Program

PROGRAMM zur Förderung von Forschungskooperationen

ASO Brno – Austrian Science and Research Liaison Office Brno
Masaryk University Brno
17&4 Wien
Městský úřad Znojmo (Znojmo Municipality)

Place: Znojmo Municipality, Náměstí Armády 8

Date: Wednesday May 18, 3-6 p.m.

1. Opening:

   A. Hynek, Masaryk University Brno, Ch. Schrefel, 17&4, Wien

2. Public administration representatives – municipalities Znojmo (O. Kraipl, J. Mička)

3. The Dyje National Park representatives – M. Škorpík

4. Znojmo-Retz Lands spatial profile – P. Karvánková

5. Environmental security survey – Masaryk University students:

   Bohovic Roman, Čech Jan, Dostál Ondřej, Ferda Jaroslav, Goldbach Johanes, Hromková Lucie, Kadlec Pavel, Keyzlarová Sandra, Kučerová Štěpánka, Lacina Tomáš, Navrátilová Hana, Nováček Jiří, Rejmanová Lenka, Šenkýř Jiří, Škrottová Jitka, Vaňková Stanislava, Veselá Petra, Zemková Jitka

6. Mental maps of Znojmo – B. Svozil

7. Discussion

8. Final recommendations

WORKSHOP II. - RETZ

Program

Retz October 20, 9.30 a.m.

1. Opening speech – Ch. Schrefel, A. Hynek

   Joint project of the Institute of Geography, Masaryk University Brno and 17& 4 GmBH, its history, survey, participants, collective actions

2. Introduction to Environmental security – N. Hynek

   Theory, genealogy and context from Malthus via Brandt, Brundlandt to contemporary state of affairs

3. Znojmo-Retz Physical Landscape – A. Hynek

   26 spatial physical landscape units, their component structure – rocks, landforms, topoclimate, hydricity, soil cover and potential vegetation

4. Environmental risks and hazards – P. Karvánková

Estimated on Znojmo-Retz Physical Landscape Units in the field survey with respect to potential acceleration of physical processes

5. The Dyje/Thaya Floods – V. Herber and S. Keyzlarová

   The role of Dyje/Thaya in human lifeworld – a good servant but a bad master

6. Dyje/Thaya National Park and its surrounding – R. Bohovic

   Field survey covering flood and non-flood situation viewed by geography undergraduate student

7. Mental maps drawn by teenagers from Znojmo and Retz – B. Svozil

   Classroom learning by doing environmental maps of Znojmo and Retz, nature and culture in the pupils/students minds

8. Znojmo-Retz Cultural Landscape – R. Hejszan, A. Hynek, P. Karvánková

   Intensive social research in Znojmo-Retz borderland aimed on environmental situation, state of the environment and potential risks

9. Final discussion

10. The end (at noon)

Chapter 1

ENVIRONMENTAL SECURITY:

A Theoretical Assessment and the Practical Feasibility of the Concept

Nikola Hynek

INTRODUCTION AND THE LOGIC OF SECTION ADVANCEMENT

The following section argues that there is more than one given tradition of environmental security (ES). Some would say that there are as many opinions about what ES is and entails as there are scholars deliberating on these matters. Although there are certainly many opinions on what ES is and how to approach it, there can be discerned certain historical and disciplinary trajectories of thought related to the concept. It is subsequently the function of this part to expose these trajectories, trace back original ideas which have informed what is referred to as ES and, last but not least, to show to what extent those trajectories have formed certain intellectual configurations, or a discursive field which have shaped socio-political practices, be it at the level of policy-making or policy implementation.

What follows will not be a genealogy in the strict chronological sense, which would, most probably, blur some distinct traits of various literatures on ES, but a genealogy focusing precisely on various vantage points from which the notion of ES has been looked at, analysed and theorised upon. It is through this strategy that the multiplicity of meanings of ES, including the revelation of the politics and motivations behind it, will be rendered visible. One of the most interesting findings is that the concept of ES is not new. It has, both implicitly and explicitly, been around for some time. One of the most interesting questions will thus be why contemporary scholars working within this paradigm do not readily acknowledge theoretical precedents.

The strategy of genealogy is important for two interrelated reasons: Firstly, it enables one to see the conceptual universe of human security, namely a heterogeneous assemblage of different elements that are subsumed under this banner. This is in line with the tradition of the so-called French School of epistemology, as represented by Gaston Bachelard or Georges Canguilhem, who focused on analyses of concepts, rather than theories or definitions. This enabled them to overcome obviously banal similarities on the surface and direct one's attention to differences beneath the same label, or signifier. Secondly, a genealogical analysis enables us to see the social construction of various threats associated with environmental (in)security over a period of time, as many actively participating in the ES discourse have done. This will in turn serve as the most important distinction between these spectres of threats and what our take on environmental security is.

A. A DISCURSIVE STRAND *DENOTING* THE TERM

I. A Recurrent Pattern of Spectres of Danger

Both practically and discursively the most visible thread of thoughts germane to the notion of ES has been a historical series of what Simon Dalby (1997) calls spectres of

threat and anarchy informed by Malthusian thought. This glum recurrent line of arguments with the same structure and philosophy underpinning them links the social construction of threats (done mainly through the colonisation of discourse) and material production of danger (achieved primarily through the transfer of the former onto the level of practices). The very first vision of a cheerless future was present in the writing of Thomas Malthus' "An Essay on the Principle of Population, as it Affects the Future Improvement of Society with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers", published in 1798. This piece can be understood as the first articulation of the link between environmental scarcity and the probability of human suffering. Specifically, Malthus argued that population growth would eventually outrun food supply. The argument put forward is that population, if unchecked, increases at a geometric rate, whereas the food supply could only grow at an arithmetic rate. Malthus (1798/1986) sees the solution in self-restraint or vice, which for him includes contraception and abortion. Another author following this line of argument was William Stanley Jevons. This time, an environmental scarcity-human suffering vision was centred on coal. Jevons described his fears in his book "The Coal Question", published in 1865 as follows:

> "[S]ome day our coal seams will be found emptied to the bottom, and swept clean like a coal-cellar. Our fires and furnaces, they think, will then be suddenly extinguished, and cold and darkness will be left to reign over a depopulated country" (Jevons 1865: Preface).

The neo-version of spectres of environmental (in)security and of threats is epitomised by the media representation of the now classic book "Limits to Growth", written by Donella H. Meadows et al in 1972. Although the argument put forward in the book was more complex and the primary intention of the authors was arguably not to kick up a stir with yet another catastrophe vision at all costs, it was these glum visions that were appropriated and spread, among others, by Charles Kytle Associates, a PR company. The computer model "World 3", which underpinned the book, was based on David Easton's systems theory. There were six subsystems; namely the food system, the industrial system, the population system, the non-renewable resources system (with oil as the main staple) and the pollution system. While population, capital, pollution and non-renewable resources are said to grow geometrically, or exponentially, technologies for expanding resources and controlling pollution are allowed to grow only incrementally. This discrepancy between geometric versus arithmetic growth was allegedly the main reason for a cheerless future as well as the main line of the critique of the argument.

The most recent example of applied spectres of danger is Robert Kaplan's vision outlined in his article "The Coming Anarchy", published in 1994 in Atlantic Monthly. The structure of Kaplan's argument resembles older ones, but is, at the same time, in a number of respects new. He explicitly blames the degradation of natural environment for human insecurity. His argument is that it is the implosion of the nation states in a number of places, most notably in Africa, that is a result of continuous environmental degradation. Kaplan argues that the pattern of medieval anarchy with warlords and private armies equipped with hi-tech weapons that can be observed in Africa will become ubiquitous in the future. Kaplan's thoughts resonated well with the Clinton's administration – as a result, for the first time,

> "West Africa is becoming *the* symbol of worldwide demographic, environmental, and societal stress, in which criminal anarchy emerges as the real 'strategic' danger. Disease, overpopulation, unprovoked crime, scarcity of resources, refugee migrations, the increasing erosion of nation-states and

> international borders, and the empowerment of private armies, security firms, and international drug cartels are now most tellingly demonstrated through a West African prism. West Africa provides an appropriate introduction to the issues …. African culture is being redefined while desertification and deforestation – also tied to overpopulation – drive more and more African peasants out of the countryside" (Kaplan 1994: 46).

When Kaplan, however, actively produces images of danger, he does not provide the reader with any type of analysis as to how the danger has been produced in the first place – be it programmes of structural adjustment, colonial legacies, or the shipping of arms from "civilised" Western countries.

II. The Science of Environmental Degradation-Conflict Thesis

The last - Kaplan's - spectre was heavily informed by a scientific project "Environmental Change and Acute Conflict Project" (ECACP) based at the University of Toronto, Canada, and run by Thomas Homer-Dixon. This author puts forward a strong argument:

> "My key finding is straightforward: …. Scarcity of renewable resources – what I call *environmental scarcity* – can contribute to civil violence, including insurgencies and ethnic clashes … [I]n the coming decades the incidence of such violence will increase …" (Homer-Dixon 1999: 177)

Homer-Dixon's project has by far been the most influential attempt to reveal causal relationships between environmental scarcities on the one hand and the probability of conflict occurrence on the other. It is clear from his writing that Homer-Dixon *denotes* the notion of environmental security to the environmental degradation-conflict thesis. The entire project is a comparison of more than sixteen different case studies and they are all analysed with the same research tools. First and foremost, Homer-Dixon's methodology rests on the empiricist tradition in the philosophy of science and his epistemology and methodology are informed by qualitative positivism. Homer-Dixon and his collaborators have developed a typology of conflicts: they essentially distinguish between intrastate, which are the main focus of their research, interstate and global. Another criterion is the regional one – Homer-Dixon then speaks about centre-periphery, cross-boundary, water conflicts and migration-induced conflicts. What all these conflicts allegedly have in common is their occurrence in what is being termed ´crisis areas´ (e.g. water conflicts in dry lands, etc.).

In his 1994 article published in the journal *International Security*, Homer-Dixon distinguishes between six types of conflict which are plausible causes of violent inter-group conflict: 1. Greenhouse-gas induced climate change; 2. Stratospheric ozone depletion; 3. Degradation and loss of good agricultural land; 4. Degradation and removal of forests; 5. Depletion and pollution of fresh water supplies; and 6. Depletion of fisheries (Homer-Dixon 1994: 6). Homer-Dixon used three hypotheses to establish a link between these changes and violent conflict. The first was based on the argument that decreasing supplies of environmental resources (e.g. clean water or good agricultural land) would provoke interstate simple-scarcity conflicts, also termed as resource wars. The second hypothesis put forward an argument that large-scale movements of "environmental refugees" would cause group-identity conflicts, specifically along ethnic lines. The final – third - hypothesis then suggested that deepening environmental scarcity would lead to economic deprivation and eventually to the disruption of the main social institutions (Homer-Dixon 1994: 7).

Overall, Homer-Dixon's approach is informed by systems theory as known in political science through the work of David Easton. Environmental scarcity (by which is meant scarcity of renewable resources) has thus in Homer-Dixon's scholarship three causal forms: degradation, which is supply induced, increased demand, which is obviously demand induced, or unequal resource distribution. The contributing factors are then said to be resource capture (by elites), and/or ecological marginalisation of the have-nots and the poor in general; additionally, the latter is often suggested to be the effect of the former. As Peluso and Watts (2001: 13) correctly point out, it is Malthusian population growth that appears to be the universal driving force in all causal links that have previously been created. In other words, the argument comes full circle.

III. Intermezzo: On the ´Novelty´ of the Contemporary Environmental Degradation-Conflict Thesis

Although Homer-Dixon's work has been in some circles (e.g. in the US administration as far as the level of policy-making is concerned; or in mainstream security studies and international relations as far as the academic level is concerned) hailed as ground-breaking scholarship, a genealogical analysis sensitive to history in general and the development of certain intellectual fields and discourses in particular reveals a somewhat different state of affairs. Homer-Dixon's writing itself can be seen as a neo-version of much older ideas that have been in circulation for some time.

This is true especially once the level of argument overlap between the quite recent Homer-Dixon's environment degradation-conflict thesis on the one hand and the intellectual field of earlier cultural ecology approaches to violence and conflict on the other is compared (cf. Peluso and Watts 2001: 13-14). Thus Andrew Vayda, a cultural ecologist himself, wrote in the mid-1970s that "Warfare ….. [plays a key role] …. in the maintenance of man/resource balances" (Vayda 1976: 4). In other words, all the complexity of social and political relations in tribal and preliterate societies studied by those cultural ecologists or ecological anthropologists was reduced to the environmental scarcity-conflict thesis. Warfare was portrayed as a catalyst, or a self-regulator in the ecology of social systems. Especially cultural ecologists taking a long-term perspective on the issue saw warfare as a positive institution in society since it kept population (i.e. another echo of Malthus) in check. Individuals within these societies were viewed simply as instinct-driven bodies without free will and the possibility of free action. What is interesting, considering this sociobiological perspective, is that those approaches were almost exclusively applied to non-western societies, thereby creating two types of individual (those with free will and socialised into ´proper´ societal values and those passively following pre-given drives, or instincts). The resemblance between Homer-Dixon and cultural ecologists, here represented by Vayda's scholarship cannot be greater when one compares Homer-Dixon's degradation-and-loss-of-good-agricultural-land type of conflict and Vayda's (1969) connection between warfare and the drive to get to better areas for agriculture, even in situations in which no population pressure exists. Such simple misunderstanding was commented on by Peluso and Watts (2001: 14) as follows: "Violence was a 'natural' outcome of adaptive structure. In other words, war was both naturalised and depoliticised."

As was demonstrated in the above paragraph, the environmental degradation-conflict thesis is a mere manifestation, or a recurrent pattern of cultural ecology thought, with one significant in-built addition – that is an attempt to draw global conclusions out of what has been seen as local instincts of an automatic resort to war whenever the socio-ecological system ´demands´ such an outcome. This has been true for both the more scientific-imbued

approach represented by Homer-Dixon as well as more journalist/opinion-maker-informed stance of Kaplan. Put differently, developed countries should not rest in peace vis-à-vis such a situation in the periphery: what is today seen as environmental degradation induced conflicts (especially) in Africa will directly affect zones of peace, as the geographical space of developed countries is often imagined.

IV. A Critique and Argument for Abandoning this Discursive Strand

The entire environment degradation-conflict thesis does not, perhaps surprisingly for some, transcend the confines of the nation-state. It remains in thrall to the logic of the nation-state as the paramount referent object needing to be secured. This is clear, for instance, in Kaplan's (1994) vision of the danger of what he calls "reprimitivized violence" for US *national* security. The same applies to Homer-Dixon – these people are not interested in environmental security, or insecurity, as such. Rather, they limit their understanding of the environment to Malthusian-informed environmental *scarcity*, resource wars and violent conflicts being a result of the first two. They, for example, do not ask themselves the important question of what scarcity means here? Are they talking about *strategic* scarcity, perhaps important for the economic interests of developed countries (reserves of oil, precious metals etc.), or about *real* scarcity, as experienced by the local people who inhabit these areas? Is there any inevitable connection between the two? From their analytical vantage point, they do not care about real scarcity so much, if at all: what matters is the former.

There is another, equally important question: can one denote the complex web of environmental security to the notion of environmental scarcity? Put differently, can one say anything important, meaningful and of practical utility to the environment and local people inhabiting it, about environment security under the categories of environmental scarcity and degradation and violent conflict? Interestingly, there have been no case studies conducted on so-called developed countries. Does this mean that the citizens of these states (rather than the states themselves) are safe, i.e. are experiencing a state of environmental security? The answer is no. Nothing like this can be said precisely because all the focus of analysis within this discursive strand denoting the term environmental security into a banal and wrong environmental degradation-conflict thesis does not focus on individuals. The entire conceptual universe here is exhausted by the image of nation states as referent objects that need to be secured, which is pitted against the reality of failure of these referent objects in some areas (mainly in Africa). When it comes to asking the question "What about the citizens, individuals – are people secured face-to-face their environments, or milieus?", the answer is we cannot say within the conceptual categories and discourse informed by this thinking. What is then needed is a different conceptual tool, approach, set of arguments and linkages which can say something relevant about the environmental security of people, i.e. people-centred environmental security.

B. A DISCURSIVE STRAND CONNOTING THE TERM

I. Conceptual and Analytical Shifts

To begin with, due to the deficiencies exposed hereinbefore, a different conceptual and analytical framework informing one's analysis is needed. Since our project investigates what environmental security means for people living along the border between two Central European countries (Austria and the Czech Republic), any approach that would be able to

answer this needs to be 1. people-oriented and 2. be underlined by interpretive methodology.

The approach that would be able to say something new and original about the borderland area in question also clearly needs to transcend the flawed discourse on environmental-degradation-conflict thesis. It cannot, first of all, focus on scarcity since it is a very problematic and deliberately ambiguous term. It can be said that the developed world would never experience *actual* scarcity as many areas in the developing world already do, but rather *strategic* scarcity. The main reason is the potential of Western world to innovate technologies – as a corollary, one can invoke Brock's (1991: 410) argument that scarcity is often determined by politics rather than by the "physical limitation of natural resources." Secondly, the denotative discursive strand is useless for our research purposes (or, more generally, for the examination of ES in the developed world) as we do not analyse any situation which would inevitably include a violent conflict or at least severe acts of civil disobedience (notably with the exception of Austrian environmentalists in their ongoing campaign to shut down the Czech Temelín nuclear power plant with regard to the latter).

The approach I argue for at this point is the reflection of what Elliott (2004) calls the demilitarisation of ES, or a "securing-the-environment approach". Unlikely in the first tradition denoting the notion of ES to environment degradation-conflict thesis, this strand of thought treats the environment as the paramount security goal and referent object. This approach has the clear advantage of being compatible with the discourses on human security (i) and the environment (ii). It can be conceived of as an approach reinforcing the need to contextualise environmental security, mostly by creating and reinforcing the bond, or nexus between environment and development agendas.

In order to be able to comprehend the discussed conceptual shift in its entirety, one needs to genealogically examine both contributing channels of thought, i.e. thoughts enabling the transformation of the answer to the question of what security is about from a state-centred national security to a human security framework, and thoughts creating affinities between environment, development and security. They will be dealt with in turn.

II. Expanding the Security Agenda through the Invocation of ´Comprehensive and Common Security´

As far as the people-orientedness in ES is concerned, it has been the notion of individual-centred human security (HS) that has played an important role in helping to establish the connotative strand of ES discourse. The first significant challenge, which has later enabled the securing-the-environment approach to take off, was marked by a series of challenges in the 1980s in regard to what a referent object of security studies is and, also, what the agenda of security encompasses. It needs to be emphasised that until that time, the obvious and largely unquestioned referent object was the nation-state. As a corollary, the focus of policy makers and academics was focused on military threats to this ´sacred object´ – hence the link between military orientation and national security.

Although there had been some challenges to the military side of this framework, for instance during the 1970s, in which Western society went through the First and the Second Oil Crises with the result of economic security gaining of an increasingly important status, state-centred security was largely unquestioned. The logic of national security was, it can be argued, based on the alleged sameness of all states comprising international society. This previously mainstream and intellectually hegemonic approach started to show cracks during the 1980s. Academically, there were two main lines of challenge to military-informed

national security. The first was represented by the so-called Third World School of security studies. This approach, epitomised by the scholarship of M. Ayoob, an American scientist of Indian origin, challenged the taken-for-granted presence and historical inevitability (as well as the assumed superior value) of the nation state. Ayoob, whose theoretical argument rests on the tenets of the so-called English School of International Relations, skilfully dismissed the traditional dichotomies derived from Western political philosophy, most notably the line between civil society and nation state. His approach thus represents an intellectual innovation in his questioning of the cultural predominance of Western thought (i) as well as his emphasis on the societal dimension of security. The second important challenge was led from the position of the so-called Copenhagen School, chiefly from the pen of Barry Buzan. Buzan, interestingly also a strong proponent of the English School of IR, directed his attention to the process of broadening the security agenda, mainly through his stress on the societal-state link.

