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Chapter 3

BIOSPHERE RESERVES AS LEARNING SITES OF SUSTAINABLE DEVELOPMENT (A CASE STUDY OF THE CZECH REPUBLIC)

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ABSTRACT

Established under the UNESCO's Man and the Biosphere (MAB) Programme, biosphere reserves represent protected areas intended to demonstrate well balanced relationship between a high level of nature protection and an appropriate local development, as articulated in the Seville Strategy and reinforced by the Madrid Declaration. According to their definition, biosphere reserves are to simultaneously fulfill four functions – conservation of biological diversity, ecological education, research and promotion of sustainable forms of socioeconomic activities. They can be theoretically considered learning sites of sustainable development. The chapter contributes primarily to the discussion on social part of the relationship between nature protection and socioeconomic development, namely on quality of life of local population living in protected areas, problems of social acceptance of biodiversity conservation measures and institutional arrangements applied when biosphere reserve concept is aimed to be practically implemented. Comparative analysis was conducted in three selected Czech biosphere reserves in order to challenge a cliché on nature protection and socioeconomic development to be a priori in contradiction as well as the belief in state nature protection being the exclusive leader in the process of the concept of biosphere reserve implementation. Triangulation approach was applied as a fundamental frame for empirical data acquisition and analysis, combining spatial analysis of data describing socioeconomic parameters of particular municipalities, semi-standardized interviews with key personalities, extensive questionnaire survey addressing general public, content

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analysis of regional periodicals and case study analysis focused on success and failure factors in the process of a concrete project implementation. The research results suggest that biosphere reserves did not differ in quality of life of their inhabitants compared with surrounding areas. In some cases, the existence of biosphere reserve was even seen as a comparative advantage – certificate of high quality nature as a base for local tourism development. In the Czech legislative environment, biosphere reserves are institutionally associated with administration of protected landscape areas. Such an institutional arrangement enables executing of state nature protection, providing public with ecological education, and guaranteeing research on a satisfactory level. There are problems, however, in supporting of sustainable forms of development. Goal oriented network, projects driven, of engaged stakeholders is suggested as a more efficient organizational form in this respect. Evidence of a still ongoing process of learning by interacting, aimed at using biosphere reserve as a trade mark of some kind, indicates that the biosphere reserves could as well in practical terms be considered learning sites of sustainable development. The chapter intends to contribute to the debate on ideas of the UN Decade on Education for Sustainable Development 2005-2014.

Keywords: biosphere reserve, sustainable development, social learning, triangulation

INTRODUCTION

Nature protection has evolved over time, gradually stressing special themes – the progress can be seen from those starting with protection of particular species to protection of ecosystems until today, when an appropriate management of large scale landscape areas has become a focal point. The focus on landscape scale has brought about also a shift in the role local communities are expected to play in this type of nature protection – satisfaction of their socioeconomic aspirations has begun to be perceived as an inevitable part of management of protected areas. Such a tendency is evident in Central Europe, where areas having a status of being protected cannot be considered pristine landscapes (Getzner & Jungamier, 2000; Paavola & Adger, 2005). On the contrary, they are permanently populated cultural landscapes having passed century long transformation by human activities. As a result modern nature protection measures count with needs of local population in order not to make areas under protection a priori disadvantaged from socioeconomic viewpoint (Těšitel et al., 2006). Very important in this context is a definition of nature protection as it was formulated by IUCN in its World Conservation Strategy. In fact it was anthropocentric as it considered nature protection to be a management of air, water, soil, mineral resources and living systems, including man, aimed at achieving sustainable quality of life (IUCN, 1980). Later on, the strategic shift was reflected by the UNESCO concept of biosphere reserves as it was articulated in the Seville Strategy and reinforced in the Madrid Declaration. According to its guiding idea biosphere reserve is to strengthen general awareness of mutual interrelations between humankind and biosphere by ensuring its four functions - enabling high-level biodiversity protection[1], supporting research and education, and promoting sustainable forms of socioeconomic development (UNESCO, 1996, 2001, 2002, 2008).

[1] We are aware of the fact that the conservation function is a prerequisite for the biosphere reserve existence, the chapter, however contributes primarily to the discussion on social part of the relationship between nature protection and socioeconomic development.

Multiplicity of functions associated with biosphere reserve refers to the concept of sustainable landscape (Antrop, 2006). Though we can agree with the argument that the whole notion of sustainable landscape development may involve some contradictions, merging landscape and sustainability may yield at least two positive results. Discussion on sustainability acquires spatial dimension (e.g. Price, 2002); on the other hand, the theoretical concept of cultural landscape (Antrop, 2001; Naveh, 2001; Palang et al., 2005) is „translated" into a more or less effective political scheme, suitable as a basis for practical decision making. In this context, sustainable landscape can be considered as a landscape where trade-offs between nature protection and socioeconomic aspirations of local communities are expected to be well balanced. In economic terms it presumes balancing three types of capital – natural, social and cultural (e.g. Farina, 2000; Garrod et al., 2006). In the rhetoric of sustainable development these capitals play the role of an internal potential of a particular region (Jehle 1998), the potential that can be realized when it meets an appropriate external context (e.g. Kušová et al., 1999; Těšitel et al., 1999).

An attempt to address the interdependence between human economies and natural ecosystems has been articulated in ecological economics, among others, in terms of ecosystem services (e.g. Costanza et al., 1997; Brock & Xepapadeas, 2003; Imhoff, 2004; Millennium Ecosystem Assessment, 2005; Faber, 2008). Though we can consider ecological economics to represent a paradigm shift (Kaval, 2006), it is evident that the discussion has primarily a form of an academic debate. As already Constanza (1997) stated in one of the pioneering articles in the field of ecological economics, because ecosystem services are not fully 'captured' in commercial markets or adequately quantified in terms comparable with economic services and manufactured capital, they are often given too little weight in policy decisions. Since, only a little has changed. As a result, the historically rooted stereotype in thinking, adopted by experts as well as general public presuming nature protection measures to be in contradiction with socioeconomic development has been surviving. For nature protectionists, "marketing" of protected areas is something "dirty", "commercial", not "suitable" for the field of nature protection (Roth, 2007). On the other side, nature protection in general and large scale protected areas in particular have a poor image as they are seen mainly as a burden for regional development by local and regional entrepreneurs and general public (e.g. van Kooten & Wang, 1998; Paiders, 2007)[2].

The UNESCO concept of biosphere reserve, in the first instance, is a policy objective aimed at reconciling conservation of biodiversity and biological resources with their sustainable use, backed up by internationally agreed upon conventions. The concept itself is

[2] They are not only nature protection enthusiasts or developers, however, who view the relation in terms of contradiction. Such a setting is sometimes taking for granted also by people whose profession is to conserve the nature. The seminar organized by the Czech Ministry of Environment in autumn 2004, as an event acompanying the film festival titled „Ekofilm" devoted to problems of environment annually organised in the towns of České Budějovice and Český Krumlov in the Czech Republic, could be used as one of practical examples. The issue to be discussed was a relation between nature protection and local socioeconomic development. The point was that organizers, representing official position of the top administrative body of nature protection, titled this event by use of the word "contra" – "Nature protection contra socioeconomic development of local communities". As a result, notion of conflict was introduced at the very outset between representatives of nature protection and local mayors participating in the seminar (Těšitel et al., 2005a).

appealing, however its practical application is a subject of wide range of institutional and administrative challenges (e.g. Parto, 2005; Stoll-Kleemann et al., 2006). One might even question whether the concept is compatible with the current institutional environment premised on centralized control over nature protection. By promoting the idea that the management of each biosphere reserve should be essentially formulated as a 'pact' between the local community and the society as a whole, the concept invites all interested groups and sectors for participation in a partnership approach. Doing so it acknowledges the fact that the capacity (e.g. knowledge, power and resources) to solve complex problem related to the implementation of the biosphere reserve concept is often widely dispersed across a set of actors located on different scales (e.g. Imperial, 1999). Such and approach seems to fully reflect the general tendency of the last decades embodied in the gradual shift from government towards governance, where responsibility for policy-making spans public and private sectors, promoting thus increased interest in networks as an organizational concept when conducting joint action (Parto, 2005). Though networks are interpreted many ways (e.g. Murdoch, 2000; Gunjan, 2005; Dredge, 2006), they are as a rule supposed to be open-ended, often unusual, ad hoc arrangements that demonstrate remarkable problem-solving capacity and open up opportunities for learning and change (Hajer, 2003 a). Policy making under the new conditions has become a matter of defining an agreed upon package of actions to be taken by variety of stakeholders, often supported by "soft law" such as conventions or agreements (Hajer, 2003). In this perspective, network structures are built upon social interactions and relationships which provide security and trust (e.g. Lowe, 1988; Tait & Lyall, 2004)[3]. Biosphere reserves, fundamentally concerned with whole-of-landscape processes, across a variety of land tenures and uses can be thus seen vehicles for managing the social, cultural and institutional change and capacity-building at the multiple scales (Amin & Thrift, 1994; Storper, 1997; Maskel & Malmberg, 1999; MacLeod, 2001; Brunghorst, 2001).