These two links were further backed up from the level of policy-making by a resonating notion of comprehensive and cooperative security, itself a product of the previously attempted bipolar détente. Two practical examples of the notion of comprehensive and cooperative security were the Brandt and Palme Reports, published in 1980 and 1989 respectively. Chronologically the first, the Brandt Report took a very inclusive or holistic perspective on the issue of security. Although it was not finally taken onboard by a large number of states, it clearly represented the most important report deliberating on transformations (not only) in the security area in the early 1980s. The importance of this report stems from the fact that it represented the first explicit attempt to forge a link between security, development and environmental agendas; this was done through an examination of North-South relations. The report, however, contained some traces of the Malthusian discourse too. Thus, we can read that "[g]rowth movement and the environmental view of the vicious cycle between poverty and high birth rates …. [and] … the rapid population growth in developing countries gives added urgency to the need to fight hunger, disease, malnutrition and illiteracy" (Brandt 1980). The most important ideas of the report are, nevertheless, nicely encapsulated in the following quote from the report's section on "disarmament and development":

> "The public must be made more aware of the terrible danger to world stability caused by the arms race, of the burden it imposes on national economies, and of resources it diverts from peaceful development … All sides should be prepared for negotiations (including those on the regional level) to get the arms race under control at a time before new weapons systems have been established. The world needs a more *comprehensive* understanding of *security* which would be less restricted to the purely military aspects" (Brandt Report 1980, italics added).

Brandt's approach was further reinforced by the Palme Report of 1989, in which a broad notion of security, including the environmental and societal security was embraced. The term *common security* was first used in the document "Common Security: A Blueprint for Survival", which was supervised by Olof Palme and published in 1982. Palme's blueprint consisted of introducing a clear shift from nuclear races and military-based state-centred security to community building and sustainable peace.

III. The Politics of the Brundtland Report: Security Studies Meets the Environmental Agenda

The last report, which was absolutely essential for the challenge to proceed successfully, was the Brundtland Report of 1987, itself the final output of the UN World Commission on Environment and Development. The presentation of the most important moments of this report is seen as crucial inasmuch as it provides us with a key to understanding the creation of the nexus between security and environment, development and the economy and is a fine specimen of comprehensive and common security. In the "Part I: Common Concerns", the authors argue that new approaches to the environment and development are needed. Also, it was in this report ("Part II") that the term ´sustainable development´ first emerged. As far as the genealogical analysis of ES is concerned, the most important part is the report's "Chapter 11: Peace, Security, Development and the Environment." The chapter begins by pointing out the danger of militarization for the environment: "Among the dangers facing the environment, the possibility of nuclear war, or military conflict of a lesser scale involving weapons of mass destruction, is undoubtedly the gravest." Although this argument did not present anything exceptional, what followed certainly was: "Certain aspects of the issues of peace and security bear directly upon the concept of sustainable development. Indeed, they are central to it." (Brundtland Report 1987: 286). Interestingly, the report also enriches an otherwise very primitive linear environmental degradation-conflict thesis by saying that "Environmental stress is both a cause and an effect of *political tension* and military conflict" (Ibid: 286, emphasis added). The central argument of this part of the report, connoting the notion of environmental security is maintained as follows:

> "A number of factors affect the *connection between environmental stress, poverty, and security*, such as inadequate development policies, adverse trends in the international economy, inequities in multi-racial and multi-ethnic societies, and pressures of population growth. These linkages among environment, development and conflict are complex, and in many cases, poorly understood. But a comprehensive approach to international and national security must transcend the traditional emphasis on military power and armed competition. *The real sources of insecurity also encompass unsustainable development, and its effects can become intertwined with traditional forms of conflict in a manner that can extend and deepen the latter*" (Ibid: 286, italics added

A broad vision of security is extended by the construction of a bond between security and sustainable development in the part "Towards Security and Sustainable Development":

> "The first step in creating a more satisfactory basis for managing the interrelationships between security and sustainable development is to broaden our vision … There are, of course, no military solutions to 'environmental insecurity' … Furthermore, the idea of national sovereignty has been fundamentally modified by the fact of interdependence in the realm of economics, environment, and security. The global commons cannot be managed from any national centre: The nation state is insufficient to deal with threats to shared ecosystems. Threats to environmental security can only be dealt with by joint management and multilateral procedures and mechanisms" (Ibid: 295-6).

As the above quote practically demonstrates, the nation state can no longer retain its monopoly on addressing the issues of security. It is exactly the somewhat ambiguous cycle

in which the nation state plays the role of a guarantor and, at the same time, a referent object of security that needs to be broken. The argument that global commons – and their local manifestations, cannot be managed from any national centres paved the way for alternative, people-oriented approaches to security to emerge.

IV. The Transformation of a Referent Object within Security Studies and the Arrival of Human Security

The previous subsection was to demonstrate the way the security issue has been broadened, including the gradual incorporation of the environmental agenda. This process of *broadening* the agenda has further been paralleled by another, equally significant process of *deepening* security studies. While the former can metaphorically be imagined as the process of horizontal expansion, the latter can subsequently be comprehended as vertical expansion.

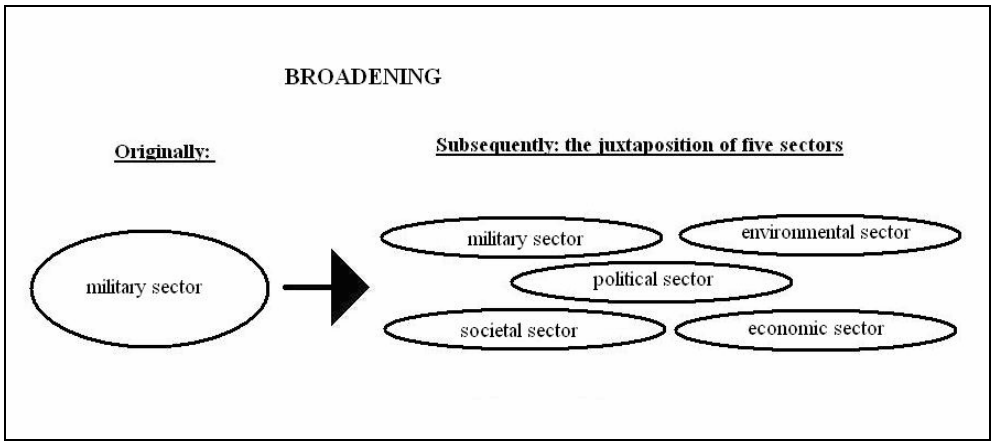

Figure 1.1 Broadening of the Agenda of Security Studies

As far as a people-centred human security paradigm is concerned, it was once again the United Nations where the approach was constructed and animated. Specifically, the 1994 UN Human Development report set the tone as follows:

> "The concept of security has for too long been interpreted narrowly … A consideration of the basic concept of human security must focus on four of it essential characteristics: [1.] Human security is a *universal* problem … [2.] The components of human security are *interdependent* …. [3.] Human security is easier to *ensure through early prevention* than later intervention …. [4.] Human security is *people-centred* …. Human security can be said to have two main aspects. It means, first, safety from such chronic threats as hunger, disease and repression. And second, it means protection from sudden and hurtful disruptions in the patterns of daily life - whether in homes, in jobs or in communities. Such threats can exist at all levels of national income and development" (Human Development Report 1994: 22-23, italics in original).

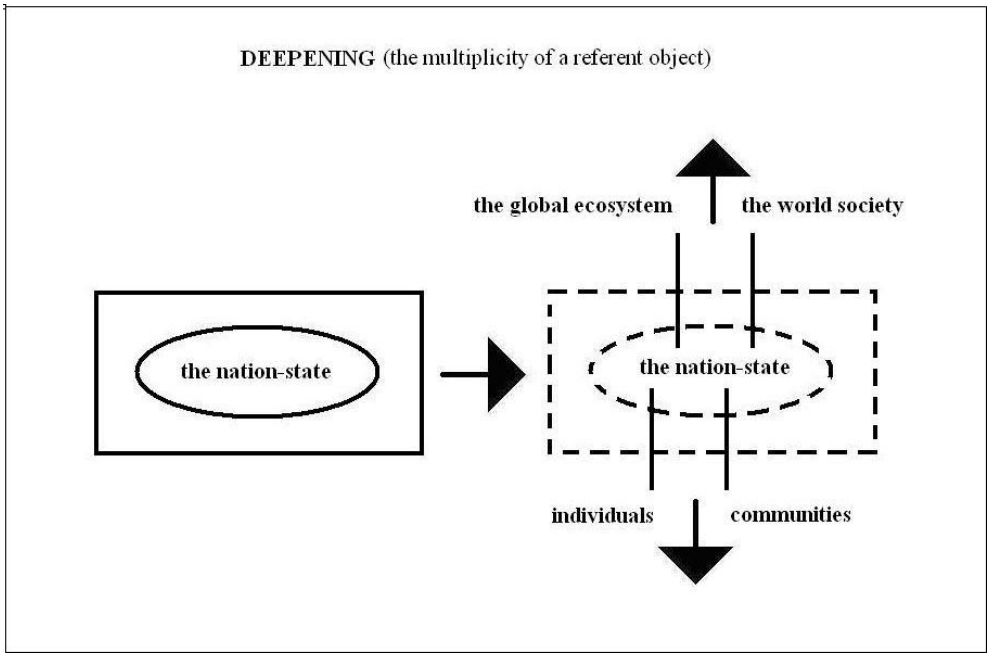

Figure 1.2 Deepening of Security Studies
(National security → human and environmental security)
(Based on Buzan, Waever and de Wilde 1998)

Additionally, the 1994 Human Development Report elaborates on environmental security:

> "Human beings rely on a healthy physical environment – curiously assuming that whatever damage they inflict on the earth, it will eventually recover. This clearly is not the case, for intensive industrialization and rapid population growth have put the planet under intolerable strain. The environmental threats countries are facing are a combination of the degradation of local ecosystems and that of the global ecosystem … Many environmental threats are chronic and long-lasting. Others are on a more sudden and violent character … Many chronic "natural" disasters in recent years have also been provoked by human beings [e.g. the recent series of floods in the borderland area will fall into this hybrid category, the author's comment]" (Ibid: 29-30).

The Human Development Report of 1994 represents a real spur for our research on environmental security in the Retz/Znojmo borderland area. It is because it calls for a wider interpretation (reflecting our emphasis on non-positivist epistemology and interpretive methodology) and a people-centred take (reflects our people-centred environmental security) on ES.

V. Implications of the Connoted Environmental Security Discourse for Our Practical Research

This chapter, as well as the entire research conducted in the Retz/Znojmo borderland area, can be conceived as an example of a piece of research informed by the notion of *glocalisation*. This phenomenon links previously disparate levels of analysis, in concrete terms the level of international environmental policy-making, (mainly, but not exclusively) taking place within the United Nations, with the level of local political and social practices related to environmental security. It is precisely this link that ´begs´ for a genealogical analysis with its elucidation of the background abilities (themselves the product of ES discourses) of actors involved in activities germane to the state and processes of environmental security in the area.

The above genealogical analysis, and most directly the connoting approach to environmental security, has informed our practical research on ES in the Retz/Znojmo borderland area. One of our chief aims in our research design has been the comparison of changes in the environmental situation in both parts of the Austrian/Czech borderland after the fall of the Iron Curtain of 1989, with a special emphasis on environmental loads as well as risks and hazards. Since our take on environmental security in the area has been people-centred, we conducted a number of interviews, arranged a series of meetings with local stakeholders and established a joint Czech-Austrian research group to examine the social side of the issue. Also, our research, though done according to strict academic standards, is intended for people in the area – that was the reason for us holding two workshops with a wide range of local actors and the public participating.

Our approach to ES has been two-fold: Firstly, we tried to anchor a physical survey into our research. Specifically, the survey has included characteristics of both physical and cultural landscapes ecosystems through GIS and digital maps. Secondly, we have established a close rapport with local communities in order to discover their environmental imagination and perception of the Retz/Znojmo Area. As a part of the latter, a series of mental maps with representations of the targeted space by local communities was produced. Additionally, our students have used an ethnographic thick description to find out perceptions of threats as well as positive developments in the borderland area.

To conclude, environmental security in the way we understand it and practice it is a new and dynamic topic which links previously separated realms of the ´political/social´ with the ´environmental/ecosystem´, thereby strengthening the concept of sustainability in what is otherwise a ´risk society´. The key assumption is that environmental security should be aimed at individuals and communities and solved locally, and only those issues that cannot be solved at the local level will be passed onto other levels in a multi-level governance structure (reflects the principle of subsidiarity). The major advantage of this approach is that it provides us with an integrative perspective on individuals and communities as an important part of landscape ecosystems.

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Chapter 2

ENVIRONMENTAL SPATIALITY OF ZNOJMIA-RETZERLAND (ZR)

Alois Hynek

The settlement area includes Czech and Austrian parts with a commonly shared border. There are two dominant urban areas - the towns of Znojmo and Retz. Znojmo is situated in the south-west corner of South Moravia County (Jihomoravský kraj) with the district of Znojmo, and Retz in the northern edge of the Lower Austria Country (Nieder Österreich) represented by the political district of Hollabrunn.

Our studied area includes:

- Znojmia region - the town of Znojmo, its administrative parts Derflice, Konice, Načeratice, Oblekovice, Popice, Přímětice and other settles Bezkov, Dobšice, Dyjákovičky, Dyje, Havraníky, Hnanice, Chvalovice, Kuchařovice, Lukov, Mašovice, Nový Šaldorf – Sedlešovice, Podmolí, Suchohrdly, Šatov, Tasovice, Vrbovec covering 23.5 km^2 with 46,740 inhabitants (2003), urbanized area of Znojmo has 33,441 inhabitants, the town of Znojmo itself 29,121 inahabitants

- Retzland – the town of Retz with Oberretzbach, Mitterretzbach. Unterretzbach, Kleinriedenthal Ragellsdorf, Obernalb, Unteralb, Obermarkersdorf northern settles – the town of Hardegg with Merkersdorf, Niderfladnitz, and southern settles with three centres: Pulkau, Zellerndorf and Haugsdorf plus villages Schrattenthal, Pillersdorf, Rohrendorf, Dietmannsdorf, Deinzendorf, Watzelsdorf, Pernersdorf, Karlsdorf, Pfaffendorf, Peigarten and Jetzelsdorf covering 304 km² with 14,542 inhabitants. The municipality of Retz has 4,168 inhabitants on 45.01 km², the town of Retz itself has 2,529 inhabitants

As our main target was environment of Znojmia-Retzland, we studied physical and cultural landscape of this area as a continuing research from 1973-78 landscape survey (cf. Hynek and Trnka 1981), crossing the Czech-Austrian borders as far as the Pulkau-stream. We did new landscape survey and recognized double symmetry in ZR landscape: The Highland – Scarp- The Lowland sequence from the West to the East and – since the Dyje river has a common Czech-Austrian section, The Dyje river/Pulkau stream watershed.

The Znojmia-Retzland Highland has its core in the international park Thayatal /The Dyje-river with the axis in the Thaya/Dyje canyon-canyon like valley between Hardegg and Znojmo. It is labeled as landscape unit A in the enclosed map of cultural landscape of ZR. It is narrow (1-2 km in profile) and deep (locally over 250 m) with incised meanders and a very narrow or almost missing floodplain, a gorge between partial highland's basin and the Brno basin caused by doming of the Dyje massif and terranes adjacent to it. The meandering Thaya/Dyje river (TDR) creates various slope aspects from cold moist shadowy steep slopes to xerotherm i.e. sunny dry warm ones. The bottom of the canyon includes a very rich channel and floodplain/riverine ecosystems and in combination with variety of slope aspects, their colluvial and delluvial segments covered with diverse forest ecosystems. These are very important components of landscape biodiversity and as such are anchored in NATURA 2000. This island of biodiversity between agricultural landscapes has also incredible scenic value for tourists. The canyon landscape phenomena provide, especially in summer, very different topoclimate from hot and dry surrounding.

The TDR is flanked by its tributaries which flow in deep troughs, gorges, ravines and gullies divided by ridges. This network of troughs and ridges is labeled in an attached map by the letter B on both sides of TDR. The network is also significantly forested, with prevailing oaks and beeches that are a characteristic feature of protected forests in the Thaya/Dyje national parks. The bottoms of troughs have very specific ecosystems, ranging from aquatic through wet to dried-up ones. Both A and B types of landscape units include stony and rocky biocenoses, ranging from xerotherm to cold and moist segments of the landscape.

The landscape unit B is framed by a stepped plateau which gradually slants to the marginal scarp between The Highland and The Lowland. It is mainly used for farming, forestry. Quarries or sand pits can be found here too. With the exception of the smallest Austrian town – Hardegg, both the A and B-type landscape units are not permanently settled. When it comes to the C - type of the landscape unit, i.e. the plateau of The Highland, it is within this unit that we can found some significant rural population. Additionally, it is due to deeper soils as luvisols as well as pseudogleys that we can see some arable land, so important for agricultural production. It is, however, with risks of accelerated anthropogenic soil erosion.

The scarp on the line Znojmo-Retz-Pulkau represents a sharp change between The Highland and The Lowland. The name of The Highland – Bohemia-Moravian Highlands, is not correct for its extent to Austria, where it reaches the Danube River at Kremms. We signify the scarp by the letters D and E with respect to its character. The track D - from Znojmo to Hnanice, is not so distinct, not high at all and possesses only moderate slopes, while the Retz scarp is much higher and with steeper slopes. Its south-east aspect is used for locating vineyards in both tracts D and E. The scarp is built of granite of the Thaya/Dyje massif which is covered with Neogene sediments – sands, gravels, loams and clays. Both granite and sediments are overlaid with loess or loess loams. The scarp is divided into the facets and valleys of tiny brooks. It is within this landscape interface between The Highland and The Lowland where both towns of Znojmo and Retz are located. Formerly, the reasons of fortification were the main advantage. This perception has, nevertheless, gradually changed into a position favouring market economy which predominantly values spatial mobility. Znojmo and Retz are the central places in the sense of W. Christaller, the scholar working on the central-places theory. We apply his scholarship at the different hierarchical level: Retz is, in our point of view, a subregional and local node while Znojmo is a regional one. Gradual disappearance of the state border between Austria and the Czechlands will cause spatial dominance of Znojmo. This is not to say, however, that Retz is doomed for a descent for it is a very strong cultural and social place, imbued with social capital showing a good future prospect.

The Lowland – in our map of cultural landscapes labelled with letters F, G and H is a part of The Carpathians which runs not only to the north but also to the south with its end at the city of Kremms on the Danube river (this end lies at the contact with the Alps). The Czech name for The Lowland is The Dyje/Svratka Vale. In Austria, however, the entity is known with the following names: *Karpaten Vorland, Weinviertler Hügeland (Brünner Becken).* In order to reconcile the name fragmentation, we suggest an overarching term of the Lowland which demonstrates all typical features for central European lowlands such as warmer climate than in highlands, fertile soils – mollisols or chernozems, lower specific run-off, the influence of Pannonian flora and mixture of loess and Neogene sediments (marine clays, silts, limestones and fluvial sands + gravels). The Lowland in ZR also includes ´islands´ of the Dyje/Thaya granite morphostructure in the area between Retz, Schrattenthal and Zellerndorf as well as between Znojmo, Tasovice and Načeratice. They

are covered with heath ecosystems as known from the above scarp and its upper plateau which shows anthropogenetic influence, particularly cleared forests and subsequent grazing. The Lowland is dry especially in summer but with very fertile soils. It has been almost completely changed into arable land and vineyards. We can observe great differences between large blocks of fields on the Czech side (South Moravia) as opposed to narrow strips of fields in Austrian *Weinvertel.* In the Table 2.3 showing human landcapes characteristics, a very detailed divisioning of cultural landscape of Znojmia-Retzland is provided.

Table 2.1 Cultural Landscape Spatial Units

The Highland (10)	**Highland/Lowland edge – the Scarp (6)**	**The Lowland (10)**
A Dyje/Thaya canyon	**D Znojmian**	**F Pulkau**
A1 Kaja-Liščí rock	D1 Znojmo centre	F1 Schrattenthal
A2 Šobes	D2 Znojmo north crescent	F2 Hüttenberg
A3 Znojmian	D3 Znojmo south crescent	F3 Pirzling
	D4 Havraníky	F4 Pulkautal
B The Dyje/Thaya forestland		
B1 Lower Fugnitz	**E Retzian**	**G Retzbach-Daníž**
B2 Kaja/Thaya revier	E1 Retzbach/Obernalb	G1 Retzbachland
B3 Čerchov/Klinka	E2 Retz	G2 Schatzberg
B4 Konice/Hnanice stretch		G3 Šibeničky
B5 Haber/Spittelmaiss		G4 Daníž valley
C Agrarian fringe		**H Vrbovec/Načeratice**
C1 Mašovice		H1 Vrbovec
C2 Niederfladnitz		H2 Načeratice

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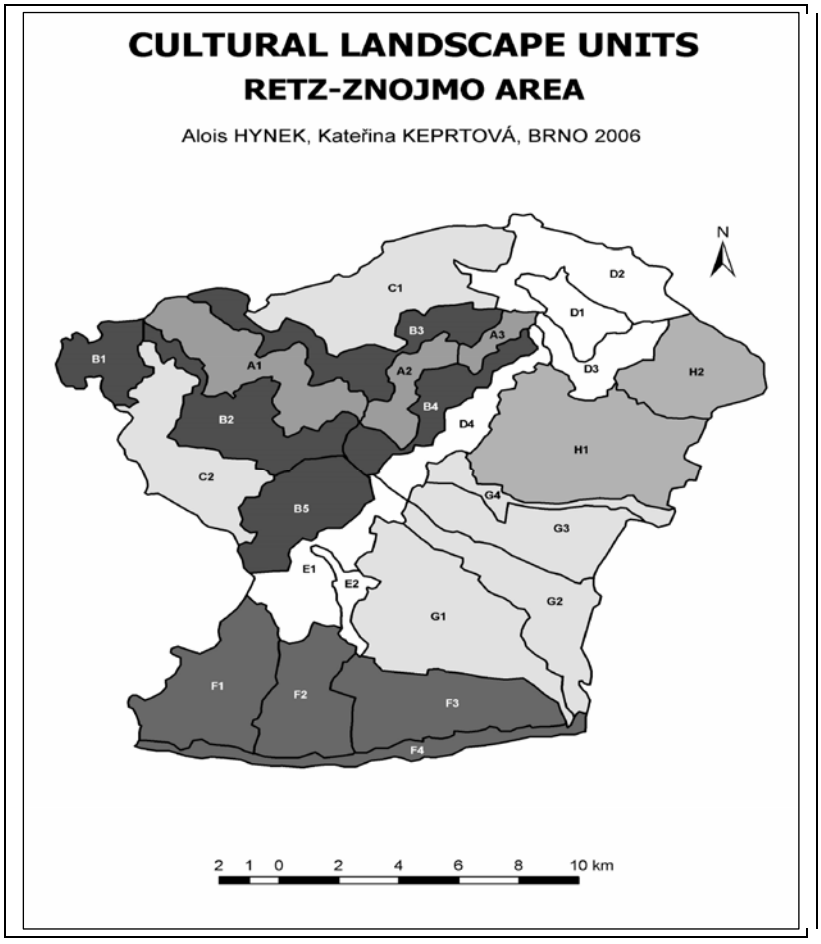

Figure 2.1 Znojmo-Retzerland: Cultural Landscape Spatial Units, double spatial symmetry of physical and cultural landscapes

Table 2.2 Znojmo-Retz Cultural Landscape Spatial Units (A-H) and their physical component structure

		rocks	**landforms**	**topoclimate**	**hydricity**	**soil cover**	**potential vegetation**
A	Dyje/Thaya canyon	crystalline	deep/steep valley floodplain	contrast aspect inverse	wet moist dry	lithosols rankers cambizems	oak hornbeam pine beech fir floodplain
B	Dyje/Thaya rim	crystalline sediments	troughs gullies ridges	contrast aspect inverse	semidry semiwet	cambisols luvisols rankers	oak hornbeam pine beech fir elm alder
C	Highland agricultural	sediments crystalline	plains low ridges vales	equal horizontal	semidry semiwet	luvisols pseudogleys	oak-beech- -hornbeam
D	Znojmo	loess sediments crystalline	valleys basin steps	contrast aspect inverse	semidry	mollisols fluvisols luvisols	oak-hornbeam- elm willow poplar
E	Retz	sediments crystalline	step piedmont	sunny slopes	semidry	cambisols mollisols	oak hornbeam pine
F	Pulkau	loess sediments	low ridge shallow valley	equal slight inversion	semidry	fluvisols mollisols cambisols	oak-hornbeam- elm willow poplar
G	Retzbach/Daníž	loess sediments	valleys ridges	sunny slopes	semidry	mollisols pellosols pararendzinas	oak-hornbeam- elm willow poplar
H	Dyje gorge	crystalline sediments	valley basin plain	contrast aspect inverse	moist dry	cambisols fluvisols luvisols	oak beech pine elm willow poplar

Table 2.3 Znojmo-Retz Cultural Landscape Spatial Units (A-H) and their land use (cultural landscapes)

		settlement	**land use**	**agriculture**	**industry**	**nature/culture**	**transport**
A	Dyje/Thaya canyon	no permanent Hardegg	forests meadows Šobes	no except Šobes	no	national parks recreation	foot/bike paths lumber
B	Dyje/Thaya rim	no permanent	forests meadows shrubs	no	no	national parks heath forestry	foot/bike paths lumber
C	Highland agricultural	small villages	arable meadows gardens	intensive without vineyards	workshops	rural monotonous	roads II III railway
D	Znojmo	the city of Znojmo	urban suburban subrural	orchards vineyards gardening	very diverse	historical monuments node/hub	roads I II III railway
E	Retz	the city of Retz	urban suburban subrural	vineyards orchards gardening	diverse	historical monuments node	roads II III railway bike
F	Pulkau	string of villages/ townships	arable vineyards orchards	intensive with vineyards	food workshops	rural valley vineyards heath	roads III railway bike
G	Retzbach/Daníž	villages	vineyards arable orchards	intensive vineyards orchards	food workshops	rural valleys vineyards	roads I II III transit
H	Dyje gorge	villages	arable vineyards woods	intensive vineyards orchards	workshops	rural diversity heath	roads II III

Chapter 3

THE RETZ/ZNOJMO AREA: ENVIRONMENTAL SECURITY ASSESSMENT

Petra Karvánková

The prevailing role of man, as a dynamic factor in the development of landscape, has both positive and negative environmental and ecological effects in the investigated region of Retzerland/Znojmo. This study describes some of the important human impacts in the Czech-Austrian border region, which are sources of risk for basic ecosystems, their auto-regulation and through feedback for the human population as well.

The most important risks are described in the *Cultural Landscape Spatial Units* of the Znojmo/Retzerland region. These units (see chapter 2) were divided based on the field investigation. The basic source of physical landscape spatial units still remains the monograph of Hynek and Trnka (1981), in the case of Thaya/Dyje national parks new *Agreement on Common Objectives, Source and Basic Principles of the Management in the NP Podyjí-Thayatal* (2002), represents very fresh initiative for landscape management.

I. HIGHLANDS

A Dyje/Thaya canyon

A1 Kaja-Liščí rock

This unit is located directly on the Czech-Austrian border and consists of the partially forested protected areas of two national parks (NP), Thayatal (A) and Podyjí (CZ). These parks have very good cross-border cooperation. An important hub of this region is the Thaya/Dyje and the connected fluvial network, ameliorative and irrigation ditches.

The environmental problems concerning both parks are undisciplined tourists, mainly Czech bicycle riders on the Austrian side, who don't respect the park regulations, and the unrestricted accessibility of the whole park area by hikers on both sides of the border. The influence of human factor is visible even in the most protected park regions; therefore species and habitant protection from anthropogenic disturbances is necessary.

Another problem is the unbalanced regime of the Dyje watercourse through the insufficient regulation of water discharge from the Vranov dam. The Vranov power station causes a rapid level increase of about 1.5 m twice a day, and subsequently the washing away of close-grained sediments and water temperature variations. Natural bed evolution with gritty benches and gradual bands was discontinued. Nowadays the treed bands are steep.

The Park Forest is threatened through undesirable plant invasions, which change the wood species composition and through frequent wind-fallen trees, landslides and rock falling. The specific problem of the Thayatal Park is excessive fishing and exceeding of the permitted catch by recreational fishermen, which has a negative impact on the fish population. On the Czech side fishing is forbidden. Construction of buildings disturbs the park ecosystem as well; therefore only buildings related directly to park administration are permitted.

A2 Šobes

The problems are related to viniculture here. On the park area, pesticide usage is strictly controlled and minimized. An attempt to grow vines without pesticides has failed. The transitional belts between the economically used lands and the protected mainly forested parks are too narrow to prevent the soil washing away into the river Dyje, which leads to an increase in sludge and a decrease in river permeability after abundant precipitation. Another environmental hazard is strong neophytes spreading (e.g. Impatiens glandulifera) closely related to anthropogenic interference. The neophytes are more competitive than the already existing flora.

Sheer hillsides with a slope above 20° dominate the river Dyje canyon. This has caused the formation of the very important valley phenomenon, which is characterized by a vegetative inversion and by very different vegetation of hillsides with southern and northern aspects with transition on hillsides with western and eastern aspects. The valley phenomenon causes many natural hazards: the hillsides with southern aspect are more heated during summer months and the temperature increases. The hillsides are therefore threatened by extreme drought, grass and forest fires and changes of vegetation cover.

A specific problem of the NP Podyjí is augmentation of illegal junkyards with rubble from building sites and homes. Logging is allowed in certain parts of the NP Podyjí, which causes the dislocation of forest ecosystems by the heavy machines.

A3 Znojmian

The risk of floods has increased in the Dyje wold in the last few years. The local floods are a great danger for built-up areas. The negative influence of the Vranov reservoir (see above) is multiplied by the influence of the subjacent Znojmo reservoir. The construction of these reservoirs changed the riverbank plants: a large part of the forest around the river was chopped down. Moreover the riverbed near the reservoirs was canalised and concreted over. The whole Retzerland/Znojmo area is a very dry region with frequent strong winds accelerating soil erosion, which is strongly connected with soil sheet washing mentioned above.

B The Dyje/Thaya forestland

This unit consists mainly of forests. These are subject to various categories of environmental protection corresponding to the zones of national parks. It is a cross-border unit comprising the forest localities of Čerchov and Klinka, surrounding the vine growing towns of Konice and Hnanice on the Czech side. On the Austrian side, the forest district of Kaja/Thaya, Haber/Spittelmaiss and the surroundings of the lower Fugnitz brook.

B1 Lower Fugnitz

The biggest risks endangering the local ecosystems, both natural and cultural, are floods; in particular, high water events on smaller local water run. As an example, on June 30th, 2006, the flood on the Fugnitz brook caused by several days of heavy rains destroyed a large part of the town of Hardegg and its closest surroundings within several minutes.

B2 Kaja/Thaya revier

In the mainly mixed forests of this district, the risk of soil sheet wash of the fertile forest topsoil is increased by heavy rains. The forests are, moreover, affected by wind fallen trees, threatened by landslides and rock falls. Ravines and gullies are common. As on the

valley slopes in the canyon-like Dyje/Thaya valley, the risk of forest fire exists, mainly in the forests on southern aspect slopes. On the numerous smaller tributaries of the Thaya, forming in the local forests a mutually linked, dense network, local floods are common. The flow in these sources increases markedly within the snow-melting period in spring, and as well after heavy rains. The high-water events model the landscape markedly by water erosion, accumulating boulder, mud and sand deposits mainly outside the common watershed of the water runs.

B3 Čerchov/Klinka

Man is damaging the forest landscape of the locality, firstly by poor behaviour and disrespecting the rules to be observed by tourists in the area of both national parks. Secondly, irremovable traces are left behind by the primary industrial operation, i.e. logging and, on a smaller scale, stone quarries. Small illegal dumps such as of masonry waste or used construction material are no exception. The forests show naturally occurring wind fallen trees, and are endangered by landslides and rock fall risks. Ravines and gullies are common.

B4 Konice/Hnanice stretch

The forests have been damaged by the use of agricultural chemicals over a long time. These chemicals are washed out and washed down from the surrounding agricultural landscape. On the Czech side, the character of the landscape is disrupted by a number of old, dilapidated houses and farmsteads, which have been unused for a long time and are decaying and becoming overgrown. The illegal waste dumps in the local forests present another man-made environmental risk.

B5 Haber/Spittelmaiss

The rich biodiversity of the local, mainly mixed forests has been endangered, above all, by agricultural chemicals used in the surrounding agricultural landscape from which they are eluted and transferred by water. The warm, dry climate brings about an increased probability of natural forest fires. This risk is highest in forests on southern aspect slopes.

C Agrarian fringe

This unit presents a “fringe” of mainly arable land surrounding the forested landscape of the protected zone of both national parks. On the Czech side, this intensively used agricultural landscape is represented by the immediate surroundings of the town of Mašovice. On the Austrian side, it is the surroundings of Niederfladnitz.

C1 Mašovice

Long-term intense agricultural usage has left visible traces in the landscape. Heavy soil erosion is supported not only by human activities (inadequate ploughing, large blocks of arable land, growing of erosion-supporting crops, etc.), but by climatic factors as well. The whole area belongs to the dry thermophilic pannonian region, with low rainfall and occurrence of dust storms. The large blocks of arable land without any marked network of biocorridors and windbreaks are increasing the effects of wind erosion. The fields cannot resist the negative effects of heavy rains and soil sheet wash is common. The long-term use of agrochemicals (pesticides, insecticides) has caused great damage to the natural ecosystem. As a result, those plant and insect species regarded by man as **“**pests**”** are becoming extinct, decreasing the variety of species, to a greater extent in the Czech part.

As a whole, the character of this landscape unit has been strongly negatively affected and greatly changed by the economic activities. The biodiversity of the whole area is now quite low. A monotonous, flat, agrarian landscape prevails, without balks or any other interaction elements.The dynamic natural elements of this landscape unit are water runs, forming smaller natural units of the landscape, i.e. the valleys of the Gránický and the Mašovický brooks, with a risk of more common local floods.

The high concentration of biological pollution of the smaller water runs empties into the Dyje in the centre of the national park and presents a serious environmental risk. In this way, all pollution from the surroundings enters the national park. As a particular example, the agricultural cooperative Mašovice has been disposing of liquid manure into brooks running by the buildings of the cooperative, and these carried the pollution further, being Dyje tributaries. The route of thus contaminated water into the Dyje is, in the area studied, usually below 3 kilometres. Small water reservoirs, which can partly eliminate the pollution downwards from the sources of it, have only been built on the Klaperův and Mašovický brooks. Biological pollution in smaller water runs is found not only in the national park but everywhere in the intensively agriculturally used Znojmo region.

Another serious natural risk in this unit is posed by stone production. As an example, the quarry of Mašovice, ca. 5 kilometres west of Znojmo, was a direct threat to the natural landscape of the national park when it was in regular operation. However, the end of stone production did not bring any improvement. Within its operation, the question of its position close to the protective zone of the Podyjí NP was most often discussed, as the natural landscape of the park was being affected by the falling stones, noise and heavy vehicle traffic linked to the transport of stone. Nowadays, the quarrying has stopped and there was an unauthorized recultivation of the quarry by reposing the drainage of the brook. This is causing constant changes of the water level in the lake that developed on the bottom of the quarry, so the quarry remains a point of groundwater pollution. The quarry disturbs the landscape character, and it is a dangerous place for tourists and children, because the whole area in the immediate vicinity of this stone quarry is undermined, so there is a risk of collapse.

Among other human activities presenting a substantial environmental risk to the local landscape is air pollution by brown coal combustion. Nowadays, seasonal heating by brown coal is replacing natural gas again, the latter becoming overly expensive particularly in rural Czech households. As well, fly tips of waste and various rubbish deposits in the open landscape are common.

C2 Niederfladnitz

A large part of the area is used as arable land. The agricultural activity and its consequences in the landscape are quite marked. The biodiversity here is, although not to the extent of the Czech side, reduced to monotonous ploughed areas. Nevertheless, unlike the Mašovice unit, the grain fields are more often separated by various forest balks or more humid islets of reeds and grasses, naturally situated in shallow dells. Due to the dry climate, there is a risk of lack of water in this area and small water runs often dry out due to drops in groundwater level or due to the drying out of the sources of water. Another bigger problem for the natural landscape of this unit is posed by the quarry near the town of Hofern.

II. HIGHLAND/LOWLAND EDGE

D Znojmian

D1 Znojmo centre

The city of Znojmo is among the oldest cities of the Czech Republic. The good geographical position at the interface between wide lowlands and sylvan upland has attracted man for more than fifty thousand years. The place has been inhabited uninterruptedly since the arrival of the Slavonic tribes in Moravia in the 6th century. A new part of the history of Znojmo started in November 1989. Almost the whole Znojmo region had been affected by the Communist state policy beforehand, being together with a part of the Podyjí National Park in the border zone. The border zone, established in 1948, in front of the "iron curtain" separating Czechoslovakia from the "western" European countries (i.e., even from Austria) meant strict control of the movement of people until the Velvet Revolution of 1989. It has to be said that this border zone, to which entry was prohibited, greatly contributed to the natural potential of the landscape.

These days, 17 years after socialism ended, Znojmo again plays the role of a centre of a larger importance for a large part of the Czech-Austrian border region and it is expected that it will become a centre of services even for a larger part of today's Austrian area. Its economy is definitely stronger than the nearby Austrian city of Retz. Even so, the unemployment rate of 12 % is among the highest in the Czech Republic. The city and the suburbs are still developing slowly; the people living in the zone of protection of the national park are starting to use the potential of park to develop their entrepreneurial activities, undertakings in leisure travel, transport, etc. This brings, among other things, new environmental risks and stresses for this natural-cultural landscape, which has been up till now only scarcely modified and exploited.

The heavy long-distance traffic, going right through the city centre, is a decisive factor greatly decreasing environmental quality in the city area. Apart from air pollution and noise, the enormous number of vehicles is a risk for the city's population. The current route of I/38 through the city centre is regarded as the most critical point of the transport infrastructure of the city. A bypass of the city has been planned for some time. The construction of it, however, has not started yet, due to cases of unclear ownership of property and to protests of the owners of the affected areas, mostly in the neighbouring towns (Přímětice, Dobšice). The problematic safety of some heavily used crossroads is also a weak point in the road transport. At present, many cars park in the centre of the city. People are used to parking their cars near the centre and sometimes even on the pavements.

The city centre and adjacent districts have a considerable level of criminality. Especially in those districts with a large Roma population and those with an accumulation of the homeless. These groups of inhabitants are negatively perceived by tourists and other inhabitants, and due to their disregard for the rules of environmental protection and sustainability, they are a potential source of environmental risk. Rodent infestation in the city centre sewers brings the danger of dissemination of contagious diseases.

As regards temperatures in the vicinity of Znojmo, the city alone forms a "hot spot", which radiates a lot of thermal energy and influences temperature and humidity relationships. An aridity accrual can be detected in the town centre due to increased evaporation from concrete built-up areas.

The city's current inhabitants miss direct contact with nature, because the urban building density increases without respect to the environment and the original character of

the landscape. As an example of large environmental hazards, the old industrial zone should be mentioned because of its old railway connection, toxic contamination and scrap. A potential danger is also represented by new industrial zones through inconvenient placing, the increasing number of super-/hypermarkets and other built-up areas, which are encroaching on the originally free land around the town.

D2 Znojmo north crescent

This unit represents the northern suburban area of Znojmo. Nowadays, industrial production is incorporated into this originally purely agricultural land. This leads to a change of character of the landscape, a disturbance of natural ecosystems and eventually to the noise stress of inhabitants (e.g. the Pegas Company in Přímětice village). However agriculture still dominates and damages the country by pesticides, decreasing biodiversity. The quality of over ground water has increased in comparison with before 1989 due to the lower amount of discharged sewage.