Main ambition of the chapter is to challenge the two cliché - firstly that nature protection and socioeconomic development are a priori in contradiction, and secondly that state nature protection should be considered an exclusive leader in the process of the concept of biosphere reserve practical implementation. In this context the discussion primarily addresses issues related to quality of life of local population living in protected areas, mutual attitudes of local inhabitants and administration of protected landscape areas, and institutional arrangements applied when biosphere reserve concept is aimed to be practically implemented. Finally, conditions under which biosphere reserve could be considered a learning site for practicing rules of sustainable development are discussed (e.g. Price, 2002; Stoll-Kleemann et al. 2006; Kušová et al., 2006, 2008).

Triangulation approach was applied as a principal scheme of the analysis. It can be defined as a combination of concepts, methods and dates used in order to get several viewpoints upon the topic to be studied (e.g. Olsen, 2004). It refers to the fact that reality is a complex matter and you need more than one single explanatory framework or data set to understand it at a reasonable level. The main advantage of triangulation approach lies then in its ability to depict multifaceted picture of a reality at hand. In our case, we combined concept of quality of life, issue of social acceptance of nature protection measures, and a problem of

[3] The Madrid Declaration (UNESCO, 2008) in this context suggests forming of effective partnerships through cooperation among state administration bodies, private sector, media, local communities, and scientific and educational institutions.

adequacy of biosphere reserve institutional arrangement as the main theoretical viewpoints. Empirical data for the analyses were acquired by a set of respective research techniques. In order to make a coherent picture, these techniques were not applied in isolated way. Step by step process was used instead, which made individual techniques to complement each other (Figure 1). We started with the content analysis of regional periodicals. Based on the knowledge gained about medial image on the relationship between nature protection and local development, structure of questionnaire was refined to address more precisely how local public perceives its socioeconomic situation as well as to reveal attitude of local inhabitants to nature protection representatives. Once main conflicts as well as examples of mutual cooperation between nature protection and local inhabitants were identified, as reflected by local public and media, one module of semi-standardized interview was structured with the aim to address local key personalities and get their opinions on these issues. It was complemented with another one asking about their experiences with practical implementation of the biosphere reserve concept. Spatial analysis of local socioeconomic conditions was relatively independent part of the research in this respect, framed however by the general scheme of the concept of quality of life. Case study analysis was applied in the end to identify concrete factors of success and failure in the process of practical implementation of a project aimed at promotion of the concept of biosphere reserve in one of model area.

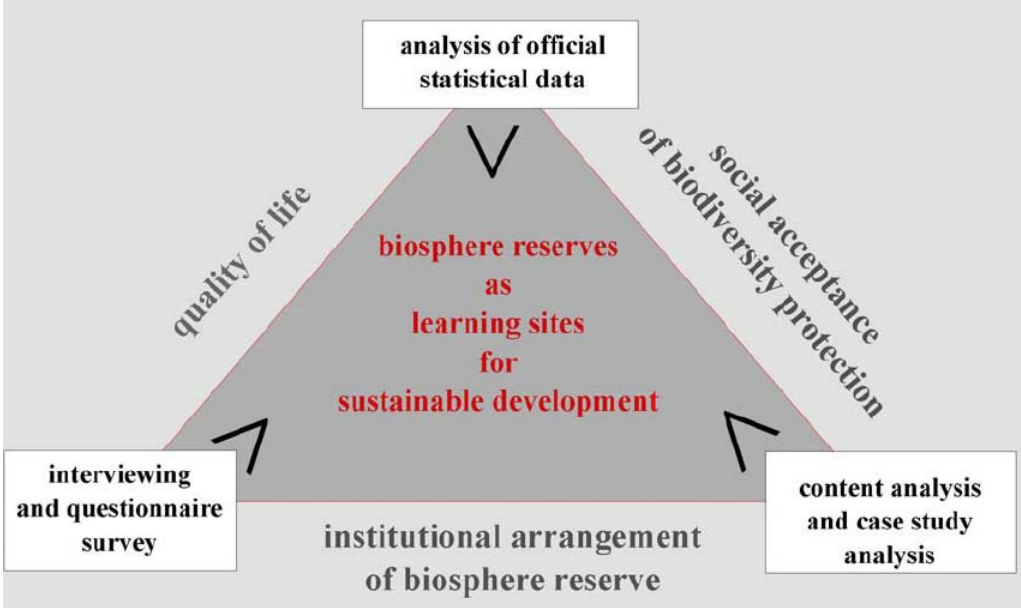


Figure 1. Scheme of the triangulation approach – a combination of concepts and techniques used to address the research topic.

Three Czech biosphere reserves (BR) were used for the empirical analysis (Figure 2). They were The Šumava Mountains[4], Třeboňsko characterized by many wetlands[5] and

[4] The Šumava Mountains represent the least damaged and best preserved mountain forest ecosystems and peat bogs in Central Europe. In the course of the 20th century this area was peripheral and the main economic activities were agriculture and forestry. The post-1948 period was characterised by the presence of the "Iron Curtain" and establishment of a military training area which made the area

Křivoklátsko dominated by the valley of the Berounka River[6] (Figures 3, 4, 5). They vary in their natural parameters as well as in their latest socioeconomic history, representing thus a relatively broad array of aspects to be taken into consideration when analyzing their functioning. Institutionally they are associated with the administration of Protected Landscape Areas (PLA), in the case of the Šumava Mts. with administration of PLA and National Park (NP).

Figure 2. Model areas – three Czech biosphere reserves.

almost inaccessable for 50 years. Marginality of the region has helped to sustain natural attractions, and led to the designation of the Šumava Protected landscape area in 1963 and the Šumava National park in 1991. The biosphere reserve was declared in 1990, and includes the National Park and the Šumava Protected Landscape Area (PLA), the total area being 1, 671 km2. Thanks to its geomorphological characteristics and mainly glacial relics, the Šumava Mountains area is listed in the IUCN Red Book of Ecosystems and Šumava wetlands are on the list of Ramsar Convention. Since 2004 most of the territory has become part of the European network Natura 2000. (http://www.npsumava.cz)

[5] This area was declared biosphere reserve in 1977, two years before Třeboňsko PLA was proclaimed. The area of 700 km2 of drained lake basin includes a mosaic of varied wetlands as well as dry biotopes with significant diversity of animal and plant species. The dominant landscape phenomenon consists in 465 fishponds, more than 500 pools and old meanders of the rivers Lužnice and Nežárka. This area has been under intense human management roughly since the 12th century but reached secondary biological balance. This fact allows for unique close coexistence of internationally significant wetlands protected by Ramsar Convention (Třeboň ponds and Třeboň peat bogs), and typical keeping of traditional carp as well as other economic activities (extraction of raw materials, agriculture, building construction). Since 2004 most of the area belongs to the European network Natura 2000. (http://www.trebonsko.ochranaprirody.cz/)

[6] The area of 628 km^2 was named after the royal castle of Křivoklát, which dominates over the valley of the Berounka River. Even nowadays, thanks to the fact that the territory belonged to the Czech crown till the 17th century and was thus used mainly for hunting, large deciduous and mixed forests thrive in this area. Steep slopes of the deep Berounka River valley are covered with natural vegetation of different communities, with sporadic rock outcomes hosting xerothermic fauna and flora. Many localities host beautiful meadows of different types, which occurred in the place of original forests and which represent an important part of landscape due to their richness of species. The castle and game park in Lány, a residence of the president, is connected with modern history of the Czech Republic. The factor influencing the land use in the biosphere reserve is the vicinity of the capital city, Prague. Due to its qualities, Křivoklátsko area has been listed among UNESCO biosphere reserves since the Czechoslovak proposal was accepted on March 1, 1977. One year later the area was proclaimed PLA with its own administration. Since 2004 most of the area belongs to the European network Natura 2000. (http://www.krivoklatsko.ochranaprirody.cz/)

Figure 3. Šumava Mts. scenic view.

Figure 4. Fishponds – a typical feature of the Třeboňsko basin.

Figure 5. Berounka river valley – the axis of the Křivoklátsko biosphere reserve.

QUALITY OF LIFE

Quality of life has been acknowledged as one of important idicators measuring level of sustainability of development, on local to national scales (e.g. Collados & Duane, 1999; Wilson et al., 2007). Double optics should be applied when we study quality of life - the objective and subjective ones. The former as a rule reflects social consensus on the level of satisfaction of what is considered to be a standard of living. Objectivity in this case means that the standard is defined externally. The latter, subjective one, on the other hand presumes to represent personal experiences and aspirations of individual people. Both views can be applied to describe situation of individual people, communities, and once spatial aspect is considered, they can be used to give evidence about localities or regions (Mareš, 1999). It refers to regional economic theories, in particular to the discussion on driving forces that may lead to differentiation among particular regions during the course of their historical development (Blažek & Uhlíř, 2002.). Our empirical research hypothesized that biosphere reserves will differ in quality of life of their inhabitants from the surrounding areas[7]. To test the hypothesis, twenty two objective parameters were used as it can be seen in the legend of figures 7 and 8.

Subjective dimension of life quality was defined in terms of physical, mental and social wellness and wholesomeness, referring thus to the theory of subjective well-being (Massam,

[7] Different approaches can be traced in pertinent professional literature on how to measure unevenness between regions by use of objective statistical data. In order to identify poor regions in Britain, for example, eight indicators were used. Townsend (1987) refers to another approach. It is based on measuring of degree of poverty of regions as a degree of material deprivation, by use of five criteria. Analogically, Jarman (1984) designs score of unprivileged regions by assigning individual indicators of deprivation by their specific weights.

2002). Empirical research tried to find out how practical implementation of nature protection measures in the three concrete biosphere reserves is perceived to have affected the nine respective aspects of quality of life of local population - physical well-being, mental well-being, value system, place they live in, human relations, availability of services, everyday activities, free-time activities, their career (Těšitel et al. 2005).

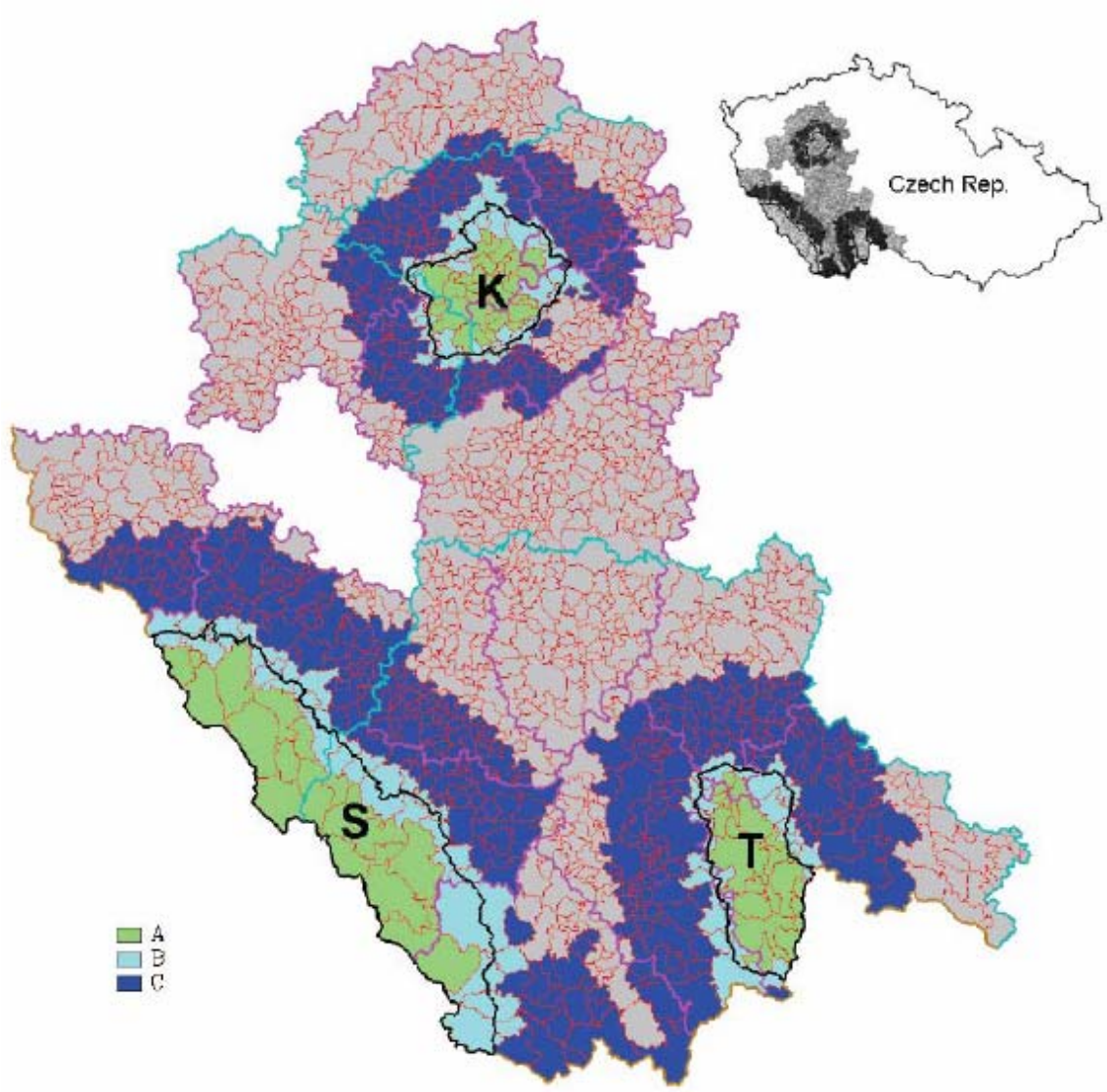
Data provided by the Czech Statistical Institute were used to describe the status of quality of life objectively. All results were visualized by use of GIS technology. In order to test our hypothesis on unevenness the model areas were extended to include also municipalities that form their surroundings. It consisted of a stripe around studied protected areas having width of 20 km. Municipalities of interest formed then three groups – lying completely within the protected areas; being in between, i.e. intersected by borders of protected areas; and those having its cadastres completely out of protected areas (Figure 6). Two sets of variables describing our three biosphere reserves as well as their surroundings were used. The first set consisted of ten variables representing type of land use, expressed in terms of share of particular land-use categories within a basic statistical unit. The second set characterized socioeconomic milieu in the territory by use of basic demographic variables - variables describing material well-being of inhabitants as well as those on availability of infrastructure and services. All variables were related to municipality level as the basic statistical unit. Individual municipalities were twice processed by use of *principal component analysis (PCA)* – according to the data on land use (Figure 7)[8] and according to the relative socioeconomic parameters (Figure 8)[9]. Based on results of both ordinations a new variable - "normalized socioeconomic status" of municipalities - was derived[10]. It was then used to test the significance of differences between protected areas and their surroundings. Values of the variable were calculated for all the municipalities forming our broader model areas. The difference between values assigned to municipalities inside the protected areas and those

[8] Analysis of land use was done by use of PCA ordination. The first two ordination axes (PCA1 and PCA2) were used. These axes account for 41% of variability of the data set. Two new parameters were calculated - "degree of urbanization", URBA = PCA1+PCA2 – describing a gradient from rural to urbanized areas, and "share of agriculture" AGRI = PCA1-PCA2 – quantifying the position on gradient between prevailing forested areas to prevailing agricultural land. An arbitrary division of the space of these variables was then used as a basis for municipality classification.

[9] The socioeconomic data were processed in an analogical way. One third of data variability was described by the first ordination axis (PCA1), while the second one (PCA2) accounted for the next eleven per cent. Further decline was smooth and continuous. Two factors appeared to explain the position of a municipality in ordination space formed by two first axes – level of education and age structure. Four arbitrary classes were identified on this basis. The first class can be characterized as one comprising "normal" municipalities with population living in relatively well equipped local urban centers. The second one represents municipalities with an aging population, even "dying out spots" in some cases. Municipalities of the third class are populated by relatively young people, not enough educated, however, suffering from unemployment. The fourth class is composed of municipalities with young educated and growing population.

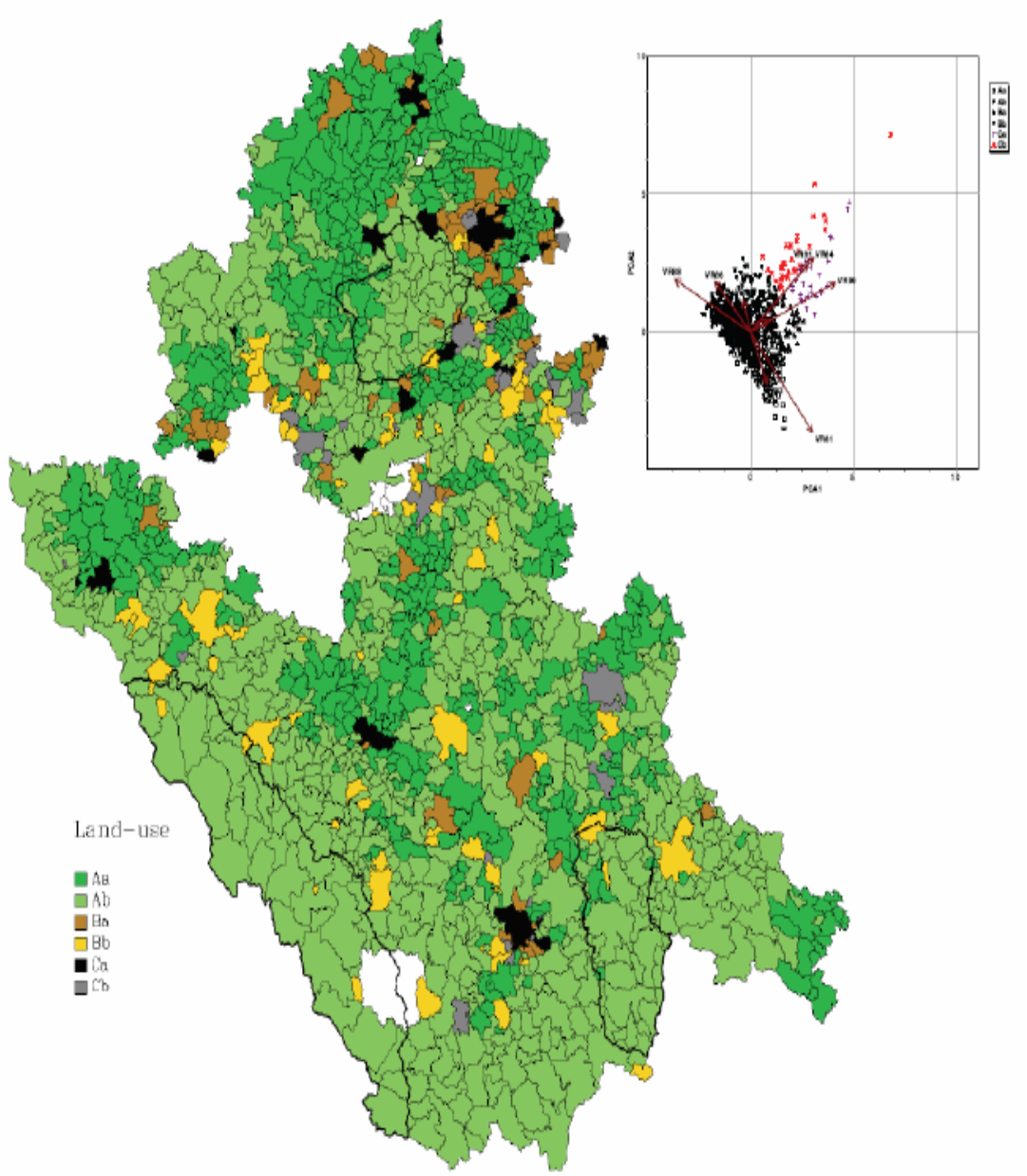
[10] The calculation of the normalized socioeconomic status was based on two principal presumptions. Firstly, we presumed that land use types were related to the nature conditions of a particular locality and the character of a municipality (formed by prevailing economic activity in both contemporary and historical perspectives), and secondly that the socioeconomic conditions were influenced by land use practices. The relationship between land use and socioeconomic parameters was searched for by use of correlations among several first axes for both mentioned PCA ordinations. Thanks to the statistically significant dependence between the first ordination axis of the socioeconomic parameters (PCA1) and degree of urbanization (URBA), it was possible to use, instead of the score of the first ordination axis, the difference between its value and the value expected, which was calculated by use of the linear regression model (for i^{th} municipality): $PCA1_i = (a + b\ URBA_i) + e_i$, where "a" and "b" are regression parameters and "e" is an error. Differences between real and expected values were then calculated as values of variable DIF_PCA1 = PCA1 - (a + b URBA), that we called "normalized socioeconomic status" of a municipality. The higher its value, the better living conditions occur in a municipality.