The dry continental clime of Retzerland/Znojmo area is indicated in this unit by an increased amount of atmospheric dust, wind erosion, an unstable level of underground water and by local windstorms and whirlwinds (i.e. “leprechauns”). In an area of Moravian Hradiště above Znojmo steppe vegetation with an increased risk of fires and vegetation cover changes (i.e. xerophile plants) can be found due to the southern aspects of northern slopes. Atmospheric contamination through brown coal, plastic and rubbish combustion starts to be a repeated problem in small suburban settlements, together with illegal junkyards created in bosks around the villages and intensive traffic in the direction of Znojmo and Brno.

D3 Znojmo south crescent

The best known environmental danger in the Znojmo region is floods, partly because of the strong promotion in the media of this problem. There was a flood in 2006, which affected mostly second homes, and gardens in orchards located in the flooding area of the river Dyje. The flood caused a series of dangers to local people such as disease dissemination by animals and plants in diluvia mud or the invasion of some weeds. Another danger for the inhabitants of Znojmo is presented by the large number of homeless people who live at Kraví hora. It is a potential source of the dissemination of contagious diseases, such as phthisis, moulds and ulcers.

Other possible environmental risks are related to a garden colony at Kraví hora in the southern part of the suburban area of Znojmo. This colony, with a number of second homes, has been growing in area since the 1980’s and this area is very significant for the recreation of the people of the whole city. However, the utilization of the area causes some negative aspects such as a change in the character of the landscape and limited possibilities of utilization of the area. Originally, there used to be timbered land with heather moors at Kraví hora, but now this has been greatly reduced because of the building of various forms of second homes. There is also the risk of local pollution of the air and underground waters as a consequence of utilization of agrochemical fertilizers in private gardens and orchards. Many synantropic plants and animals have spread into the landscape due to gardening.

The Znojmo region faces also an environmental-social problem and that is "sexual tourism". This illegal form of tourism is linked with betting, casinos and the distribution of smuggled goods. The environment is hit by ill-considered buildings offering these illegal services. The building of technical and traffic infrastructure, increasing waste, more tourists and overall overexploitation of natural resources – all this leads to a reduction in

biodiversity and changes of the character of the landscape. It is difficult to find a compact piece of land among the grey concrete buildings and roads.

There are a lot of illegal fly tips containing rubble, bricks and other types of waste. Before 1989, there was no legislation dealing with the problems of sorting of waste and its recycling. The fly tips are a relic of earlier times. People are very reluctant to sort waste and they are very slowly getting used to it. Meanwhile in Austria, there has been an environmental enlightenment for 25 years. Another environmental risk in this region is the combustion of brown coal, and the burning of grass and other waste.

D4 Havraníky

The most serious danger for the character of the landscape is represented by vineyards illegally founded by some businessmen on the holdings of NPP. This organization is under pressure from these businessmen who are interested in its land. Very often it is the case that an already founded vineyard is later permitted in not always just proceedings.

There is also the negative influence of agricultural activity such as utilization of agrochemicals, which are a danger to the soil, surface and underground waters. All the landscape suffers from accelerated soil erosion due to heavy agriculture. Also ill-considered ploughing of large pieces of land without any protection against the wind contributes to soil erosion. Heavy rains cause soil sheet wash from the fields to the valley. Extreme drought in summer brings a problem with the occurrence of dust in the air.

E Retzian

E1 Retzbach/Obernalb

In this region, farmers lived in harmony with nature before the fall of the iron curtain. However, the situation before the iron curtain was concurrently characterised by severe erosion and inappropriate exploitation of the landscape. Monocultures were more widespread than nowadays. Today 90% of the farmers of the Retzerland use state subsidy for their farming. The use of the pesticides isn't common today. Chemical agriculture is more expensive for the farmers, but on the other hand, it means less work by hand for them. Many Austrians have a firm relationship to the land and to the soil, although they aren't farmers.

The Retzerland wine-growers especially suffer from heavy rains, heavy snow and black ice which endanger the yields every year. Powerful rainstorms are the cause of soil sheet wash, which enhances erosion. Half of the agricultural production in Retzerland comes from organic farming - the taste of the wine is better. They prefer organic food (vegetables) – there are small organic food shops in the town. Today different kinds of vine grow together, which means there are no monocultures in this area. They are using more resistant kinds of vine (plants come from the USA). The local farmers focus on one sort of agricultural production – for example the wine or the animals. The Austrians are used to buying the local agricultural organic products on the Internet – online in special shops.

Co-operation with Czech farmers isn't successful, because of the language barrier and different ways of cultivating the soil. A lot of the Czech farmers are used to using agrochemical products in order to improve their yields – a fact which threatens the Austrian farmers and their organic produce, because the pollution caused by these agrochemical products crosses the Czech-Austrian border.

E2 Retz

The entire Retzerland region is exposed to conditions of extremely dry climate. Moreover, the town of Retz itself is located in the rain shadow of the mountains. The unstable level of underground water, drying out water resources and the necessity of watering present for the local population one of the gravest natural perils. Smaller water flows are being to a small extent polluted by the use of chemical agricultural products. Relatively frequent wind enhances erosion of the soil and also causes damage to local vineyards and their harvest. Frequent wind – soil erosion. An imminent threat to yields is also – according to local winegrowers - ill-mannered tourists who steal the grapes directly from the vineyards and cause damage to parts of the plant.

The vast majority of Austrians interviewed consider the building and use of Czech nuclear power stations as the biggest danger to environmental security. There are strong negative attitudes towards the Temelín Nuclear Power Station. The older Dukovany Nuclear Power Station which is only a few tens of kilometres from Retz is mentioned less often than Temelín. The Austrians view this nuclear power station as a relic of the socialist regime in Czechoslovakia and therefore it is not a current issue, not being mentioned in the media for this reason. On the other hand, according to the citizens of Retz, it was possible to stop the building of Temelín Nuclear Power Station and its operation is being permanently disrupted by problems, closures and accidents. There is one Austrian NGO in Retz; This is a small group of people constantly protesting against the nuclear power station which causes - according to them - radioactive pollution. They threaten tourists who come to Retzerland to breathe fresh air saying that the area is polluted and that radiation has been detected. However, there is no such relevant measurement and the whole problem is mainly caused by the lack of information about the situation with nuclear energy in the Czech Republic. This is a problem of the poor communication, too. Also, there was planned a nuclear waste disposal site directly in the Retz during the First World War.

The traffic is also a big load for the landscape and endangers environmental security. The local population is being constantly damaged by freight passing directly through the town; by noise and exhaust pollution. Another great risk is the use of genetically modified organisms (GMO). Austria is strictly against it and its cultivation is here, unlike in the Czech Republic, prohibited. The inhabitants of Retzerland, and especially the farmers, are currently very afraid of the transmitting of the seeds and pollen of these GMO (such as corn) from the Czech side. In an overall assessment, all region of Retzbach/Retz is being perceived by local inhabitants as an environmentally safe place without serious environmental risks. There is a sacral unique landscape, safe from crime. There aren't any factories or heavy industry. The environmental education of children and their parents is of high quality.

III. THE LOWLAND

F Pulkau

F1 Schrattenthal

The local landscape is predominantly used for agricultural reasons. However, the landscape is exposed to a higher risk of soil erosion, an aspect which is supported by local climatic effects. There is a potential risk in the whole region of the disappearance of water resources due to extreme drought and very high summer temperatures. Also the local arable land and smaller vineyards are exposed to the risks resulting from heavy rains.

F2 Hüttenberg

This land is used for vineyards and in some places for arable land. The vineyards are endangered here especially by various diseases disseminated by plants or animals. Black ice, heavy snow and heavy rains present a risk to annual wine yields. Strong wind erosion, drought and soil erosion contribute to the damage to grapevine plants.

F3 Pirzling

The local predominantly agricultural landscape is imperilled by strong winds causing soil erosion. The effects of strong winds are rationally eliminated by lines of solitary trees and shrubs along the roads or by holding covers in the middle of agricultural land. The fields are exposed to an extremely dry climate with a great amount of dust storms or rainstorms which washes out arable topsoil to close brooks. A mosaic of individual fields is complemented by small vineyards, which are also exposed to climatic extremes.

F4 Pulkautal

The axis of the unit is created by a small brook, the Pulkau, which presents at the same time a linear source of a series of natural risks. In the first place, there is the risk of local floods, increased by the realization of some regulation means on this flow such as concreting over of some of its parts. On steep, partly artificially hollowed out, sides of the flow, the original bank plants have been partly removed and nowadays are very incoherent. The water in the flow is seriously polluted and any contact with the water presents a risk of the dissemination of contagious and other diseases.

The Pulkau flows through a climatically drier area threatened by a decrease in the level of underground water. Agricultural activity requires a bigger portion of artificial watering. The majority of the fields are located here in a wide ploughed alluvial plain, composed of sediments of a lesser resistance, enabling easier soil erosion. Local vineyards are endangered especially by wind erosion and fertile soil sheet wash during the heavy rains. The original picturesque landscape has recently been disturbed by modern housing. For instance, it is impossible to overlook the bright-blue painted family bungalows on the edge of the village Pfaffendorf as well as nearby family houses in "millionaire baroque style". All these houses have been built at the expense of agricultural land. These houses are also in great contrast to the original housing in the centre of the village.

G Retzbach-Daníž

G1 Retzbachland

The unit is strongly interlaced by a network of smaller streams (the Lanbach, Retzer-Albach, Retzbach, Nalber Bach, and Seebach) and their inflows. Therefore there is a risk of flooding from these streams passing through local villages. The bank vegetation of some brooks is neglected and the brooks overgrown by cane and other large weed plants and they become at some places the source of local contamination.

Shallow valleys among individual water flows are filled with a variegated mosaic of fields and on slopes with southern orientation there are also smaller vineyards. The local very warm and dry climate presents the risk of dust storms as well as the disappearing of some water resources. Random heavy rains present the risk of fertile soil sheet wash directly from the fields and vineyard slopes where soil erosion and land devastation is obvious at first sight.

The vineyards, especially the vegetative parts of the grape plants, and its annual yields are endangered besides heavy rains, by black ice and heavy snow. Moreover, there is a risk of disease dissemination by plants and animals. There are often heaths among smaller agricultural fields. The land, most likely originally tilled, is covered by ruderal vegetation with individual fruit trees which remained here as residues of the original utilization of the land.

G2 Schatzberg

The agricultural utilization is similar to the previous - G1 Retzbachland. There is only a slight difference and that is a smaller network of narrow streams. This unit belongs partly to the drainage area of the brook Landbach. The slopes exposed to the south are always used for vineyards, whereas the slopes with northern exposition are always free of vineyards. There are many small fields among the vineyards, segmented by lines of shrubs or other forms of biocorridor.

The vineyard slopes are greatly endangered here by soil erosion and fertile soil sheet wash, which consequently harms the stability of these slopes. As in the previous unit, here also there is a danger of heavy rain, black ice and heavy snow. Disease dissemination by plants and animals may occur at grape vines. The climate is again warm and dry with different temperature increases during the day at various parts of the slopes according to their orientation. On slopes with a southern aspect there is a risk of natural conflagration, or burning of vegetative organs of the plants such as desiccation due to insufficient humidity.

The road E 59/2, which passes through the region, contributes to a great extent to local pollution. This road is deeply cut into neogen sediments and it suffers from large landslides. Heavy traffic supported due to the vicinity of the Austrian-Czech border crossing at Hatě is a menace to vineyards and fields in the immediate neighbourhood of the road, due to noise stress, exhaust fumes and traffic jams.

G3 Šibeničky

This border unit is strongly used for agriculture. Its land uses are created especially by blocks of arable land. The deforested flat landscape suffers from strong wind erosion, which causes further on soil erosion and sheet wash of the upper layer of arable land due to heavy rains. The extreme drought area causes intensification of the erosion process, decomposition of rocks and soil and also increases the risk of pollution of the air by dust. The soil erosion is accelerated not only by climatic conditions or ill-considered ploughing, but also by the cultivation of unsuitable cultural plants, which accelerate the erosion. The agricultural landscape is also interlaced by ameliorative and watering systems, which equalize the unstable level of smaller streams in the case of low rainfall. The biodiversity of this monotonous agricultural landscape is much reduced; the land lacks capacity for auto regulation and its natural development. The surrounding fauna and flora as well as the water flows are influenced by agrochemical fertilizers.

Heavy traffic due to the E 59 brings a lot of environmental risks such as noise stress, exhaust, waste along the road, overloading of the roads, etc. In connection with the international route E 59 there is also the risk of high criminality connected especially with illegal sexual tourism, casinos, betting and selling of smuggled goods in the markets. This is one of the reasons why young people are not interested in purchasing very cheap building land in this area and why the social decline of this marginal part of the Znojmo region continues.

The character of the landscape is damaged by the ill-considered building of various marketplaces, fun parks and shopping centres (such as for example the one at the border crossing Hatě/Kleinhaugsdorf. Besides these ”ultramodern” buildings, there are a great number of dilapidated houses and abandoned farms, which present a form of older ecological burden on this landscape. Toxic waste is a relic of the existence of the border forts - some of these dangerous chemical substances were stored within the bunkers under the socialist regime and they still represent a potential hazard to environmental security.

G4 Daníž valley

There is a sharp linear element in this region and that is the flow of the brook Daníž, which is surrounded by large agricultural areas of arable land. Due to deforested land there is again an increased risk of wind erosion. Its effect is strengthened by the warm and dry climate with high summer temperatures. The soil erosion is strengthened by the cultivating of plants supporting erosion, such as corn. The lack of rainfall causes little particles of soil to blow away and also causes more frequent dust storms or fading of cultivated cultural products. The open landscape is exposed to these climatic extremes that appear as sudden changes of temperature and increasing ‘wobbliness’ of temperature and humidity. The agricultural cultures are annually exposed to various moulds and contagious diseases disseminated by other plants and small animals.

The brook Daníž itself is being contaminated particularly by surrounding agricultural facilities such as cow houses and hog pens. The flow of the Daníž is regulated and along its length, the watercourses have been concreted over and the bank vegetation has been removed. Currently, the brook is in some parts the source of local pollution of surface moisture and represents a potential source of local flooding. The fields are also endangered by local water logging. Heavy rains, heavy snow and black ice cause great damage here due to sheet wash of arable land. There is also frequent fog in this area. The decrease in biodiversity is not only due to ill-considered ploughing of large areas of agricultural land – which made the landscape more open – but also by the grubbing of orchards (Chvalovice village) as well as degradation of land due to long term usage of industrial fertilizers in agriculture.

As a consequence of the vicinity of the international route E 59 the landscape suffers from heavy traffic, noise stress, overload of other smaller roads, waste along the roads, etc. Man harms environmental security in two other ways besides using agricultural fertilizers and heavy traffic. The first aspect is the burning of brown coal, plastic, furnace oils and others. All this pollutes the air with combustion products and other toxic elements, and also illegal waste disposal sites - fly tips. Speaking of this unit, it is necessary to mention the negative influence of private landowners on the continuity of the landscape. This problem is mentioned by V. Cílek (2004). Land is being fenced in to a great extend and this impedes free movement in the landscape.

H Vrbovec/Načeratice

H1 Vrbovec

The majority of important natural risks are bound to this strongly agriculturally used arable land. The landscape is to a great extent deforested and highly agriculturally utilized. Long-term utilization of agrochemical products such as fertilizers brings many risks. These products contribute to the death of a variety of plants and animals, besides which they pollute local waters and toxically burden the soil. Large agricultural areas without any

network of biocorridors or other interactive elements are directly exposed to the effects of wind erosion and heavy rain and therefore they suffer greatly from sheet wash of the fertile layer of soil as well as mechanical damage to the vegetative organs of cultivated cultural plants.

Strong heavy rains – replaced by heavy snow and black ice in the colder seasons – represent a great risk for smaller local vineyards. These are moreover endangered by disease dissemination by plants, animals and moulds. In some agricultural areas and vineyards, there are also frequent invasions of non-cultural plants such as resistant weeds and ruderal vegetation. The character of the land is severely damaged here. The monotonous agricultural landscape with large ploughed fields has lost its original character. Its biodiversity has been strongly reduced.

The extremity of the climate, especially the lack of rainfall, leads to an increased amount of dust in the air, particularly during hot summers in August. Some of the smaller water resources lose a great amount of water during times with low rainfall totals and the water may even disappear. The local water resources are also endangered by sewage from nearby cattle and poultry production. Like the majority of units in the vicinity of the E 59, here also fly tips and illegal disposal sites are a great burden on the landscape. This international road passes through the centre of all the regions and due to the heavy traffic, noise stress, exhaust fumes and overload of the roads is here the daily order of things.

There is particularly striking pollution in winter due to coal combustion. A big danger to environmental security and the rules of permanent tenability is presented in the Vrbovecký region by man himself. The lower education of the local population contributes to a large extent to the high rate of unemployment (15%). It is a socially very weak region. The local people are not interested in environmental protection and associated issues. The question of the protection of nature is not important from their standpoint. Also because of this there are many illegal enterprises such as casinos, brothels, market stalls own by Vietnamese merchants and sexual tourism

H2 Načeratice

One of the most striking dangers in this unit is presented by the rubbish dump on the top of Načeratice hill. The hill represents a remarkably changed elevation of crystallinicum and is situated roughly one kilometre from Znojmo. It was for a long time a training area for tanks. This use helped the occurrence of xerothermic vegetation. The rubbish dump was reclaimed in 2004 but is still being illegally used by the local people. Due to the many illegal dumps the hill cannot be used in other ways such as a possible tourist sightseeing point. Moreover, on the steep artificially made slopes, there is a risk of landslip. Landslips also appear on the banks of the Dyje in the neighbourhood of the village of the same name. The north banks are, due to their southern aspect, exposed to stronger sunshine and due to extreme drought they present a potential risk of grass burning and change of vegetation cover (xerophile plants). Because of the nearness of Znojmo the local landscape suffers from the consequences of heavy traffic, such as noise stress, exhaust fumes, overloading of the roads. There is also significant air pollution during winter due to coal combustion.

A large part of the landscape is being used as agricultural land. Therefore environmental risks related to utilization of agrochemical fertilizers and heavy machinery prevails. The biodiversity has been reduced and many sorts of plants and animals have become extinct in this featureless landscape. The problems are amplified by cattle and poultry production, which produces sewage waste and the slurry and manure cause surface water pollution. The Dyje coming from Znojmo causes pollution of local surface waters.

There is eutrophication of waters in small open-air pools in the local villages. This unit is also endangered by floods coming from the Dyje from Znojmo. (Dyje village was affected by flooding in 2006).

High summer temperatures and lack of rainfall lead to increased dust in the air and it also causes sudden changes in temperature and humidity conditions. The dry climate speeds the erosion of the soil, which affects large blocks of land. We can also observe the plant invasion due to second homes and gardening. The fruit trees are dispersing among the natural sylvan ground cover. The old dilapidated isolated agricultural buildings disturb the landscape character. There are a lot of jalopies, old agricultural machinery in the neighbourhood of these farmsteads. The stone pit (near the town of Tasovice) and sand quarries close the main road to Znojmo are a big environmental burden on the landscape.

CONCLUSION

The final findings of our research on natural risks and menaces to environmental security in the Retzerland/Znojmo region were made from the analysis of information gained directly by a field survey monitoring today's situation in natural and cultural ecosystems regarding environmental tenability and security. The findings are enriched by a community survey in which we focused on the perception of the environment of the local people and of tourists. We also add the findings by analysis of a political and social survey from the area of environmental praxis in self-government and municipal government as well as in the private sector.

The local people in Retzerland consider the most serious danger to the environment from the Czech side the following aspects: the utilization of nuclear energy and the production of radioactive waste, also the utilization of agrochemicals in agriculture and permission to cultivate genetically modified organisms. Other essential environmental menaces are caused by the extremes of the local climate – heavy drought, strong winds, black ice and heavy rains. Also the growth of heavy traffic is a problem.