lying outside was tested by F-test in analysis of variance with a three-level factor: municipalities within the protected area (group A), on the border of this area (group B) and placed completely outside the protected area (group C). The difference proved to be statistically insignificant. Based on this we can conclude that protected areas do not differ from the "normal" surrounding areas as to socioeconomic conditions, at least those described by the first ordination axes (Figure 9).



Legend: K - Protected landscape area Křivoklátsko, S - National park and Protected landscape area Šumava, T - Protected landscape area Třeboňsko; protected areas are marked by black lines. Municipalities were divided into three groups according to border of the protected area (A - completely within the area, B - on the border, C - surrounding of the area).

Figure 6. Model areas for testing differences between protected areas and their surroundings.

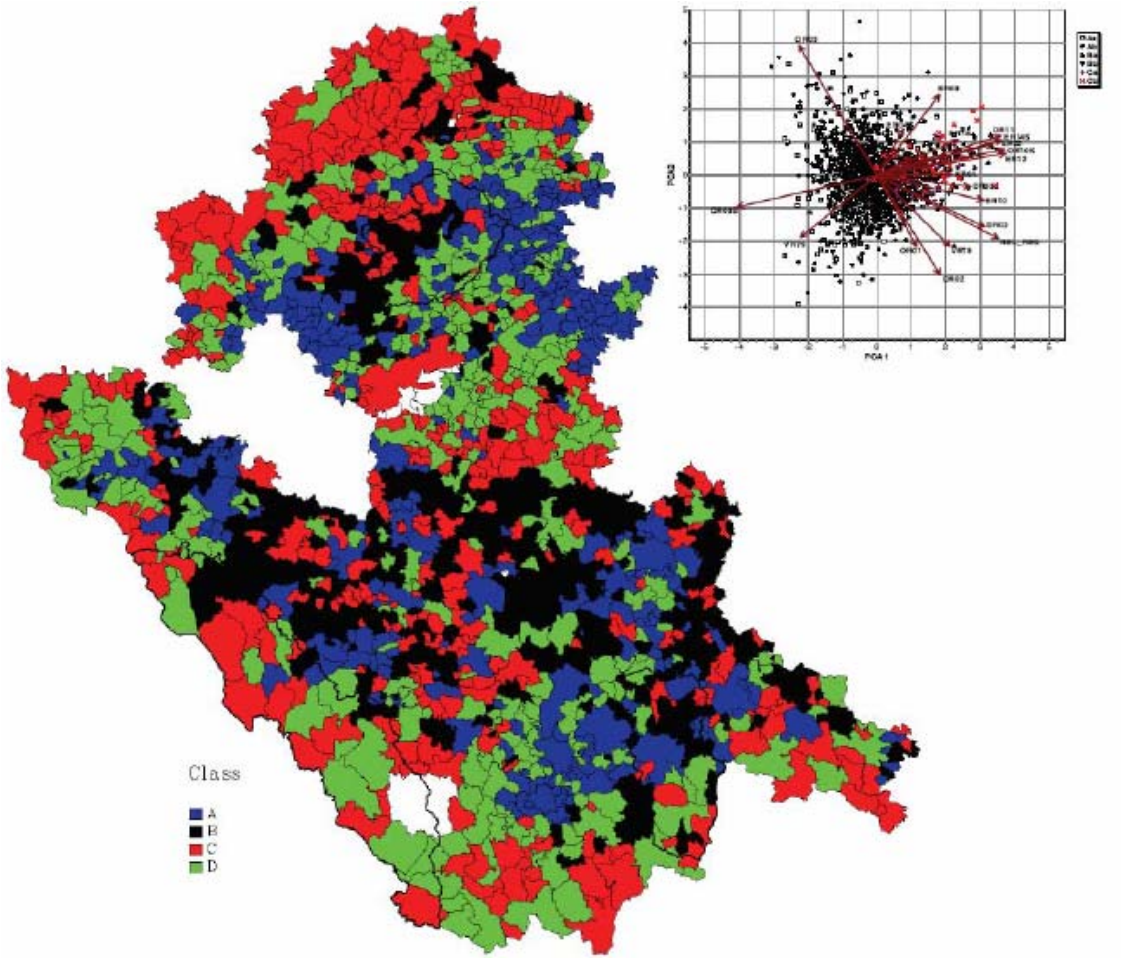


Legend: Combined classes consist of first uppercase character for municipalities within rural landscape (A), intermediate landscape (B) and urbanized landscape (C) - classes are derived from degree of urbanization. Lowercase character represents agricultural land type (a) or forest land type (b).

Accompanying figure shows ordination biplot of first two PCA axes based on data (Czech Statistical Institute, municipality statistic database, 2002): share of arable land (vr81), hop gardens (vr82), vineyard (vr83), gardens (vr84), orchards (vr85), grasslands (vr86), forests (vr88), waters (vr89), build-up areas (vr90), other plots (vr91).

Not filled units – white color: Data not available (military training area).

Figure 7. Classification of municipalities according to land-use data.

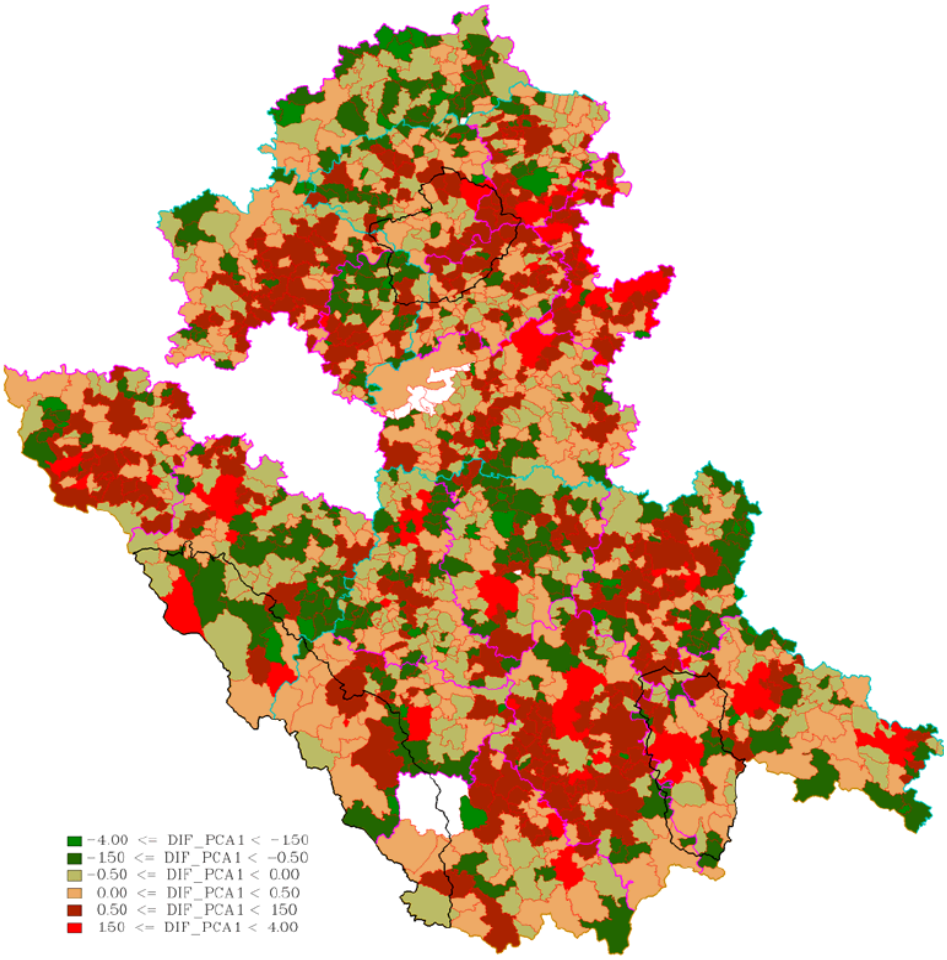


Legend: Municipalities are divided into classes A - with standard human population (PCA1 ≥ 0, PCA2 ≥ 0), B - with aging population (PCA1 < 0, PCA2 ≥ 0), C - with young low-qualified population (PCA1 < 0, PCA2 < 0), D - with growing "perspective" population (PCA1 ≥ 0, PCA2 < 0).

Accompanying figure shows ordination biplot of first two PCA axes based on relative data (original data - Czech Statistical Institute, Census 2001): Calculated out of total number of houses: permanently inhabited houses (dr02), houses owned by physical person (dr03). Calculated out of total population size: number of persons having a car in the family (er04s), having a phone line in a family (er08), having a mobile phone in the family (er10), having phone or mobile in the family (er12), having a personal computer in the family (er14s), with recreational house ownership in the family (er18), with possibility to use some recreational building (er20s), "well appointed" persons (er22), youngs of 0-14 years old (or01), adults (or02), seniors above 64 years old (or03), peoples without secondary level education (or08s), peoples reached second level education (or10s), university graduates (or11), students commuting for a school (xr02). Relative change in inhabitants number per year within period 1960-2000 (REL_REG). Calculated out of adult population size: economically active peoples (vr78), unemployed peoples searching for job (vr79), peoples commuting for a job (xr01), commuting at a long distance - out of the district (xr07s).

Not filled units – white color: Data not available (military training area).

Figure 8. Classification of municipalities according to socioeconomic parameters.



Legend: The higher value of DIF_PCA1, the better living conditions in a municipality.
Not filled units – white color: Data not available (military training areas).

Figure 9. Classification of municipalities according to the normalized socioeconomic status.

The opinions of local population related to their everyday life and their attitude to the administration of protected areas and, consequently to nature protection in general was mapped by *questionnaire survey technique.* Adult people over fifteen permanently living in the model areas formed the basic set. The sample was then derived by use of the combination of quota and random sampling, the quota being based on the size of municipality. Altogether, 1 150 respondents were addressed. The share of the sample in the basic set was 1, 86%, which made the sample representative enough for our purposes[11].

When analyzing the behavior of local people and their attitude to the locality they live in, including its nature quality, level of their "rooting" proved to be one of key determinants. Viewed from this perspective, people who live in our model areas can be characterized as members of a stabilized population. They seem to be deeply rooted in the territory, most of

[11] The field survey was conducted in summer 2004. Data were statistically analyzed by use of the first and second order contingency tables method and graphical outputs were produced by Excel 2000 for Windows.

them have been living there for a long time, or they were even born there. Besides their affinity to nature, it is primarily social relations that make them feel tied to the locality - family, friends, job opportunities, flat and ownership of real estate. After all, the majority of them do not have to commute for a job or school out of the model area. They do not want to move out of the territory at all (Figures 10 and 11).

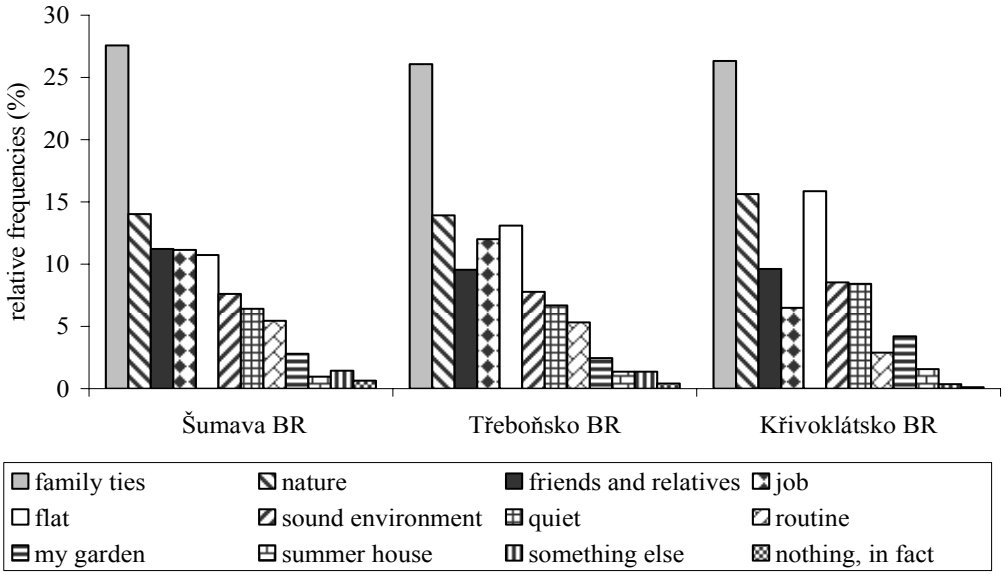


Figure 10. Ties to the territory.

Figure 11. Intention to leave the territory.

The perception of the present socioeconomic situation as it is viewed by locals does not differ from the picture drawn by official statistical data. When evaluating the quality of facilities in their municipalities, most of them have been convinced that available services as well as infrastructure are appropriate in the sense that they reflect the size of a particular municipality and its history. As to their own current economic situation, the majority of inhabitants seems to be content with it (Figures 12 and 13).

"Sound environment" and "well-preserved nature" can be considered as two principal attributes of the territory. The present-day popularity of areas offering high quality environment can be partly related to the need of modern people to live, or at least to relax, within relatively unspoiled landscape, which is often explained by human phylogenetic attachments to nature (e.g. Orians, 1980; Wilson, 1984)[12]. Recognition of biosphere reserves as tourist destinations means in fact setting them into the context of the nation-wide or international market by use of which the internal potential of biosphere reserves can be commodified. In parallel, these attributes were recognized as comparative advantage for further socioeconomic development, when assessed from inside of the biosphere reserve. In all the model areas there is a commonly shared positive opinion among people as to the role of protected and certified environment in tourism development (Figure 14). The "tourist" potential is perceived as not being fully exploited yet (see Figure 15). Once we agree with locals and assume that sustainable tourism can be considered the base of the local economy in protected areas, we can go even further in the defence of nature protection measures. As sustainable tourism can be characterized, among others, as one that commodify local natural capital of certain quality (Jenkins, 2001; Kušová et al., 2002; Ira, 2005; Nolte, 2005), we can formulate a theoretical statement, to some extent paradoxical, that it is the nature protection, as a guardian of certified nature, that can guarantee local economic development in long run as it keeps promoting comparative advantage of an area (e.g.Bartoš et al. 1998, Těšitel et al. 1999, Sharpley, 2000, Vos and Klijn, 2000).

Based on the analysis both of objective data and subjective reflection of the situation by local population we can generally conclude that there is no statistically significant difference between protected areas and their surroundings in terms of objectively measured parameters describing material well-being. Nor the inhabitants of protected areas feel themselves handicapped. Natural capital in terms of "certified" nature, such as biosphere reserve, plays an ambivalent role. The status of being protected can be seen simultaneously both as limitation and comparative advantage. On one hand, nature protection really poses limits to some economic activities as to their type, intensity or localization concerns.

[12] This theme has also been taken up in the Czech professional literature, and in some studies aimed at explaining our desire for outdoor recreation (Honzík, 1965; Librová, 1987, 1988; Maršálková & Todlová, 1983), where home and countryside have been separated by urban expansion. The 'escape from the city' has now been a phenomenon for several decades, as the constraints of time, money and transport have been relaxed, whilst expanding urban areas have meant that people have had to travel further to escape city life. This has created situations in which more people seek unspoiled landscape settings within a diminishing rural area. This imbalance seems to result, at least in Czech conditions, in the increasing importance of preserved areas as a recreational hinterland for towns.