The biggest natural risks in Znojmo region are coal combustion, pollution of the air as a consequence of heavy traffic, no sorting of waste, fly tips, danger of inundation, lack of biodiversity of landscape caused by overuse of chemicals in agriculture and by ill-considered ploughing which leads to changes in the character of the landscape and extremes of the climate – where drought alternates with heavy rain. Also the pollution of surface waters is considerable. The low culture and high unemployment of the people brings a higher rate of criminality related to illegal sexual tourism, selling of smuggled goods in market stalls and casinos, almost very close to experience of V. Poštolka (1996), though in quite different area

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Chapter 4

SOCIAL RESEARCH OF ENVIRONMENTAL SECURITY IN THE BORDERLAND AREA

Alois Hynek, Regina Hajszan, Roman Bohovic and Petra Karvánková

Our social research concerning the questions of sustainability and security of cultural landscapes in Retzerland and Znojmia included the list of issues for our interview partners:

Andreas Sedlmayer	Administrative director of the Retz City
Mag. Norbert Silberbauer	Teacher in HAK Retz (commercial academy), author
DI Brigitta Humpel	Chairman of the EFEU association (**E**ntwicklung-**F**riede-**E**igenständigkeit-**U**mwelt/Development–Peace–Autonomy– Environment)
Helene Schrolmberger	Green Party Retz, municipal counsellor
Ing. Helmut Bergmann	Chairman of the wine farmers association Retz
Walter Fallheier	Municipial counsellor of environment, teacher
DI Hannes Weitschacher	Director of Retzer Land GmbH
DI Robert Brunner	Director of National Park Thayatal GmbH
Sabine Schödelbauer	Deputy director of hotel Althof Retz

1. The state of the environment before the fall of Iron Curtain
2. Environmental changes after 1989
3. Environmental SWOT analysis
4. Who is active/proposes initiatives in the realm of the environment?
5. Who are the actors of environmental damages? Residents, visitors, private companies larger municipalities? Czechs/Austrians, casual/intentional marauders, individuals, groups, gangs
6. Are the inhabitants able to improve their environment/participate in the process of environmental improvement?
7. Who threatens environmental quality?
8. Who helps to improve environmental quality?
9. Are the national parks-Dyje/Thaya rivers positive/negative/barrier/controversial/neutral part of your environment?

10. Whom do you trust to help you with environmental quality? Experts, technicians, scientists, politicians, local authority, entrepreneurs/businessmen, non-governmental organizations (NGOs), strong/powerful individuals, church, physicians, lawyer, yourself (direct actions)?
11. Is there any environmental course or another form of public education in your municipality?
12. Are there any historical records in your chronicle on natural hazards?
13. Which natural hazards are you anticipating?

ESPECT

It is an acronym for searching relations between **e**conomy, **s**ociety, **p**olitics, **e**cology, **c**ulture, **t**echnology with respect to time, space, dominance and oppression. Traditional three pillars of sustainability cover society, economy and environment are too less for deeper understanding of processes causing vulnerability, disturbances and insecurity in cultural landscape. We recognize ordinal scale for identification of ´quantitative´ role of ESPECT´s items in their intersection. We asked interviewed persons for assessment of partial role of ESPECT´s items in cultural landscape sustainability and security and they ´marked´ them, depending on their own opinion. We hope there would be a chance in the future for continuing assessment (longitudal research).

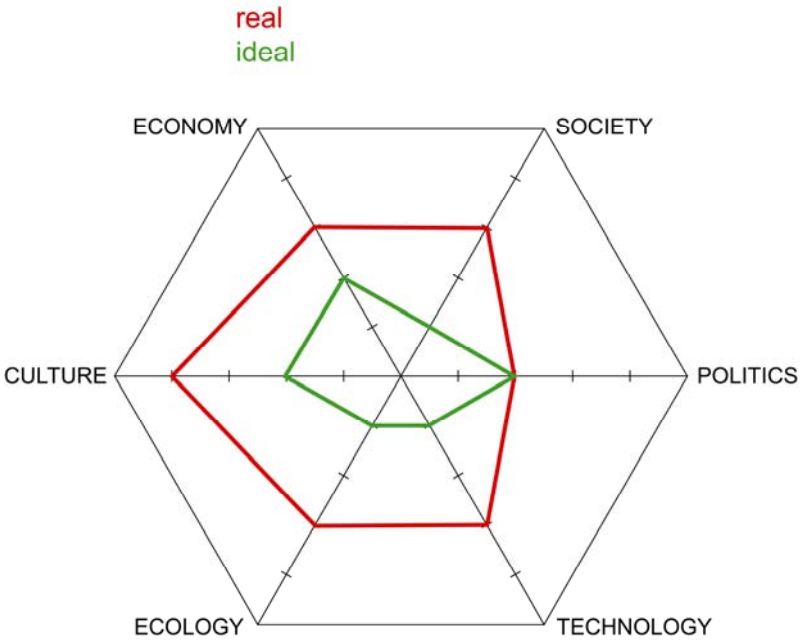

Figure 4.1 The Perception of ESPECT by Austrians

RETZERLAND AND ZNOJMIA SEEN BY CZECH ENVIRONMENTALISTS

A = Austria

C = Czech Republic

Opening the border

A: busier transport, lorries, mass personal movement – thieveries, gang robberies from Romania, Poland, environmental impacts (noise, pollution), before – Retzerland as the end of the world, marginality, after: positive transitionality, tourism, more people from Vienna, a new hotel in Retz, increased number of lodging from 3,000 in 1989 to 40,000 in 2005, the environment as a challenge, topic, issue; the issue of border blockades – Temelín

C: busier transport, better accessibility of regions and cities abroad

Economy

A: almost no factories, main body of economy consists of SMEs (small+medium enterprises), highly developed services and agriculture, especially viticulture, requisite balance/complementarity of big and small farmers

C: transitional from state/cooperative farms to private/cooperative ones

The bilateral cooperation between the Thayatal and Dyje National Parks

managed by a board, meetings every 2 months, different legal backgrounds, debate on common aims, public requirements on rafting, but there is no required amount of water flow, debate on winter sports – lifts, several bilateral aims e.g. nature protection, forestry, biodiversity, open questions – ecological management of Thaya/Dyje river (a common river for both banks of the river, scientific cross-border research crossing, fishing and hunting (regulated in Austria), invasions of cormorants

A: very important for sports, recreation, tourism (accommodation in Retz), nature protection, objections against Czech cyclists moving in Thayatal park, enjoyment of national park, but not so quiet as before, completely private land and management (25 personnel, engaged mainly in the provision of public goods and services, public relations and marketing), advanced support of environmental enlightenment: every weekend – projects, tours, lectures and other events, new sophisticated exhibition on Thaya National Park, environmental education for schools – 2 hours lectures depending on age, nature protection in public interest, very high compensation payments of caused private harm, legally established in 2000 (inspired by The Danube National Park), conducive environment for tourism, immigration/depopulation – Hardegg (9 settles)in 1950 2,500 inhabitants, in 2005 only 40%, people migrate but retain possession of their homes for recreation and letting

C: a swift decision to change status after the November 1989 from a landscape protected area into a national park in 1991, authority management (50 personnel, putting emphasis on research study) accepted controversially by the surrounding

settlement, half-hearted approach done by the national park, taking part in a new innovative project ´how to cross the border´, resistance to a planned dam on the Dyje-river Býčí skála

Nuclear power plant station Dukovany

A: very risky, negative attitudes and heated debates, the problem of the place of the plant - too close to Austria, very "bad" source of energy

C: positive to neutral attitude

Natural hazards

A: no risks, but rain shadow, drought, mild floods, minimum pests

C: local stormy eddies/tornados

Agrochemicals

A: not used broadly, very expensive, nature works itself

C: little awareness of bio-techs

Agricultural machines

A: limited use, light machines only, risk of soil firming,

C: heavy ones in large blocks of fields, strongly mechanized agriculture

Food

A: warmly welcome biofarms, bioproducts - locals have high purchasing power and prefer fruits and vegetables, no fast food, resistance to transnational co-operations (TNCs) since these control food production and can cause economic damages to local food producers; additionally, they offer cosmopolitan featureless cuisine, small regions react to TNCs by increased bioproduction, special plants projects, developing new products as well as establishing special farmer shops with food from the farmers of Retzerland

C: preferring cheap fast food of dubious Asian style, traditional Czech cuisine with animal fats and/or prefabricated junk food

Viticulture

A: small patches, limited agrochemistry, lower production but high quality resistant sorts

C: an effort to increase production, quantity first of all

Environmental awareness

A: very high – based on ecology, school/kindergarten environmental education since very early age, strong sense for countryside

C: lower – based on improving environmental infrastructure; weak informal environmental education within local communities

Energy

A: growing number of renewable energy sources users – straw (90 houses in Retz), wind, solar (10 new houses heated by the sun introduced each year), the 1st solar energy day in Austria was in Retz (Forum Österreich), communal and private wind mill parks, nuclear energy is not considered perspective in future for its atomic waste, various sources of energy – a diversity - and saved energy have priority, state/country grant financial aid on renewable energy for house heating based on renewable energy sources, village communities construct heating plant for all the village based on wood chips/pellets, straw, geothermal, (Obermakersdorf), import of wood from the Czechlands, plans for public heated swimming pool in Retz solar energy powered

C: the mixture of energy generated from fossil fuels (gas, coal) and nuclear reaction, increasing prices of energy cause return to brown coal, burning plastics

Waste

A: sorting, however growing amount of packaging, especially tin cans, more waste – less collecting, regional waste treatment in Hollabrun, no toxic waste

C: not advanced sorting, wild waste dumping

Water

A: problems with both quantity and quality (limited water filtering), almost no flooding in Retzerland; however, significant floods from Hardegg/Fugnitz-stream; twice a day, sharp changing water table in the Thaya/Dyje river depending on hydroenergy production at Vranov dam, water for irrigation from the Czech tract of the Dyje-river, non functional agricultural irrigation system (´wild privatization´)

C: sewage disposal plant in Znojmo, but limited water filtering in villages, frequent floods in Znojmo, twice a day, sharp changing water table in the Thaya/Dyje river depending on hydroenergy production at the Vranov dam, water for irrigation from the Czech tract of the Dyje-river to Austrian agriculture

Environmental Threats

A: rather safe, protests against Temelín and Dukovany

C: rather safe, situational vulnerability – wind, floods, fires

Homeless persons

A: practically absent, people have their own livelihood - fields, gardens, family houses

C: growing number of socially excluded people

Migration

A: immigrants prevail, slow/stagnate population growth, new family houses, positive natural growth of population, students leave Retzerland but their children come back

C: natural growth of population is negative, emigration prevails

Mobility

A: easy accessibility of Vienna by modernized railway in only an hour (over 500 persons commutes to Vienna every day), types of jobs in Vienna: the above people go straight down to business: well paid job in Vienna but expensive living costs, cheap living costs + free time in Retzerland

C: low quality of roads, dangerous traffic (the ´road of death´, as we were told, to Brno), technically backward railway to Brno, Prague is accessible by bus in appr. three hours

Environmental initiatives

A: very active groups with intensive contacts, easy available environmental data, special environmental enterprises, many experts, debates on floods – lower Fugnitz-stream in Hardegg full of mud, changing topic from the local to global level, a pool of ideas: local resources, competence in agriproduction, tendency to live in accordance with the 3S – sustainability, subsistence, security; buffer zone around the Thaytal National Park, the aim of local communities is to integrate experts in their associations - and they are many in Retzerland, high activity of the locals in addressing sustainability issues, the objective to use people who are here to represent community's interests, also focus on including people with competences in good positions in strong companies; apart from this, a growing interest in homeopathy is recognized; too much money is allegedly spent on the promotion of Retzerland as a popular tourist destination; whet the community lacks, however, is the lack of environment-related information on the Czechlands

C: fragmented without consistent strategy, lower environmental knowledge, quasi-environmental business

Landscape character

A: Retzerland represents a quiet landscape with winter nostalgia, colourful autumn, outstanding beauty scenery of the Thayatal National Park, diverse and rustic character of the lowland, wind parks, dry region, vineyards partly in bio-quality, changing crops grown in Retzerland, tractors in agricultural landscape

C: monotonous large blocks of fields in the lowland, outstanding beauty scenery of the

Dyje-river National Park

Social events

A: Austria-wide famous TV serial Julia taken in confectionery Julia, concerts, festivals, vintages, fairs, Retz-Znojmo cooperation too formal/official/artificial

C: vintages, Znojmo- Retz cooperation too formal/official/artificial

Retz-Znojmo cooperation

Commercial chambers, school programmes, exhibitions, festivals, theatres, music performances, council+deputies work together, peddlers from Moravia

Aging

A: offers a range of opportunities for seniors – sports, church, quality physicians, programmes focused on learning how to manage growing old, flats with care –good new jobs, seniors as the best guests

C: untimely pensions

Genetically modified organisms

A: not allowed, Austria is strictly against (Frankenstein food)

C: allowed with control

Changes in future

A: depends on regional/national governments (St. Pölten/Vienna)

C: high hopes for EU, strong local/regional politicians, disillusion of easy transition from the communist regime into the democratic one

Wind Mill on the hill above Retz

It was erected in 1772 and with no special changes, it has been surviving as an island of harmony between people and nature. It includes sacral landscape segments such as the Trinity statues in a very unique tract of the landscape. There is also a wind miller's commentary on contemporary wind mill's environment. Cultural landscape has been changing from a former domain of monocultures with the burden of erosion and soil abuse to diverse landscape with *greener* vineyards. Almost 90 % of wine producers are members of EU/national program which emphasizes a greener wine farming. Another change is lower share of handmade. As far as the realm of agriculture is concerned, there is visible improved pest control and a very high price of agrochemicals is one of factors contributing to its limited use. A number of farmers prefer organic farming and growing plants for greening agriculture, especially through sowing legumes.

The climate of the scarp between the highland and the lowland is not, after wind miller, quite ideal for farming and operating wind mill for strong descending winds, hoarfrost, black ice. Vine was blasted to insect in the soil. As to now, new sorts, such as riblos from the USA, i.e. resistant vine, is grown here. General tendency lies in the reduction of agrochemicals, mechanical protection, and, by the same token, GMOs are not allowed. The Thayatal National Park is viewed by wine-growers/makers as a partner in regional development and they try to achieve the integration of movement of tourists in both landscapes. Thera are also widespread problems with ageing of the population as a whole, emigration of young people to Vienna and a number of smaller villages around Retz face even more serious problems than Retz itself. Allocated money from central government is seen as not sufficient for stopping the negative trend of emigration of the locals. However the culture in Retz is much better shape than economy and the famous local writer Peter Turinim who lives in Retz at the old building, is the symbol of Retzerland reflexivity. The cultural quality of Retz has had a positive impact on the frequency and quality of concerts, festivals, etc., but also on the new face of this rural town, which has been continuously constructed and reconstructed.

Cooperation with Znojmia is not easy due to differences in agriculture management as well as language barriers. On the other hand, cooperation between both the Thayatal /Dyje National Parks is very successful. The local wind miller, who lives on the hill above Retz and use the internet for spreading the word about his vinotheke, says he is lacking public-private participation, deeper relationships between job market and agricultural changes that would bring new jobs; he also prefers a more focused and discussed strategy for future. It would include the emphasis on improvement of quality of wine, limited in volume, greater care for distribution and exchange of special sorts of vine.

RETZERLAND SEEN BY AUSTRIAN ENVIRONMENTALISTS

- problems with communication between Austrian and Czech environmentalists, also stems from their infrequent meetings,
- lacking agreement between Austrian and Czech environmentalist in the case of Dukovany nuclear power plant in spite of existence energy anti-nuclear group in Znojmo
- The Dukovany nuclear power plant has become a political card, environmentalists often organize protests against the use of nuclear energy
- pollution, dry landscape, low store of underground water,
- missing debate on dry land, municipal representatives are not interested in it
- ´water wars´ between Austria and the Czechlands in Retzerland/Znojmia
- irrigation plans with EU money support with not known reaction of the Czechlands in the case of water pumping in the Dyje-river National Park (its management is for cancellation of it up to 2010)
- environmental awareness is a problem, dependence on experts, activists, global networking, the internet, organizations, NGOs association

- only a few politicians are interested in environmental issues of Retzerland, they have contacts to Znojmo, but just formal
- the lack of environmental projects which would cross the borders, very local (and not functionally transborder) political agendas on the both sides
- local politicians are active, but regional ones are not, it is a point of a great public discussion
- few active people, mainly seniors, who are not formally qualified for this, are active in environmental debates
- social capital is low but there are about seven resistant groups, all of them feel responsibility for environmental security, they evaluate positively government of Austria and starting dialogue between Lower Austria and South Moravia
- ecology is not priority in Austria
- there are local environmental threats (e.g. floods),
- very important role is ascribed to the Thayatal National Park, it is a base for environmentalists, very hopeful for synergy of nature conservation and sustained tourism

CLUSTERED INTERVIEW NOTES WITH LOCAL INHABITANTS OF RETZ

Natural specifics of the region Retzerland:

- climatologically a dry region, < 400 mm rainfall per year
- nature areas in the borderland (today's national park) were "protected" by the iron curtain, there was no pressure on nature.

Changes since the fall of the iron curtain:

„*Früher war hier die Welt zu Ende* (Humpel)." "In former times, the world ended here".

- before 1989 there were no border-crossing railway connections
- after 1989 bridges were reconstructed, in general building activities increased
- increased amount of traffic from the Czech Republic and from Austria, particularly lorries
- since the fall of the iron curtain protests against Czech nuclear power plants have taken place on the Austrian side, activists demonstrated against Dukovany and Temelin
- environmental improvements on the Czech side, e.g. cars with catalysers (checked at the border)

- more tourists in Retz (3,000 overnight stays before 1989, now 40,000 nights per year)
    - farmers changed to organic production, noticeable organic farming boom in Retzerland
    - people in Retzerland started to use new, renewable forms of energy (pellets, straw, solar energy, district heating), diverse initiatives started
    - Austrian people have higher environmental awareness now, awareness changed from local to global issues, that means that people are more concerned by global environmental problems like climate change, energy supply, etc.

Cross-border cooperation Retz-Znojmo

"Real cooperation":

- Thaya National Park is a common project, the situation in regard to nature in the international park is the same on both sides of the border and there is a common wish to secure the same type of protection on both sides bilateral agreements on the basic management principles and common aims for the next 10 years, joint tours in the park.
- "mixed" school-classes, slight differences between Austrian and CZ students: CZ-students are more motivated to learn German, work harder, are shy (they do not actively participate in the teaching process to the same extent as their Austrian classmates).
- Tourism: cross-border cycling path

"Formal cooperation":

- „normal" neighbourhood with CZ, politicans have only formal contacts to CZ.

Distances/gaps:

- in general very less information about the CZ-side, no information in media, no information about environmental themes and therefore a lot of open questions.
- Austrian activists protested against Dukovany, public discussion.

Social Living / employment:

„*Retz ist eine Enklave, die funktioniert* (Silberbauer)." „Retz is an enclave, that functions".

- social erosion in the borderland during times of iron curtain
- now the population is rather constant
- young and high educated people leave to Vienna after their school times. But young families often come back to build their houses in the countryside and commute to work in Vienna. 500 people commute to Vienna, the bigger part takes the train.

- There are a lot of Viennese people, who live in Retz only at the weekend (e.g. 25 % of the population in Oberretzbach)
- Retz is an elitarian residential area with many objects of interest and a beautiful landscape. Compared to Vienna here is scarcely crime.
- rural population closely connected to their homeland / close-knit families are a well functioning social net.

Environmental awareness / environmental activists

Private/individual

- consumers ask for organic products
- environmental awareness of the inhabitants of Retz is high, in general environmental education starts in the kindergarten and at school in Austria. Young people are environmental educated, but environmental activists? Activists are between 40 and 50 years old.
- stronger environmental activism 15-20 years ago (housewifes enpacked their goods at the supermarket cashpoint and boycotted canned products)
- environmental awareness is higher in the cities than in the countryside.
- awareness changed from local (waldsterben,..) to global awareness (climate change,…)
- solar energy activities: Inhabitants are environmental active – every year 20 new private solarplants! Local government supports everybody who likes to build a solarpanel, now already 100 solar panels in private households, one in public swimming pool, one solar heating plant
- windpark near Hollabrunn, many people are against this wind park, because of the landscape, ugly...
- initiators of today's national park were a view private people from Hardegg. When the city of Znaim planed to build a damn, this people fighted to protect the nature and worked very hard to realise the national park. Later on they got support from the government of Hardegg and then also the federal government of NÖ wanted to realise a national park.