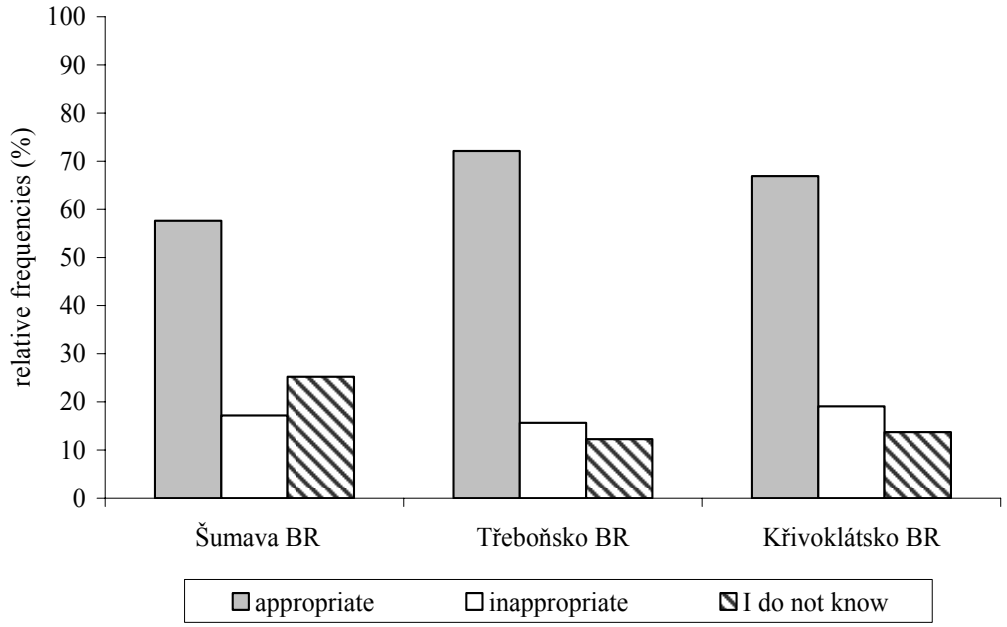


Figure 12. Quality of services and infrastructure related to scale of municipality.

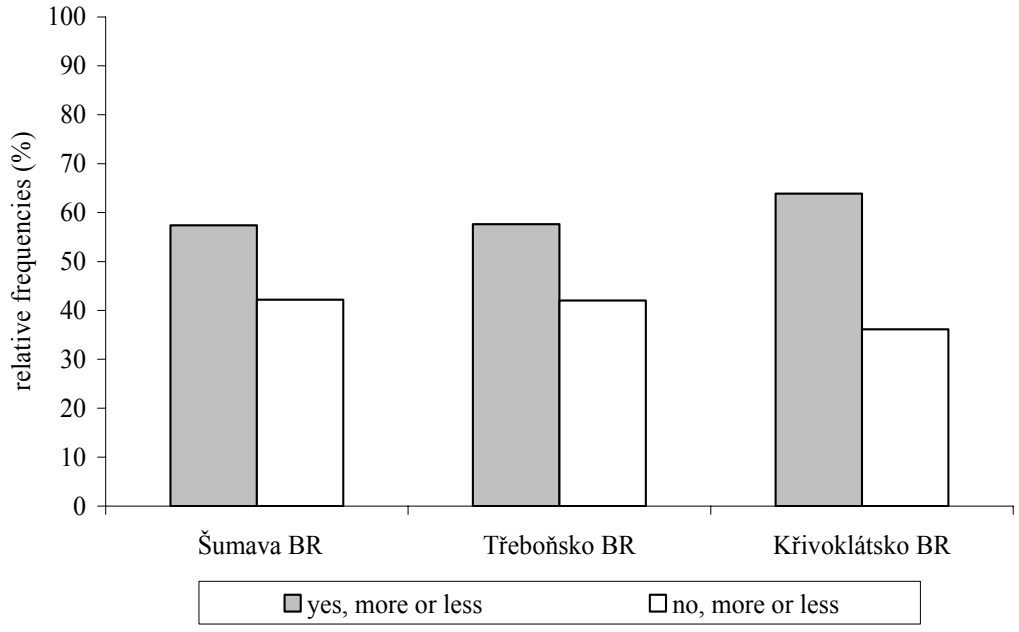


Figure 13. Contentment with personal economic situation.

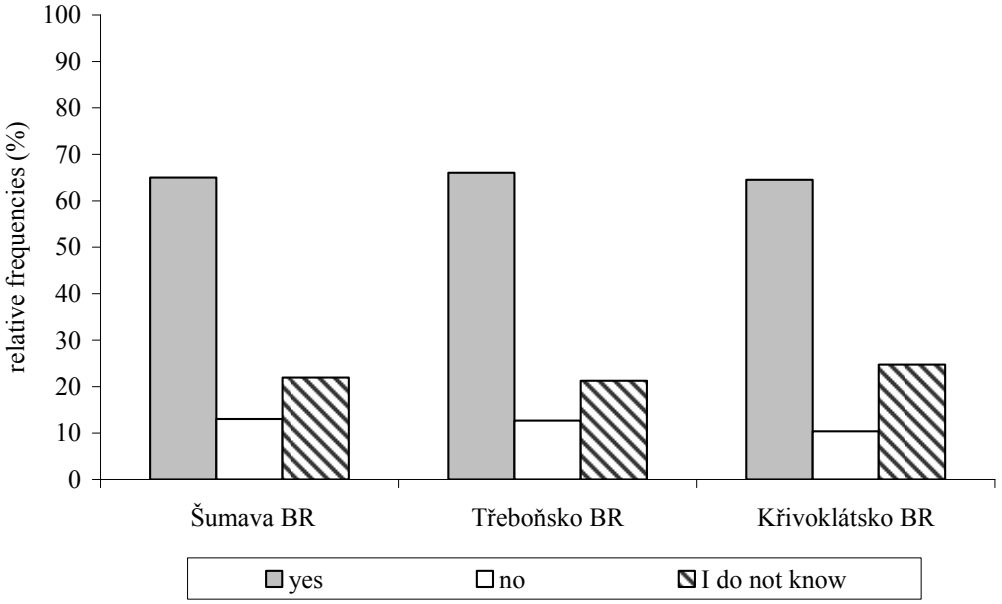


Figure 14. Does the existence of protected area increase tourist attractiveness of the region?

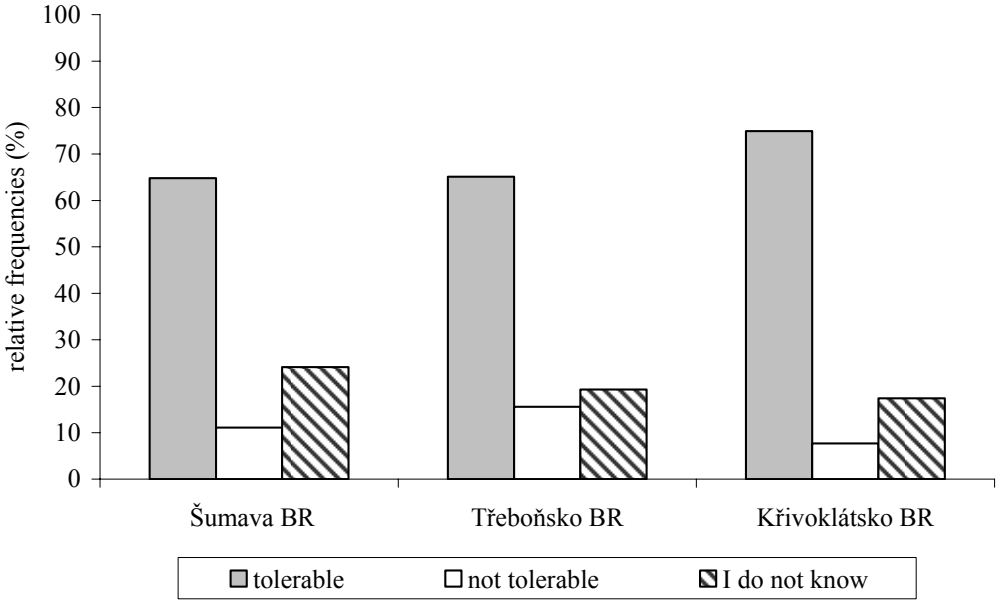


Figure 15. Tourist pressure on the region as perceived by local people.

On the other hand, these areas have been successful in converting the internal potential of "certified" high-quality nature into a key agent in local tourism development. Furthermore, thanks to the state policy of nature protection and regional development policy, protected areas are eligible for special funds which cannot be applied for by other regions (e.g. Bartoš et

al., 1998). The success in such a trade-offs depends on many factors, including local personalities and their activities. Anyhow, this ambiguity challenges the generally widely spread cliché considering protected areas as ones being handicapped a priori as to the quality of life of local population concerns (e.g. Zemek and Heřman, 1998; Bartoš et al., 2005; Zemek et al., 2005).

SOCIAL ACCEPTANCE OF BIODIVERSITY PROTECTION MEASURES

Public opinion can be considered an important factor in nature and environment protection. It has changed evidently in the Czech Republic when we compare current situation with that at the beginning of 90`s, shortly after the "Velvet Revolution"[13]. At that time, fundamentals of market economy as well as nature protection policy, which was then seen as something quite important, started to be shaped. Quality of environment and necessity of its improvement was being subject of public debate, and measures aimed at nature protection were discussed within this context. After almost twenty years of practicing market economy the situation has changed profoundly. Environment as such has definitely lost its attractiveness of being a subject of political debate. Its measured parameters are supposed to have already met desirable limits (e.g. OECD, 2005). As to the nature protection concerns, a myth has generally spread that there is a clash of interests between nature protection and socioeconomic development; public opinion being as a rule pro-development oriented (e.g. Rolston, 1997; Těšitel et al, 2005).