NGO

- on the local level lack of NGOs
- NGO platform against nuclear power („Plattform gegen atomare und andere Umweltgefahren")
- experts (e.g. Helga Kromp-Kolb), NGOs (global 2000), green network

Local/regional projects:

- "Bauernladen" → successful story, some organic products
- "fair trade shop" → has run for 15 years, in the beginning they were all voluntaries.
- Unternalp: straw plant, that supplies 80-90 households with energy. Obermarkersdorf: Pellets. Both are district heating plants.
- environmental weeks every year (20. Umweltwoche 2006), has always been a think tank for new sustainable ideas (nationalpark, Bauernladen,..were born in environmental weeks).
- Klimabündnis / Climate Alliance (one day of action per year → scarely noticeable)
- the first austrian solar day was in Retz
- Eco-Counselling in Hollabrunn offers seminars, NÖ has the program „Gesunde Gemeinde", single actors in the adults aducation

Regional economy

some people from the surroundings commute to Retz, but 500 inhabitants of Retz commute to work outside the commune.

Agriculture / winegrowing

„Retzer winefarmers are in a lucky position, but not all wine farmers can exist and we have to look for new things and work in sustainable cycles." (Fallheier)

- small structures in agriculture (land reform resulted in bigger fields for easier production, but nowadays the authorities want to come back to more structured fields).
- because of technical production small ways and paths are overgrown
- since 1995 Austrian agro-environmental program ÖPUL, that supports a nature-orientated production (measures against soil erosion like greenbelts, greening of fields during the whole year, conservation of old cultural landscape,…), 90 % of the farmers in Retz take part in the ÖPUL-program
- many organic farmers and organic winegrowers (50 %), in general rather nature-orientated production and high quality instead of mass production
- globalization of food prodution → big pressure on regional farmers. farmers don't get enough money for products –> risk to give up cultivation! New ideas: not only food-production, but also growing plants for e.g. energy use, homeopathic use. Successful project is e.g. the "Edelhof" in Zwettl.
- wine farmers started to produce high quality bottled wine and bring it to the market by themselfes. In former times they had mainly yard sale, today they offer their products in the internet and sell it to speciality shops in the cities. They also started to cooperate with the local gastronomy, hotels and guesthouses.

- in general a decreasing number of jobs in agricultural field, but increasing workingplaces in tourism .

Tourism

- Tourism is very important for the regional development, the Althof hotel is the main company in this field
- Retz has one-day tourists mainly from CZ and Vienna, tourists who stay over night come mostly from West Austria and Southern Germany (40,000 over-night-stays per year). In the Althof hotel they have tourists mainly from Austria, Germany and Suisse. Czech people have a job-related stay in the Althofhotel or come private over a weekend.
- For successful tourism branche cooperation and common aims are essential (Tourismusverein, Retzerland-promotion).
- Near nuclear power stations influence tourism. Tourists ask if there is a danger.
- Sightseeing versus nature protection in the Thaya National Park? Aims of nationalpark are nature protection and tourism / regional development.
- Influence of NP on the population is overestimated, not so many restrictions: fishing (time, who is allowed).

Threats/risks/fears

„Im Vergleich mit dem Rest der Welt, leben wir hier in einer sehr sicheren Region."

(„In comparison with the rest of the world, we live here in a very safe region.")

Social risks

- Migration / it is a danger, that the good educated people leave/commute in the cities
- to quiet town sometimes, but positive is that it needs just 1 hour to Vienna.
- to much tourists

Environmfental risks ("the greater environmental risks, the less information")

- to much traffic
- not much natural hazards
- Concerning floodings, Retz is in a lucky position. Retz' rivers are usually dry, but fast coming water would be a problem. Floodings took place at the Fugnitz in Hardegg and Merkersdorf.

- Nuclear power stations are very near and unsafe, especially Dukovany (power plant and waste disposal site). "*There is no transparency, we don't know exactly, if there is a danger or not."*
- dry region, therefore water is a problem. Water can't be used as drinking water, because it is polluted by agricultural production, ground water also polluted with residues of herbizides.
- Landscape conservation is endangerd, because farmers give up their agricultural production, wide areas grow up, become forests and characteristic landscape get lost.
- risks for agricultre are hail, strong wind, pests (e.g. in former times vine pest)
- no dangerous industrial waste
- Wastewater from wine production→ clarification plant → no receiving water, but directly into the Thaya
- soil erosion because of big agricultural fields and new sorts of crops → transport of soil → mud accumulation in the Thaya.
- Global issues: change of climate, nuclear power, GMO's. But representatives of the community and NÖ aren't interessted in this issues.
- GMO → in animal farming as feeding stuff.

Local/regional strategies for future

A lot of money has been invested to tourism, but this shouldn't be the only pillar for future!

Use local resources, local knowledge and competences, especially in agricultural production!

- Relationship between environment and regional development: working places are as important as high environmental quality.
- Tourism:
- Aims of the national park are nature protection, but also tourism and regional development
- The typical character of the regional landscape changes, there are no strategies how to deal with this yet.
- Agriculture: look for new things and work in sustainable cycles!
- Aging society – Retz as a place for elderly people, ideas are attended dwelling and a educational institution for care
- Infrastructure: good railway and road connection to Vienna and Prague is wished
- Energy diversifying

ZNOJMIA SEEN BY ITS INHABITANTS RECORDED BY GEOGRAPHY STUDENTS

Second-year students of geography at the Faculty of Science at the Masaryk University in Brno carried out 3-day long field research in the surrounding of the National Park (NP) Podyjí. In the local villages and directly in the city of Znojmo, we talked to residents, local government deputies and other stakeholders. They were our subjects of investigation – it was for this purpose that we interviewed them. We were interested in their stance to their own environment, nature protection in the NP Podyjí, what environmental risks they perceive in their surroundings and whether there are any environmental problems in their community. This report is a summary of findings that were gathered by myself and my classmates. Further on, I present main facts we found out in the villages Mašovice, Popice and the part of Znojmo, which lies on the bank of river Dyje.

Mašovice

Mašovice is a little village (with approximately 400 residents) located west of Znojmo, on the northern border organs of the NP Podyjí. The fact that the village lies in the National Park protective zone significantly influences its residents' life as well as an intersubjective structure of perception appertaining to environment protection. Another important fact related to sense of belonging in one's surroundings is that ethical composition of inhabitants in villages within the area has always been purely Czech. This observation can be considered significant inasmuch as no displacement of native people with Austrian origin took place after the World War 2.

When environment protection is being reflected, some positive changes in building up environmental structures can be discerned in the community – gas distribution (1998), city duct, sewerage (2003/2004), disposal of sorted waste, spreading of usage of electric heating boilers, planting common greenery (action Green Ways).

In the community, one can recognize residents' sense of belonging to the place, deep relationship to the surroundings; they are involved in public life, not indifferent about the questions regarding their own living space. Public actions are well-organized and the whole community participates in them. As an example, reconstruction of pathways is being planned as well as building tennis courts and playgrounds is currently underway. The village is developing – now even a whole new street is being built.

People see environment of Mašovice and its surrounding as their own and they even feel partially responsible for it. Therefore they consider the environment safe and do not perceive any environmental risks. They claim they are able to preserve the environment. This is where they get into arguments with the National Park, whose authority, according to their statement, interferes in the area, which they have considered their own. Restrictions which come with the area being a National Park are accepted by the residents with displeasure. That's why they were against proclaiming the National Park from the very beginning. Even nowadays they perceive the National Park as an institution negatively and consider its function useless, at least in their community. They do not see any positive effects of the NP on environment.

However, the main reason, why they mind the proclamation of NP is the encroachment into their own rights to make decisions in the community, in particular housing. They react very sensitively to the restrictions that come with lying in the protect zone of NP. By interviewing them we found out the following restrictions:

- Building operations – they can only use more expensive brown plastic windows (instead of white windows)
- New construction – project has to be approved by the board of NP, which sets the conditions of construction (e.g. only houses with saddle roof, red roof, no metal fences and gates)
- Administration – all the changes and interventions have to be approved by the board of NP
- Collecting farm Mašovice – sidedress had to be restricted; some areas had to be grassed over and now they are not usable
- Restricted movement in NP - mushroom pickers and people with dogs cannot leave marked pathways

All these prescripts and restrictions contributed to the negative attitude of residents towards the NP Podyjí, which hinders mutual communication and is difficult to change. Moreover, it also complicates cooperation, which would be certainly beneficial for both sides. As an example can be used massive development of cycle tourism, which is closely related to the proclamation of NP, and of which community endeavours to take advantage.

Popice

We have gained different experience in the second village of Popice in which we carried out our investigation. Popice lies in the south-east boarder of NP in the NP protective zone. It is a little community, which belongs to the town Znojmo, and is administratively one of its city districts. However, its affiliation is purely formal; the village has markedly rural character and is disconnected from the town geographically. Unlike Mašovice, the village had also Austrian residents before The World War 2, who were displaced and Czech population was settled in. This event was crucial for the development of the village. Nowadays, there are very few original residents and the community does not provide any services. For instance, the local dilapidating church hosts only ten services a year and there is not even a pub in this village. Big seedy homesteads, farmhouses (estates) and wine cellars falling apart, which were not fully used after the departure of Austrians, indicate very different past.

In regard to the question of environmental threats, local residents do not perceive any and are generally satisfied with their environment. They value natural riches, which they have few steps behind their homes. They also enjoy going to the National Park, spending there their leisure time. Nevertheless, they do not connect natural value of the area with the existence of National Park Podyjí. Similarly to inhabitants of Mašovice, they believe that the situation would be the same without NP and they themselves would not destroy the nature but rather preserve its current state. As the biggest asset/difference stemming from the formation of the NP, they see a big increase in a number of tourists (mainly cyclists) coming to this area. They perceive it positively (they are pleased by their interest in this region). Despite the above facts, the community does not know how to take advantage of being a popular tourist destination - it lags behind in refreshments and people do not even think about providing tourists with accommodation.

Unlike the residents of Mašovice, they do not mind the existence of NP and their attitude is rather neutral. The only restriction that follows from the village's location in the

National Park is a necessity to consult building operations with the board of NP. This is not, nevertheless, being perceived as an essential problem. Personally, I reckon that since there are no conflicts of interest between the residents and the NP, the attitude toward the National Park itself is not so critical.

The Dyje-river in Znojmo

The last examined area was the part of Znojmo, lying directly at the banks of the river Dyje, specifically between the Znojmo Dam and the bridge in Nový Šaldorf - Sedlešovice. It was within this area that the biggest environmental threat loomed large from the very beginning – the river Dyje itself. We primarily focused on the clarification of the real threat and events that took place during the flood in spring 2006. What we found out was that the representation of flood as given by mass media was magnified and generally exaggerated.

Information we gained was surprising. Specifically, we learned that there were no signs of flooding in Znojmo. It was as soon as during my first visit in the area, immediately after the backdown of flood water that I saw the alleged damages were not in fact so significant. Since the flood took place before the beginning of growing season, its consequences disappeared quickly under the green cover of plants.

Later on we found out from people that the flood was not really big in the examined area: only gardens along the river were flooded and there were not many dwelling houses in the area anyhow. Most of those were even little bit higher than the level of flood reached. Only some cabins in gardens were flooded as well as cellars and a few houses. Fertile soil was washed away from the gardens and these were clogged by send silt and dirt. As far as owners were concerned, all this meant for them rather inconvenience and extra work than big material loss or threat to health. However, people who were affected had to face consequences of the flood even two months after the flood. They feared that their houses will be flooded and they will have no roof over their heads. It is not easy to imagine how they the people, who were watching from their windows how the water moves up to the walls of their house, felt. Even though the water did not reach up to their houses, there still was a sense of psychological harm.

There are not many endangered buildings in the area. Residents who have their houses as close as the second row, not to mention those with houses higher in the slope, do not have to fear water, thus not experiencing the imminent threat.

From the field research and the interviews have emerged the conclusion that objective danger posing a real threat to local residents is significantly smaller than the subjective fear, or anxiety, based on a few people really being affected. Loss of the residents' trust to institutions involved in regulation of the river and the dam seems to me to be much bigger problem than was this year's flood. We have even heard an opinion that it would be no surprise if the whole dam would burst open – this would, allegedly, sweep away everything alongside to the river. Many people do not trust those in charge anymore, blaming them that they are not professionals and are only trying to protect their own interests and secure profit.

Considering the fact that there only a few houses next to the river are threatened, construction of new millionaire's villadoms right next to the river in Nový Šaldorf looks rather surprising. These houses, even though many of them are not finished yet, were some of those few flooded. What's more, houses so close to the river cannot even be insured against flood. Thus, the question arises what led people to the intention to build their

houses in the endangered area and why responsible institutions allowed such housing projects and whether existing legislation should not be amended to solve this problem. Residents of the new houses do not recruit from locals or poor people, which evokes some speculations, especially that environmental protection was not informing decision-making process regarding new constructions.

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Chapter 5

THE PERCEPTION OF PLACE BY MEANS OF MENTAL MAPS OF STUDENTS FROM ZNOJMO/RETZ

Břetislav Svozil

Mental maps originate from an individual social construction of reality – they determine how we interpret and respond to the world around us and give sense to our experience and habits.

Perception is a very complicated process related to other psychological factors (imagination, remembering, preferences, evaluation, decision making, behaviour, location determination, expectations, attitudes, habits, etc.). From a psychological point of view, in the process of perception the inseparable interactive unit of a person (subject) and his environment (object) with which he is connected in a unity of learning and learnt are relevant. (Černoušek, 1992).

The work on mental maps is aligned to the experience gained from previous projects which were dealt with for example in the subject Geographical Thinking (Z0120) and in the subject Sustainability (Z0131) at the Institute of Geography at The Faculty of Science, Masaryk University in Brno under the supervision of A. Hynek.

THE HISTORY OF MENTAL MAPPING

According to historical documents, mental maps were a subject of interest already in ancient times. In the 1930s Tolman contributed greatly to the development of knowledge of mental maps. He was interested in the research into the sense of direction of lab animals in a labyrinth. This research also provided important information about the sense of direction in space in the human race. This knowledge is being built on even today, not only by geographers, but also by psychologists, architects, sociologists, town planners, etc.

Nevertheless, the founders of mental maps are assumed to be the American researchers K. Lynch and P. Gould. Great development in the study of mental maps took place in the 1960s and 1970s. Among the authors who contributed to the development of the study of mental maps were (in addition to those already mentioned) R. Downs, D. Stea, R. White, T. Buzon and others, who carried out research of which one aspect was focused on human imagination. They stressed the importance of human thinking and opinions. For example K. Lynch (1960) examined the character of human mental maps of municipal districts – the perception of the urban environment. He assumed that each inhabitant has an image (picture) of the town in his mind. Each individual picture is unique, depicts a certain content which is never, or almost never, transmitted to others. On the other hand, it is almost always the same to a certain extent as the collective picture. In addition, he defined the elements of the environmental picture which (from his point of view) have a universal character. These are communications (lines of movement), borders (lines dividing elements, usually not used as roads), circuits (parts of town of middle size), intersections (strategic town points) and orientation points (outer points from the observer's point of view). Each picture is unique and non-repeating, based on a specific combination of previously

mentioned elements (Mágr, 2000). T. Buzon, an Englishman who wrote the book "Use Your Head" in 1974, was the first to introduce the concept of mental literacy (Mental Literacy). In his book Buzon derives his idea from the fact that each brain hemisphere specialises in a different type of activity: the left one with words, numbers, logical chains, etc., while the right deals with colours, rhythm, fantasy, sense of direction, imagination, intuition, etc. To improve and optimise brain capacity usage, cooperation between both hemispheres needs to be supported and stimulated.

Definitions of some mental maps

The definition of mental maps is not unified, especially when the requirement to formulate the definition comes not only from mapmakers and geographers, but also from psychologists and sociologists. From mapmakers' and geographers' point of view, mental maps are defined as a graphical (cartographic or schematic) expression of the human imagination of space, mostly quality or settlement (Drbohlav, 1991).

We carry a lot of mind maps that help us to find our way in places which we are familiar with and also places where we have never been. The maps can be pictorial or created from symbols. The maps can also be created from words, thoughts and notions. Such maps can be called mental maps (Robert, 2004).

By a map of the "Lynch" type we understand a personal picture, spatial image, its reflection, a means of perception of spatial organisation, a perception of space depicted in map drafts which are drawn by respondents themselves (adjusted from Hynek, 1980 in Mágr, 2000). R.D. Johnson (1986 in Zubrický, 1997) defines a mental map as spatially arranged preferences or egocentric spatial images. D. Drbohlav and M. Černoušek (1996) describe mental maps as an internalised cognitive picture (image) of a town, village or landscape: a region creating the environment of a person, which is usually depicted graphically. At the same time, mental mapping can be a research method used for the depiction of a preference structure, values, and attitudes to a certain place or region.

To put it more simply, mental maps:

- Are individual maps, which depict space from an individual perspective and enable us to orient ourselves. The core of mental maps is thus closely connected to the function of our mind – remembered information about places, persons, regions, ways, etc.
- They show individual attitudes, values, features, interests, knowledge, opinions and meanings which we assign to certain objects and which we would find very hard to find in another way. What is important to us does not have to be important to others. Because our knowledge of reality is not complete and because we interpret reality through our values, mental maps can never exactly reflect reality. Mental maps are not, and cannot be, identical. At the same time, there does not exist one unique, perfect, exact mental map.
- They stress the importance of perception and understanding of spatial interfaces and mutual spatial relations in time and among people’s activities, locations – their natural and social environment.
- They help us to understand the world around us – the world we are aware of.
- They can be used in almost every activity that is to a certain extent connected to thinking, recall, planning or creativity. Every brain has its own map toolkit.

- They are a combination of objective knowledge and subjective spatial notions. They usually contain objective and precise knowledge about the location of geographical objects, e.g. continents, countries, towns, mountains and oceans. But they also contain more subjective and less precise information such as feelings about places, their relative size, shape, location and the overall meaning of certain relations between places, as well as the priorities reflecting the preferences of the mind map creator.
- They continually develop and change, depending on time (under the influence of new knowledge and experience). Through repetitive perception of the same environment the mental map of the individual becomes more and more precise.

In pre-school age, the centre of a child's mental map is the place he sleeps or plays in. When getting older, the set of mental maps increases and becomes more and more precise. At the same time, the centre changes places. Information about our environment is received from miscellaneous sources, e.g. Television, books, the internet, conversation with friends, etc. By receiving more and more information about our environment, our mental maps tend to become more geocentric than egocentric. In other words – "we learn" to orient ourselves in our environment rather than around it.

As already outlined, mental maps are derived from experience, and that is why they are determined by many factors – age, sex, education, culture, profession, experience, place of residence, etc.

- Mental maps enable us to reach our goals even if these goals are in the next room or downstairs or on the other side of the street. They also enable us to describe to the others how to get, for example, to the town centre or to our house. In the head we have then mental maps of our room in the flat, of our house, neighbourhood, and other places which we have visited and about which we have information from different sources.
- Mental maps represent our knowledge about the arrangement of our environment, as well as information about features and characteristics to which we have an attitude, and relations with different locations and regions.

Creating mental maps

1. Information collection (perception, observation)
2. Creating the image (imagination)
3. Evaluation and decision (preference – information and reality filter)
4. Assigning importance
5. Prerequisites based on data selection and meanings assigned to them by us.

METAL MAPPING OF ZNOJMO/RETZ

The target of mental mapping was to trace negative and positive aspects, and common features in the Znojmo/Retz district – perception of students in the topic

"What do you perceive as the main environmental threats in your living space – what do you consider safe and unsafe in your neighbourhood?"

Students' support and cooperation was used when working on the mental maps. Experience from the work on mental maps and the consequent directed interviews showed that students' understanding and perception of the world is underestimated and neglected. Nevertheless, their perception and understanding is for all of us very inspiring and challenging in many aspects. We especially focused on the tracing and understanding of place perception with students who are often little influenced by any research.

The chosen place for the creation of the mental map was an area very well known for the students. They live in it, they are both consciously and unconsciously in everyday contact with it (on the way to school and home, when shopping, playing, etc.) or they spend the majority of their time there. Our target was not to disperse the focus of our interest outside the Znojmo/Retz region.

Yi-Fu Tuan invented the term topophilia (affective and aesthetic interaction between people and their environment resulting in long term attitudes). Moreover, he claims that the real, true aesthetic value of any environment has quite a short-term duration. (Černoušek, 1992).

Mental mapping was carried out in two phases. Firstly, in Znojmo in May 2006 – 28 students from the 7th class and 24 students of the 9th class, in the Gymnasium of Dr. Karel Polesný, conducted under the supervision of Mgr. Mittnerová. Secondly, in Retz, in October 2006 – the research sample was made up of students of the 3rd and 4th form of the Gymnasium BHAK/BHAS Retz under the supervision of Mr. Silberbauer.

Students from the Znojmo district were expected to react to the danger of the Dyje River in the mental maps. The Dyje River was the subject of media focus and exaggeration during the period of flooding. How do students living close to and far away from the river perceive the danger? Do they feel endangered? Or do they, on the contrary, feel safe near the river and do they identify the danger anywhere completely elsewhere? These were some of the questions to be answered by means of the mental maps of Znojmo students.

In Retz the mental maps were a much more open question. Floods were not the issue in this district, so one of the depicting possibilities seemed to be the nearby border or sometime in the past a problematic traffic situation.

One of the most important pieces of information which was the focus of our interest when mental mapping was whether the students would perceive – trace in the maps - rather natural or social elements. We were interested in the weight of individual information sources influencing the students. First of all, mental maps were to discover how the students perceive, experience and interpret their surroundings.

During the process of mental map creation, the students were allowed to use colours, symbols, geometrical shapes and arrows by which means they could express mutual interactions and associations. The students were obliged to follow a set of rules:

- To work individually
- To put down key words on the mental map
- To briefly describe in some words their maps

- To write their address

Both during their work and when handing it over each student was asked a set of questions. The qguestions reflected their maps and enabled better and easier elaboration/interpretation of their maps. The students were able to explain their mental maps – the way of arranging ”objects” in the maps and they clarified the reasons for them. Moderated interviews and discussions among students themselves after finalising the mapping revealed many other relations which would otherwise be hard to understand and interpret correctly.

When processing the mental maps we were interested especially in spatial arrangements, geometric arrangements, the depiction of the place itself, depicted "things", highlighted elements, connection between central space and other locations etc. The most important messages in the maps were not the shapes, or objects…, but the reasons which led to them. Mental maps are to reveal the values composing the individual mental map. It was very interesting to learn about and discover the detailed content of mental maps and compare it with the student’s own experience and find out the amount of mediated information. To attempt to divide information resulting from own experience, from the family, school, social group, from media and set their weighting in relation to place perception.

When creating, analysing and interpreting mental maps both quantitative (eg. Levelling by means of frequency) and qualitative (eg. Moderated interview) methods were used.

RESULTS - MENTAL MAPS ANALYSES FOR ZNOJMO/RETZ

1. The picture of Znojmo presented in the media (as a "victim" of this year’s floods) does not reflect reality - it does not correspond to local inhabitants’ experience. The students of the 7th and 9th classes do not perceive the floods as a danger. Only three students who had direct experience were aware of the danger.

2. Mental maps disclosed that natural elements play an important role in their perception. Important and central topics for the students are those with a social context. The students perceive their environment, from the nature and countryside point of view, as a safe place. On the other hand, the danger is seen in those elements created by people and where direct human interaction is visible at first sight.

3. The mental maps of younger students (mostly from the 7th class) reflects the information mediated by mass media in a very limited way or do not place such a great weight on them. Their mental maps directly react to their own experience. The mental maps of some older students outline a broader scope – a broader perspective and to a greater extent the maps contain traces of membership in interest groups, parties and also of greater influence of the mass media.

4. Students from Znojmo perceived their home and its closest surroundings as the safest place. The students from Retz perceived as the safest place a playground (related interactions). The second place was their home and its immediate surroundings.

5. Students from Znojmo/Retz came to the common conclusion that the biggest danger for them is traffic – accidents, the increasing number of cars, and unsatisfactory conditions for cyclists…

Analyses of mental maps further showed that students are influenced according to the following scale – that is they perceive very intensively those situations:

1. which they have experienced themselves, with which very emotional experience is connected (autopsy).
2. which either family or other close people have encountered (social background) – they perceive them very emotionally, they perceive them as their own.
3. which are connected to school knowledge, interest groups – experience from the playground, town, street, …
4. which are mediated by the mass media.

For finalising and completing the information value of the maps by means of details or differences in the maps, students commuting to the gymnasium from a nearby district proved to be appropriate. Commuting, as shown, does not mean a lower level of emotional relationship to the Znojmo/Retz area. In our case, students were allowed to choose, according to their preferences, whether they would create a mental map for Znojmo/Retz or for their own place of residence. This ”compromise” come out of the prerequisite that every student had to create an emotional relationship/link to Znojmo/Retz in the case that they lived in those places for a short time or if they commuted. For those reasons students noted down a place of the residence in every map. This information was crucial for further interpretation. This possibility was used only by some of the students who commuted to school every day from a further distance.

Summary:

Mental maps have revealed students' perception of the Znojmo/Retz district. They disclosed what is important for students, where they feel safe and where they feel danger. Moreover, during the moderated interviews the reasons for their pictures were identified.

As a result, we conclude that it is shameful that mental maps are not used both in Czech and Austrian schools. That is the reason for including the extract from American standards of geography education.

American standards of geography education (1994) contain mental maps as standard number 2 out of the total of eighteen topics of educational content. The importance of this standard is seen in the the role the transfer of the verbal stuff to stuff perceivable by sight memory plays in one's reflection on his/her own mental representations. Moreover, mental maps help the students to understand the difference between the perceived (Image) and reality, the ability to define the basic, key, central thought, ability to be aware of and express basic interactions, connections between concepts and thoughts, the skill to organise hierarchically concepts or thoughts, to differentiate between the important and less important. The method of mental mapping helps to organize the information and knowledge, helps to incorporate new thoughts into the existing knowledge systems of every

student.

Mental maps can provide students with tools for to expressing their thoughts. They stimulate active thinking, develop cognitive analysis skills, categorizing and synthesizing and provide illustrative tools for communication, planning and evaluation.

Students not only receive information, they are also forced to think, interpret the information and place it in relation to their schemes of understanding.

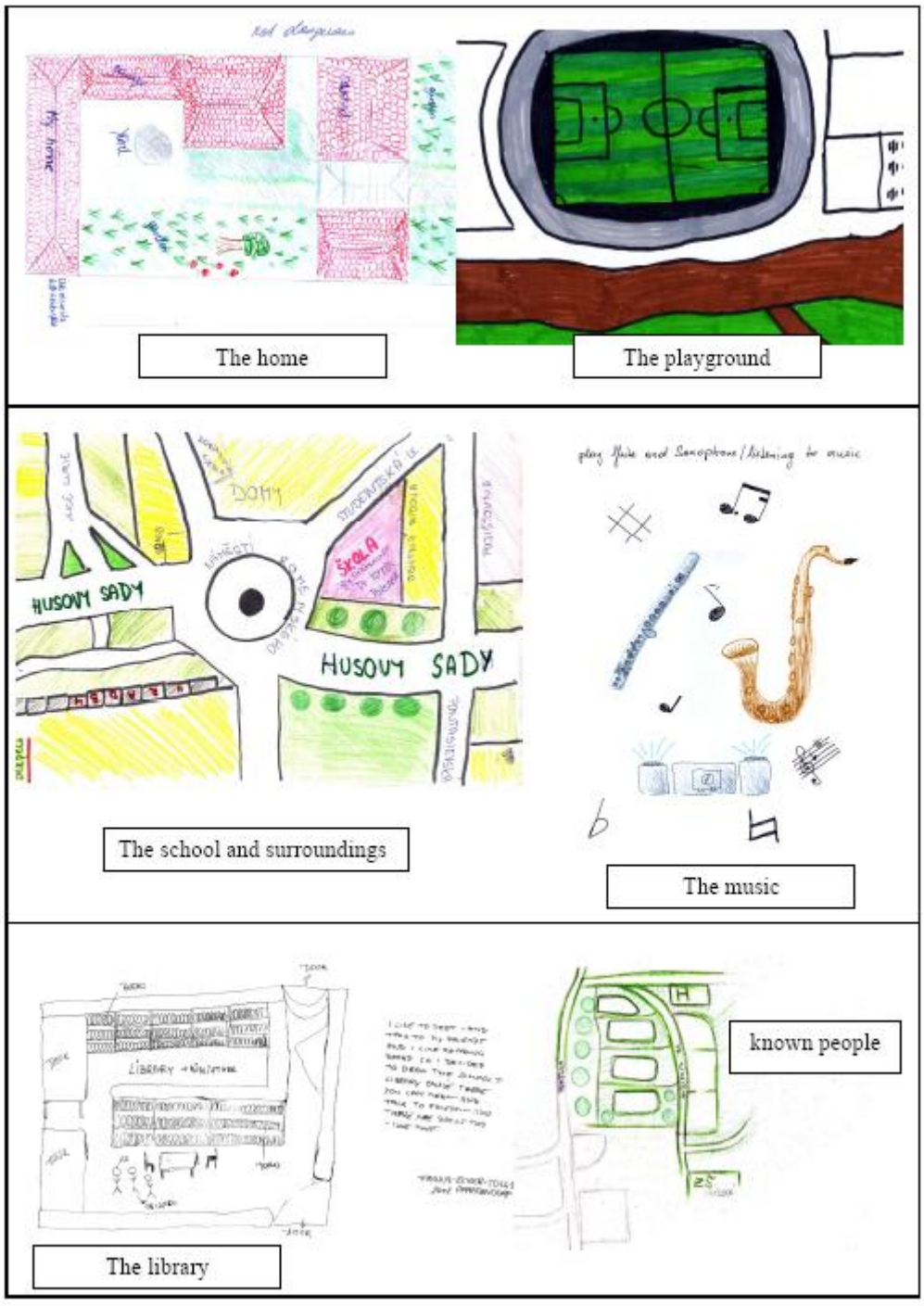

Figure 5.1 The examples of mental map: The Perception of the safe place

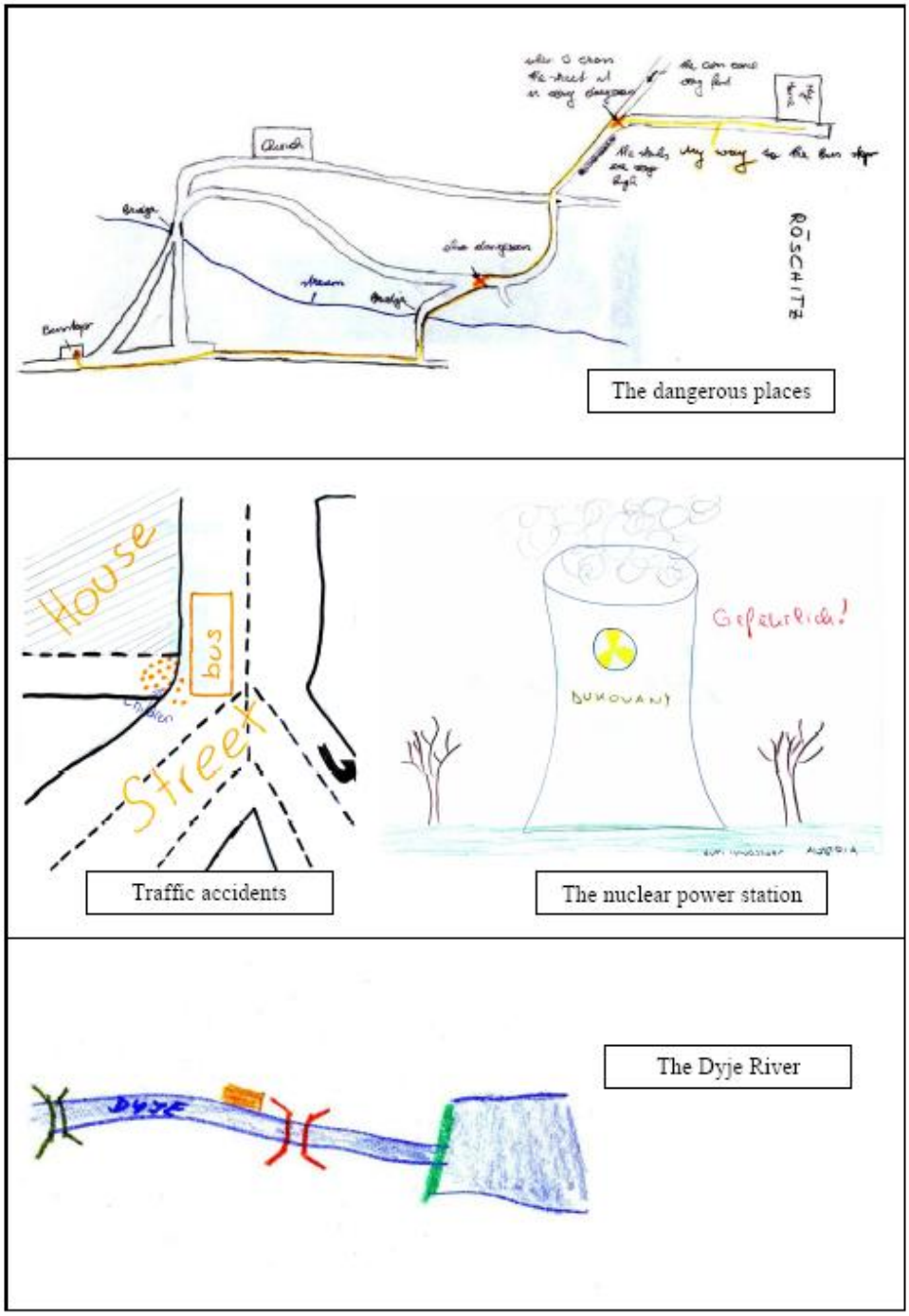

Figure 5.2 The examples of mental maps: The Perception of the unsafe place

Figure 5.3 The examples of mental maps: personal experience (autopsy)

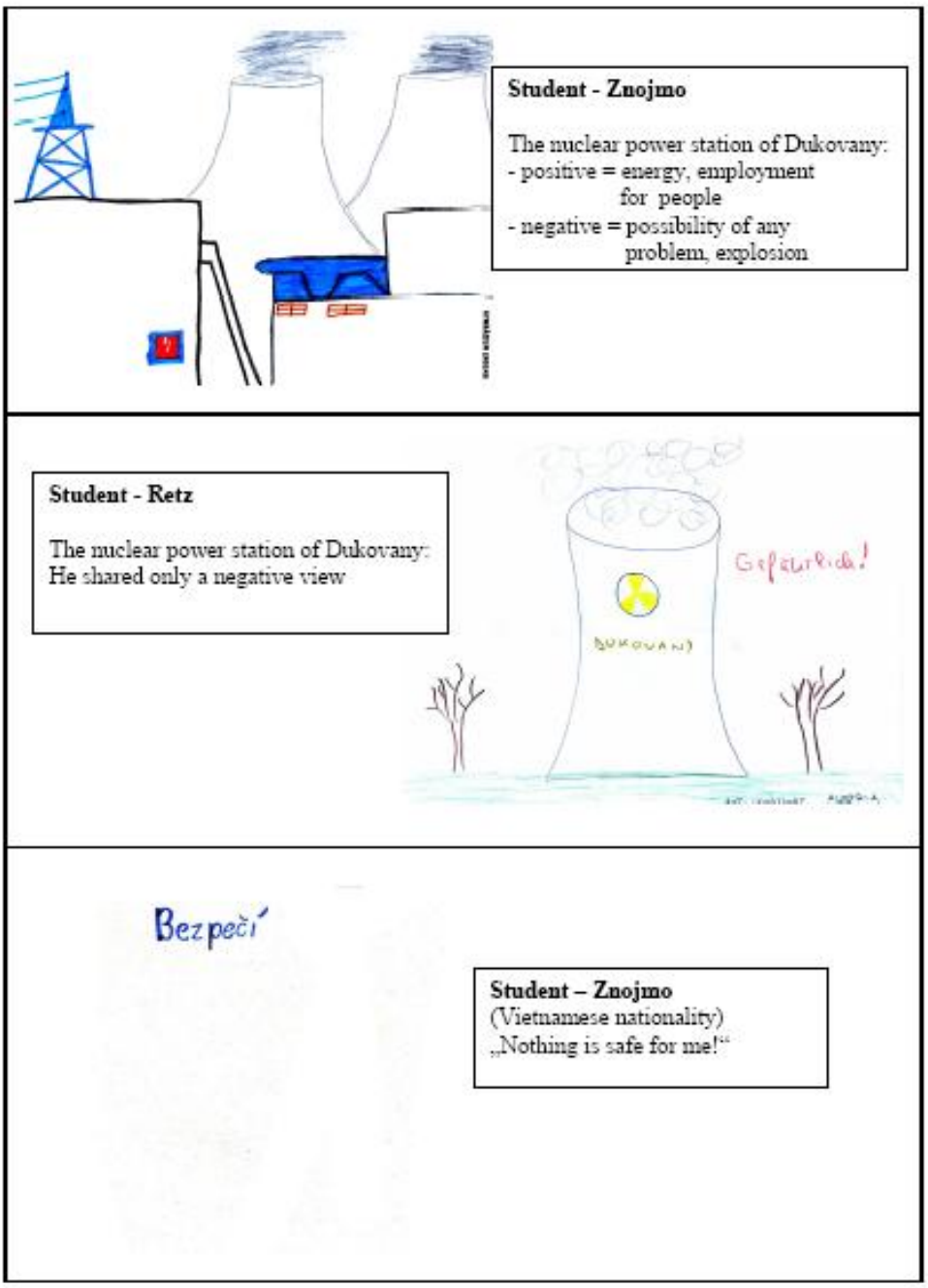

Figure 5.4 The examples of mental maps: Mass media

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Chapter 6

FLOODS AND THE CITY OF ZNOJMO

Vladimír Herber, Sandra Keyzlarová

At the turn of the 21st century, several flood events occurred in the Czech Republic. These events only proved the already long forecast climate change caused by global warming, characterized by weather extremes in which long-lasting periods of drought are followed by extreme rainfall.

Extreme flow volumes from the area over the last ten years – the most significant of which indubitably include the year 1997 (the Morava River), the year 2002 (most of the territory of Bohemia affected along with the basin of the Dyje River in Moravia), and repeatedly the year 2006 – resulted in enormous losses, both to life and property.

THE HYDROMETEOROLOGICAL SITUATION

The flood occurring in the region of Znojmo at the beginning of April 2006 was a snowmelt flood. It was caused by extreme snow storage in the catchment area and unfavourable snow melting conditions, and the snow also had a high water content. Due to the snow-water content recorded in the mountainous areas in combination with the values from mid-altitudes, the total snow storage in the basin reached the highest figures from the 1960s onwards just at the end of March 2006 (Fig. 6.1).