Nature protection bodies seem thus to be caught in a bit paradoxical situation as to their social status concerns – as a representatives of state administration they are in charge of promoting measures that goes against value system of the most of the Czech society[14]. Cooperation should be thus desired modus operandi rather then power driven behavior which is likely to trigger conflicts. Empirical research, in this context, was aimed at revealing of attitudes local population had to the protected areas administration as well as at identifying of the most representative examples cooperation or conflicts among these players. Mutual behavior of local population and administration of the particular protected areas was empirically analyzed by use of questionnaire survey technique already mentioned above, combined with content analysis of regional periodicals aimed at identifying of medial image of this relationship.

Results of *questionnaire survey* suggest that everyday life of local population in all the studied areas does not seem to be much influenced by the fact that they lived in a protected area. In fact, only a minority of inhabitants has encountered representatives of the protected

[13] The "Velvet Revolution" (November 16 – December 29, 1989) refers to a non-violent revolution in Czechoslovakia that saw the overthrow of the Communist government and intorduced democracy.

[14] When evaluating social acceptance of activities executed by the state nature protection bodies, direct comparison with other similar structures of state administration, specialized in other fields of expertise but facing in fact situations of the same type (decisions, approvals, fines imposing, inspections, etc), such as the Police of the Czech Republic, Czech Trade Inspection, Hygienic service, and others, may be misleading, Activities of these institutions, though frequently criticized, correspond with public opinion. As being socially accepted as self-evident, they can fully focus (and limit) their activities at execution of the state administration. Nature protection bodies are facing much more complicated situation, compared to them. Besides performing state administration itself there is a lot of other things they should do, aimed at shifting value system of the society towards a "more friendly" perception of nature, and consequently to changing behavioral patterns

landscape area administration in person; they are as a rule those who have had to deal with some legal or bureaucratic procedures in which the administration of PLA participates. On the other hand, most people living in the area use some facilities run by the administration, and participate in voluntary activities related to nature protection. They also highly appreciate the fact that the "label" of a protected area increases tourist attractiveness of the whole territory (Figures 16 and 14). As to their relationship to nature protection, they perceive it in a "peaceful way"; in some cases they even have been able to find a way how to make some kind of profit from it. The relatively "peaceful" coexistence is primarily based on the fact that representatives of the municipalities as well as the administration of protected areas had a time to overcome the initial contradiction, evident when protected areas had been established, and have come to the point of building a joint vision of future coexistence. Sustainable tourism, as an activity acceptable by both parties, seems to have become the key point of the above mentioned common vision.

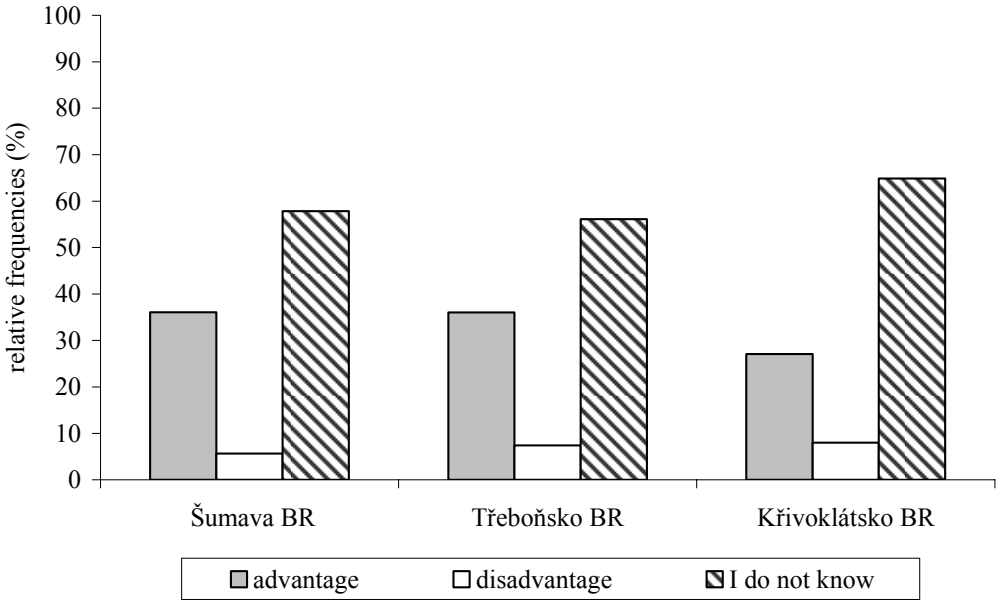


Figure 16. Role of protected area in regional development as perceived by local people.

Content analysis was based on the general presumption that the press reacts to real-life problems, and is also an intermediary of social control of the institutions which are in charge of it. Medial image is then supposed to represent a reflection of expected interest of the public in particular problems (e.g. MacLuhan, 1991; DeFleur & Ball-Rokeach, 1996; Blažek, 1998). Quantitative analysis, identifying frequency, ratio and context of a pertinent messages in selected media, was complemented by qualitative content analysis that offered a more detailed interpretation of the process in which media constructed reality in relation to problems at hand (Disman, 1993). By use of this technique, comparative monitoring of the regional periodicals was carried out in all the three model areas[15].

[15] Daily newspapers were used as contextual units for content analysis. The period of monitoring was seven years, from January 1998 to September 2004, and the main aim consisted in documenting "the medial presentation of the relationship between nature protection and communal development". It was made operable by use of the

Individual BRs proved to differ as to their medial image. Viewed from this perspective, Třeboňsko and Křivoklátsko can be seen as areas where the problems of nature protection do not stir public opinion. Content analysis documents "conflicts" between nature protection and communities as usually belonging to the sphere of the routine administrative agenda. On no account they do have a character of „fatal" problem considering any of the parties involved. In both areas, the image presented in the press includes more examples of successful cooperation between nature protection authorities and communities. If we were to formulate a hypothesis summarizing the situation, we could probably say that in the course of the previous twenty years, "both the systems got accustomed to each other". In this respect, the area of the Šumava Mts. is different compared to the above mentioned protected areas. It is hardly possible to state that this area is free from medially presented conflicts. The consensus between the Šumava NP and the communities is hindered by a large number of various circumstances. The national park came to the existence relative short time ago (in 1991); furthermore its activities overlap with those of protected landscape area. The PLA, as well as the NP, are situated on the territory belonging to two administrative regions; the final version of the Act on the Šumava National Park has not yet been accepted; the communities strive for financial funding of their budgets and for compensations, and at the same time they struggle to reduce unemployment. On the other hand, nature protection bodies have adopted traditionally defensive strategy towards any potential economic activity as their general communication pattern, referring to the principle of precaution (similar results see e.g. Jeník, 2006). In this case, the conflicts presented in the press can be considered „fatal". The decision of one actor in a dispute can have serious consequences for the other actor involved[16]. That is why the relationships between both actors are tenser. However, here too, the points of view are gradually converging. Tourism plays pivotal role in this process, more specifically its sustainable forms whose development seems to be acceptable for both sites, making thus platform for mutual communication (Kušová et al. 2005). The above mentioned hypothesis could be thus slightly reformulated – How much time is needed for both systems to get used to each other? Maybe in 20 years' time the Šumava Mts. area will be presented in press in a way resembling the current articles on Křivoklátsko and Třeboňsko – very much like an "idyll".

INSTITUTIONAL ARRANGEMENTS OF BIOSPHERE RESERVE

Biosphere reserve is not recognized as a legal category of protected areas by the Czech environmental legislation. The Nature Conservation and Landscape Protection Act does not include biosphere reserve when defining six national protected area categories: national park, protected landscape area, national nature reserve, national nature monument, nature reserve and nature monument. Biosphere reserve is then perceived as an international label sticked on an area already protected according to the national environmental legislation, that does not have any legal support (Urban, 2006). Institutionally, the management of biosphere reserve is

following key words: Třeboňsko, Křivoklátsko, Šumava, Biosphere Reserve, communities, enterprise, cooperation, support, coexistence and conflict. As recorded units, entire articles were used that contained the name of a particular PLA or NP together with at least one of the remaining key words.

16 Reduction of the Park area versus preventing construction of a bridge over Lipno lake, for example.

associated with the administration of protected landscape area, or national park. Due to low compatibility of the concept of biosphere reserve with the Czech legislation the space to manoeuvre of the protected area administration in its effort of the biosphere reserve concept implementation is a relatively narrow one. The manoeuvreing space varies, however depending on individual particular functions to be fulfilled as some of them are regulated by law whereas the others not.

The *technique of semi-standardized interviews* was applied as the principal method for information gathering on present institutional arrangements related to the management of biosphere reserve. Altogether thirty four key informants were addressed in each model area by use of semi-standardized interview, being staff members of protected areas administration, mayors of local municipalities, key local entrepreneurs as well as experts in nature protection and regional development. While in general, the interviews focused on their years lasting experiences with practical implementation of all the four basic functions biosphere reserve is expected to fulfill – nature protection, research, education and promotion of sustainable development, main attention was paid to the last one.

Qualitative analysis of the empirical material gained by interviews suggests that the administration bodies of the protected areas are employing plenty of legislation tools for nature protection. Basically, these tools are of restrictive and compensational character. The former still prevail in practical situations, which is also evident in a relatively long list of the competences the administration has as an indisputable participant in territorial proceedings (see the Act 114/1992 of the Law Code, on Nature Conservation and Landscape Protection). However, the administration authorities are not dependent exclusively on restrictions. Since 1996 there has been the Programme of Landscape Cultivation, which is executed by the administration on behalf of the Ministry of the Environment CR. Non-restrictive tools also include the compensation of possible economic drawback caused by nature conservation. The principle of compensation is just being tested but its operation aroused interest among administration representatives as to expected improvement of their position in negotiations with other land users. Generally speaking, the execution of state administration in nature conservation is not hindered by any serious problems and runs relatively smoothly in the framework of legislative rules and provisions. The space for administration to manoeuvre is clearly and unambiguously defined and successfully utilized. In case there are conflicts in communication, they can be mostly viewed as „normal“ interpersonal conflicts emerging due to advancing of different interests.