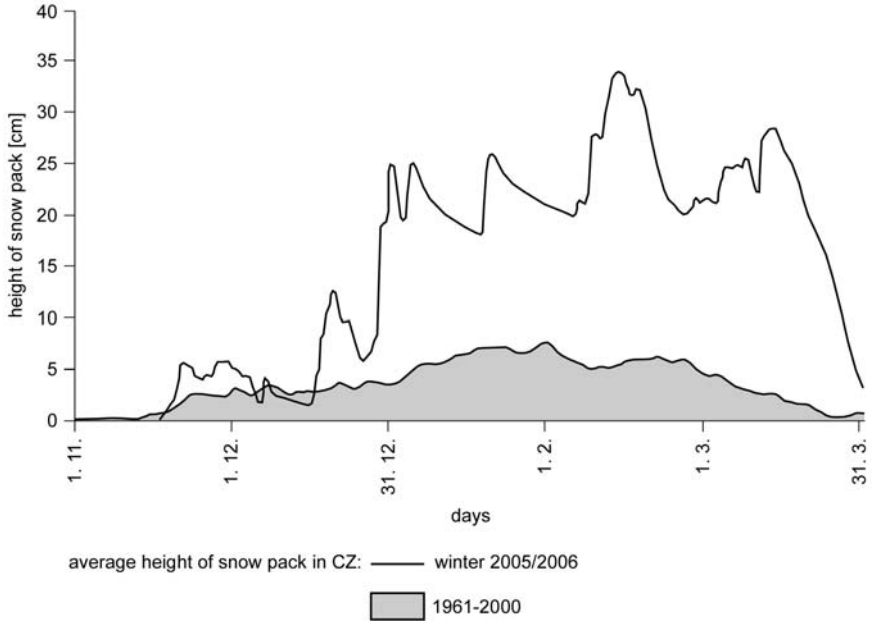

Figure 6.1 The average height of the snow pack in the Czech Republic in 1961-2000, and in winter 2005/2006 (adapted from CHMI 2006)

It was the water content of the snow covering the Bohemian-Moravian Highlands that proved crucial for the development of the flood event. In this region, huge snow pack accumulated on a large area (hundreds of km^2) at altitudes of up to 700 metres. Another significant source of snow in relation to altitude was situated in the catchment area of the upper reaches of the Dyje River in Austria.

The first mild warming occurred after March 20th, 2006, when afternoon temperatures began to rise above freezing. Snow melting was gradual and corresponded to a slight rise in discharge. A considerable change happened on March 25th, 2006, when warm and humid air began to flow into the territory of the Czech Republic due to the passage of individual fronts, which were followed by rainfall. The warming reached its peak on March 27th when several local temperature maximums were recorded. The snow melted much quicker at low and mid-altitudes (up to 700 metres), and so the flooding was most extreme in those basins where a huge snow pack was located in areas up to 700 metres.

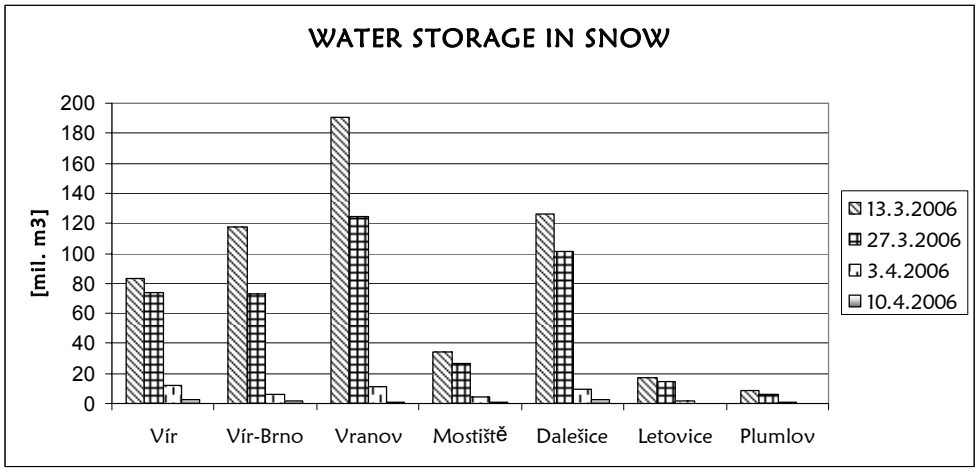

Figure 6.2 Water-content of snow in selected reservoirs in spring 2006 (adapted from CHMI 2006)

The last two winters ended their cold periods in similar conditions; comparable above normal amounts of snow started to melt in approximately the same calendar season. However, the results of the melting were very different. The crucial factor was the nature of the atmospheric circulation that followed the end of the cold period. After a long interval of subnormal temperatures accompanied by snow accumulation, a significant increase in temperature and rainfall, resulting from the change in the synoptic situation, occurred during the last third of March 2006 and speeded up the melting of the snow. As far as the course of the flood event is concerned, the most important precipitation (40–60 mm) fell in the Bohemian-Moravian Highlands between March 25th and April 4th, 2006. March 28th, 2006 may be considered the most rainy day in this period with rainfall in places of up to 30 mm. The precipitation acted as an accelerator in the process of melting, but the outflow formation as well as its final amount depended mainly on the water-content of the snow pack.

A similar radical temperature increase took place in March 2005; this was not, however, followed by heavy rainfall, and streams were therefore filled almost exclusively

with meltwater. While melting was aided by solar radiation, it was slowed down during clear nights due to cooling resulting from surface heat radiation. On the contrary, the snow melting in March 2006 was accompanied by precipitation, which was sometimes rather substantial. Streams were thus filled not only with meltwater, but also with rainfall; moreover, the soil still remained frozen in places, so it was unable to absorb such an amount of water. The melting was further speeded up by a fresh breeze and increased cloudiness, which maintained the accelerated process even during the night. As a result, the spring floods of 2006 turned out to be much more devastating than those in 2005 and the preceding years.

HISTORY OF FLOODING – FLOOD EVENTS IN THE PAST

The exceptional character of the floods in spring 2006 can be best documented in comparison with historical floods taking place since 1898. In 2006, the 3rd level of flood alert was reached in most of the studied river profiles. High outflows were reported on the main streams, corresponding to a 500-year flow on the Dyje River. Furthermore, the highest discharge since 1898 was recorded on the Dyje River in Podhradí, and this snowmelt flood event exceeded even the 2002 flooding. Yet, it had no devastating effect on the upper courses of the streams; the extreme discharge rates were concentrated in the middle and lower courses. The following flood, which occurred at the beginning of July 2006, reached the absolute maximum discharge ever recorded on the Dyje River, with the maximum peak discharge of 490 m^3/s. In this respect, the event surpassed even the flood in spring 2006.

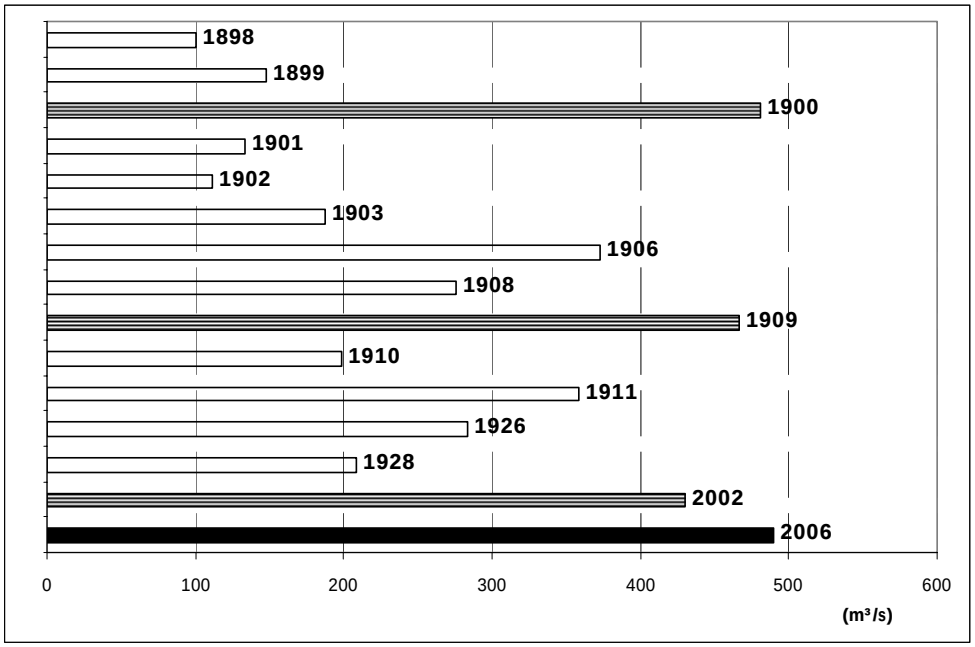

Figure 6.3 Maximum discharge rates of the Dyje River in the stream profile in Vranov between 1898 and 2006 (adapted from CHMI 2006)

PRINCIPLES OF FLOOD EVENT DEVELOPMENT

Water storage in snow, melting caused by a rapid temperature increase and precipitation are natural processes which cannot be altered by man. They function as natural triggers leading to flooding. However, they are further modified by human activities, namely by changes in the landscape, which can either accelerate or slow down the processes, and so affect the trigger mechanisms of floods in turn. Apart from the already mentioned natural – climatic – processes, there are other general factors that play crucial roles in any flood event development; they include the nature of relief, geographical location, and the landscape structure itself.

People try to protect themselves against flood risk: they build dams, modify and straighten stream channels, and build levees and dykes along rivers. By means of such works, they deliberately alter both flow volume and its time pattern. However, the outflow is also changed unintentionally, as a result of anthropogenic activities in the catchment area.

Built-up areas lose their capacity for water absorption and the outflow is thus multiplied. In addition, other human actions contribute directly or indirectly to global warming. In the end, all the elements of natural processes and conditions, together with human activities, enter a vicious circle, become inter-connected and influence one another (Fig. 6.4).

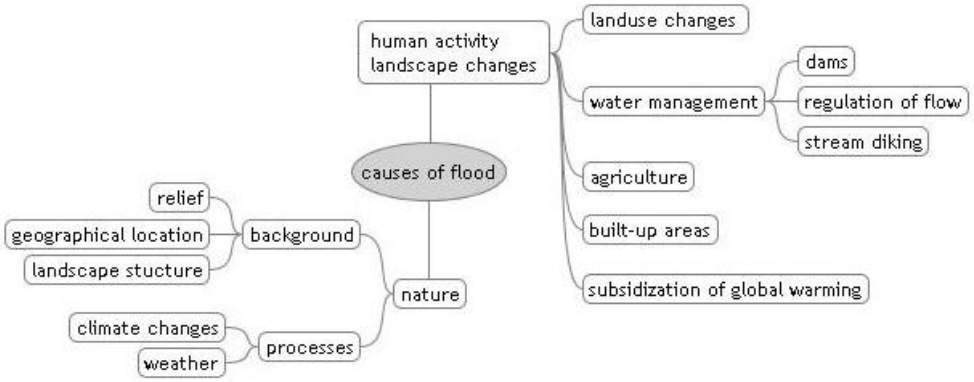

Figure 6.4 Causes of flood (mind map)

IMPACT OF THE FLOODING

Floods pose a great risk to society. In the Czech Republic, "fortunately," losses of property caused by floods far exceed loss of life. Nevertheless, the mental and emotional stress connected with such emergencies is enormous. The stress and fear, moreover, is not only felt by those directly affected by the event, but also by their relatives and friends. People who become surrounded and isolated by water can even show symptoms of a special mental state, known as island syndrome. These are the situations in which human qualities such as consideration, but also indifference and even looting and similar, come to light.

Loss of property naturally encompass the most obvious damage to flooded houses and their interiors, but also damage ton infrastructure, crops and others. Great expenditures are necessary for cleaning and drying the affected area, as well as for repairs and replacements of all sorts of damaged equipment.

It is interesting, however, how different participants of the same crisis see the situation through different eyes. The people directly afflicted first mention damaged or destroyed property, and their poor mental condition. Officials of the City Council of Znojmo contemplate the great financial cost of infrastructure reconstruction. The Morava River Basin Agency states in the Preliminary Report on the Flood Situation in the Dyje and Morava River Basins (2006):

"In the city of Znojmo, there was no extensive flooding of the residential area, there were only about 10 garden houses flooded, and several cellars inundated."

The Czech media, on the other hand, stirred up a discussion about the seriousness of the floods, merely by means of the headlines chosen. Here, we cite only a few examples:

"Crisis reaction staff order evacuation of ten thousand people in Znojmo."

"Znojmo awaits 200-year high-water, thousands leaving the city."

"Znojmo fears Vranov reservoir."

"The command of the Commissioner to evacuate caused shock in the area."

"We request residents to leave their homes immediately. Their property shall be guarded by the state and municipal police, and by the army which was sent in."

"The Home Secretary, Mr. František Bublan, together with the executives of the City Council, say that the tragedy could easily have been prevented."

"Mr. David Fína of the Morava River Basin Agency throws responsibility on both the weather and the meteorologists."

"Mayor: The crisis could have been prevented."

"The Mayor of Znojmo, Mr. Balík, stands by his opinion and is certain that all could have been prevented. Supposedly, co-operation with the Morava River Basin Agency was the hitch."

NATURE CHANGES, BUT DOES NOT FORGET, AND THE HIGH-WATER COMES BACK AGAIN AND AGAIN

We are experiencing global climate change, which manifests itself, among other things, in hydrological and climatic extremes. One year, our homes can be inundated by 500-year, or even 1000-year floods, while another we can encounter long-term drought. In winters, the minimum temperature records are broken; in summers, the same applies to temperature maximums. As a result, spring and autumn almost vanish.

Moreover, water shows its strength in yet another context. We cannot order the weather, so we command the river instead. Many dams, reservoirs, levees and floodwalls have been built, and stream channels have been straightened. Today we can observe that during floods water returns to the paths along which it once flowed. This holds true for Znojmo as well. The areas worst affected – Krabkova and Na Hrázi Streets – were built where an old channel of the Dyje River used to be located along with two ponds, which were later covered up with soil. "Nature does remember," Ing. Mička, Head of the Department of Environment at the City Council of Znojmo, added.

Recently, the inhabitants of Znojmo and its surroundings have been more and more frequently asking themselves similar questions: "Why do the floods return? Can't these

events be prevented nowadays? Can't they be somehow avoided completely? Why were all the reservoirs built?" The changes in nature have been already mentioned; at this point, it is necessary to draw the attention to what changes man has brought about. Roads, settlements, and car parks are being built giving rise to waterproof surfaces, over which water runs instead of being absorbed, causing surface runoff to accumulate. Rainwater and melting snow also encounter difficulties when flowing into a stream channel confined within floodwalls and levees. Furthermore, when such a wall bursts, which happened on both the Czech and Austrian sides of the Dyje, it leads mainly to the medial flood bubble being lifted to higher levels.

WILL THE PROPOSED MEASURES BE IMPLEMENTED?

Floods will continue to threaten the region of Znojmo. It is possible, however, to partially reduce their negative effects. This is one of the aims of the Vranov Reservoir, which at present performs several functions. It is an important holiday resort, and therefore, from the point of view of the owners of the weekend houses located along its banks, the water level should be stable, not fluctuating. Another use of the reservoir is hydropower generation. According to power engineers, it is ideal to have the reservoir filled up to its edge, because the efficiency of the turbines generating power is thus increased. Yet another role of Vranov Reservoir lies in the regulation of the flow of the Dyje. In dry periods, more water is released than enters, whereas in flood conditions the reservoir should retain the surge.

The clash between these functions is apparent. For retaining flood surges, it would be ideal if there was almost no water in the reservoir so that the reserve would be sufficient. It follows that it is impossible to meet all the contrasting requirements fully and that a compromise needs to be negotiated. Operating regulations have been created for the purposes of water management. The last edition is, however, almost a quarter century old now and it originated at a time when flood was an "unknown term." The upper storage level of the reservoir is only set to 165 centimetres below the spillway. The capacity for retaining floodwater is too small and during a flood the reservoir fills up quickly, which results in water flowing uncontrollably over the spillway. The fact that the 1983 operating regulations are obsolete and do not suit the present situation was already quite clear during the flood in August 2002. The town of Znojmo has been trying to change these rules ever since.

In part, the Dyje forms the border between the Czech Republic and Austria, and therefore a joint Czech-Austrian committee has been established. It operates on the level of regional councils, that is Regional Presidents. They were the ones who encouraged the unification of hydrometeorological methodology on both sides of the border, and a further improvement in cooperation – and not only during emergencies. In practice, this means, among other things, the modification of the Vranov Reservoir operating regulations. Also, during a next extreme event, the authorities shall act on station reports both from the Czech Pohradí nad Dyjí and the Austrian Raabs an der Thaya.

The flood control storage of the reservoir should be enlarged from the present 21 to 35 million cubic metres. The town of Znojmo has been vainly trying to enact such a measure for a long time. The only positive outcome is the limited validity of the emergency operating regulations, according to which the upper storage level of Vranov Reservoir has been set lower by two metres.

A good sign is, though, that the first talks on the amendment of the Vranov reservoir operating regulations started in Znojmo at the end of September 2006 (www.znojmocity.cz,

October 2nd, 2006). Nevertheless, only another significant flood on the Dyje will show how effective the proposed measures are.

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http://www.chmu.cz/hydro/pov06/index.html

The Morava River Basin Agency, Brno: Předběžná zpráva o povodňové situaci v povodí Moravy a Dyje ve dnech 26.3.-20.4. 2006 (A Preliminary Report on the Flood Situation in the Dyje and Morava River Basins in March 26th – April 20th, 2006), Brno, 2006, 42 pages.

Reports on the floods:

http://www.znojmocity.cz/categories.php?op=newindex&catid=11

Znojemské listy (Znojmo Papers), October 2nd, 2006

Figure 6.5 Highwater in an outlying part of Znojmo (source: City Council of Znojmo)

Figure 6.6 The course of the flood in Znojmo (source: City Council of Znojmo)

Figure 6.7 Water overflowing agricultural lands (source: City Council of Znojmo)

Figure 6.8 The course of the flood at Vranov Reservoir (source: City Council of Znojmo)

Conclusion

Alois Hynek, Nikola Hynek, Christian Schrefel and Vladimír Herber

This project which was done in the Czech-Austrian borderland under the care of ASO has brought quite new experience for both partners from the 17&4 Organisationsberatung GmbH and Masaryk University (The Institute of Geography and, in one case, The Department of Political Science). We studied Retzerland and Znojmia as a transborder region with new lens examining cultural landscape. Our special focus was on environmental security and sustainability. We chosed this area as we believed that it is a quite unique territory with national parks. The National parks Thayatal and Podyjí - resembling jewels in otherwise intensively used landscape, are literally framed by arable land, vineyards, villages and two major towns, Retz and Znojmo.

Both Christian Schrefel and Regina Hajszan were experts on and guides in Retzerland where we did jointly social interviews with various environmentally aware persons. It was chapter four which dealt with this.Landscape field survey in Retzerland was done by Alois Hynek and Petra Karvankova, who did it also in Znojmia with undergraduate students reading for geography at the Institute of Geography, Masaryk University in Brno. Many students took part in two workshops which were held in Znojmo and Retz respectively. With regard to the project, there were also participating students from a secondary school in Retz. Reciprocal exchange of knowledge and skills influenced our attitudes to cultural landscape sustainability and security. It also shaped our values as well as guided our actions.

There are distinct differences in perception and imagination of cultural landscape as prevailing spatial environment on both sides of the border. The main problem is said to be nuclear energy: Dukovany nuclear power plant station is perceived as something giving creeps in Austria, not excluding people in Retzerland. However environmental perception is changing in Znojmia, in spite of very lukewarm relations between Czech and Austrian environmentalists. Many problems must be solved, e.g. in style of both national parks (Thaya/Dyje) management. Their directors on both sides of the river, which is incised in deep meanders, cooperate and coordinate their aims, approaches and actions and this natural inscription is an inspiration for creating the face of surrounded cultural landscape.

A chance to study cultural landscape of Retzerland/Znojmia was prompted by the lack of readily available material which would map the impact of the fall of Iron curtain, traditionally dividing historical neighbours with the same system of land use based on Maria Theresia and Joseph II., on environmental security on both sides of the border. Forests and settlement copy the former spatial pattern, though people are different and are now searching the routes for new forms of cooperation within the EU multi-level governance. This project can be conceived as the part of a new way of transborder interactions, learning and overall coexistence, all that in the EU space. Especially young people - i.e. our students, gained new experience which in turn led to understanding both sides of the common border not as the Iron curtain, but a joint one, not dividing but connecting.

Natural hazards do not differentiate human political borders and their domain is given by the forces of nature. However, their impact depends on the system of land use influenced by human forces based on redistribution of acting physical forces. It means that

sustainability and security are not quite physical or human phenomena: their nature is in fact hybrid one. This project funded by ASO has influenced our thinking on nature and people with respect to improving our common cultural landscape of both Retzerland and Znojmia. Is this not enough?

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