Compared to nature conservation, the activities connected with education and training are framed by legislation only in a general way. Each administration body chose a different strategy to perform their tasks. In the Šumava Mts. it is the national park that plays an important part. Due to the fact that it runs its own public relation department, the national park performs almost all educational activities including those pertaining to the administration of the protected landscape area. The activities are varied – e.g. there are eleven frequently visited well functioning information centers within the territory[17]. Educational activities of the protected landscape area are thus limited to founding and maintaining educational tracks and information boards. As to Třeboňsko and Křivoklátsko Protected Landscape Areas, apart from founding educational trails they focus on two types of educational activities and programs. They combine issuing information brochures and

[17] see www.npsumava.cz

running an information and educational centre. The brochures and other printed materials target partly on visitors coming to the territory, and partly on local people. It can be said that within the delimited space the administration bodies do their best. And the public highly appreciate their effort (Kušová et al., 2005a; Těšitel et al, 2005).

As a matter of fact, the protected areas are subject both to internal and external research. The situation in particular places of interest is practically the same. The internal research is carried out in the form of more or less regular surveys conducted by the employees of the administration authorities. These surveys mainly consist of monitoring or inventory. They are usually done periodically in five-year intervals. All administrative authorities are well equipped to carry out such internal surveys. However, the protected areas also fulfill the functions of model areas for specific research projects and diploma theses elaborated by various external institutions. These external subjects focus on their own research objectives, which are reflected in the definitions of the themes. Considering the usefulness of results of these projects for the protected areas administrative bodies, our results show that the administration usually lacks relevant information on the results. The cooperation with research institutions is mostly based on individual professional contacts with the colleagues dealing with similar themes. There is a lack of systematic approach to scientific research. The imbalance between scientific and social research represents another problem. The situation has not changed since 1993, when the worldwide MaB session emphasized that man should be in the centre of interest within the program, but in fact it is paid little attention (e.g. Oszlányi, 2001). The scientific research still strongly prevails in the protected areas. Much still has to be done in this respect, however social dimension of sustainability has already started to gain recognition.[18]

Support of sustainable development is the fourth function to be fulfilled by the biosphere reserves. Considering our model territories, the biosphere reserve is institutionally associated with the administrative authority of the protected area. It allows for viewing this function as a share of the administrative body activities on the life of the local community. Some activities affecting the communal life were already mentioned. The execution of the state administration definitely belongs to them as well as the educational activities. Nevertheless, the discussed theme surpasses this framework and concerns the administration as engaged and participating in „generally beneficial projects“, i.e. the projects which do not primarily focus on nature conservation but more on the adequate socioeconomic development in the area. While in many cases the results applicable to protected landscape areas did not differ from those applicable to the national park, in the case of the participation of the protected areas administration bodies in the projects it is reasonable to differentiate. At present the administrative bodies of the protected landscape areas participate in development projects mainly indirectly. Being experts in many aspects of the territory in question, their employees provide the applicants with factual information. They provide their know-how during the formulation of the project proposal and issue supportive references increasing the applicant's chances that the project is admitted. When the project is getting implemented, these experts join the process as indisputable participants in administration procedures. However, this form of participation seems to be limited in time. The main partners in the mentioned cooperation

[18] It can be documented, among others, by the shift from the Long-term Ecological Research (LTER) to the Long-term Socioecological Research (LTSER) with its focus on coupled socioecological system (Haberl et al., 2006). Biosphere reserves are expected to play the role of research platforms within this program.

system are communities and microregions, whose representatives have successfully acquired the necessary skills or they hire professional agencies for the preparation of project proposals. Direct participation in the development projects is problematic. When applying the BR concept to practice we must face incomplete, poor compatibility with the system of Czech environmental legislation. One of the consequences is thus the lack of unambiguous legislative rules defining direct participation of the protected area administration, as a state administration body, in such projects. Quite naturally it results in neutral, indifferent attitude of the administrative bodies to the projects, which can be easily explained by their fear from the conflict of interests if they were direct participants. Their representatives are afraid of the situation when, in the competence of state administration, they might have to assume an attitude towards themselves as implementing bodies. Another argument in favor of their indifference is the ever busier state administration agenda. Besides that, individual administrative bodies of protected areas are not legal entities. The status of legal entity applies only to their headquarters. The Šumava National Park (ŠNP) displays a different situation. Firstly, it has a different legislative status compared to protected landscape areas. Šumava National Park is a sovereign subject having its legal identity. Secondly, as an allowance organization, it can make its own decisions on the allocation of funds. The third important difference bases on the fact that within the ŠNP organizational structure, the execution of state administration has been separated from its other activities. Moreover, it has established a public relation department. Besides that there are further „stimuli“ fostering its pro-active approach. The ŠNP raises considerable financial means due to its right of forest management. The funds can be subsequently invested in particular projects. At the same time, all its activities are permanently “monitored” and checked by the public, which creates permanent pressure in the broadest sense. The park administration has already realized activities which can be called „good will projects“, the examples of such projects being „Our Peatbog“, and „Cultural Heritage Renewal“. Considering the theory of cultural capital (e.g. Bourdieu & Passeeron, 1990; Garrod et al., 2006), it is a gesture reinforcing the national park administration in its effort to define its status towards other stakeholders in the territory.

Despite the differences in the status between the national park and protected landscape area administration bodies it can be stated that all these authorities are primarily representatives of the state administration which influences to a great extent their mode of operation. The existing institutional setting motivates employees of these bodies only a little to perform any activity beyond the scope of current legislation. Generally speaking, the current institutional model ensures that they can actively carry out only three of four BR functions – biodiversity protection, education and training and, to some extent, performance of scientific research. The fourth function – support of sustainable development through participation in activities improving socioeconomic standard of local communities – can be accomplished only partially and indirectly. Active participation of protected areas representatives in developmental activities, though sustainable, seems to be hardly possible mainly due to the fact that these activities are perceived as being intermingled with the execution of state administration (Kušová et al., 2007).

In addition we applied *case study analysis* to assess a project aimed at promoting principles of the biosphere reserve concept in the Šumava Mts. region, in terms of identifying of success and failure factors of their practical implementation. More specifically we tried to reveal if the way they were implemented could contribute to overcoming of the current institutional limits and make the biosphere reserve a learning site of sustainable development.

The project titled „Conservation and Sustainable Use of Biodiversity through Sound Tourism Development in Biosphere Reserves in Central and Eastern Europe“[19], rephrased in the region as “Sound Tourism – A Chance for the Šumava Biosphere Reserve“ financially supported by the UNEP-GEF, was initiated by the ŠNP administration and had actually a form of a gesture. The end-user of the project outputs, however, was defined as the entire territory of the Šumava Biosphere Reserve. The mission of the project was twofold – besides producing outputs of its particular activities, it was intended to be a tool facilitating communication between the protected area administration and other stakeholders involved in the project. That is how it was functioning since the very beginning. The project proposal was elaborated by a team consisting of the representatives of all local groups interested in relevant fields - nature conservation, local entrepreneurs, communities, representatives of regional governments and NGOs. Considering our point of view, it is important to mention the Local Steering Committee of the project, comprising those who were in charge of the project preparation. In the period of project implementation its members participated in the project management as well as in lobbying for widening the scope of the project activities, and for further fundraising.

The project could be considered a set of nine interlinked activities which span from those having very practical outputs to activities producing strategic planning materials. “Establishment of a System of Cross Border Tourist Trails”, “Training of Local Guides” and “Identification of a Potential of the Šumava Biosphere Reserve for New Touristic Activities” (Figures 17 and 18) can be seen as the most practical outputs of the project, having immediate impact on the territory. There were two activities within the project directly supporting sustainable forms of tourism – “System of Financial Incentives”, having a form of local grant scheme aimed primarily at improving small scale touristic infrastructure (Figure 19), and “System of Certification of Local Products and Services”[20]. Among the strategic activities we can count participation of the project in preparation of the “Concept of Sustainable Tourism Development in the Šumava Region” (Figure 20), “Institutional Analysis of the Šumava Biosphere Reserve” and designing of an electronic “Database on Cultural Heritage of the Šumava Biosphere Reserve”. Designing of platform for information exchange among local mayors, representatives of nature protection authorities and other key stakeholders became an inseparable part of the project, manifested in the form of series of round tables and training courses (Figure 21).

As indicated by the questionnaire survey and key informant interviewing, the relationship between NP and PLA, and biosphere reserve is perceived as being confusing for many people (Figure 22)**.** Evaluated in this context, the project seemed to play a pivotal role in the process of forming the notion of the biosphere reserve concept among local as well as regional public.

[19] www.oete.de/tourism4nature/index.htm
[20] www.domaci-vyrobky.cz

Figure 17. Potential of the Šumva BR for mountain biking (after Pavlásek, 2006).

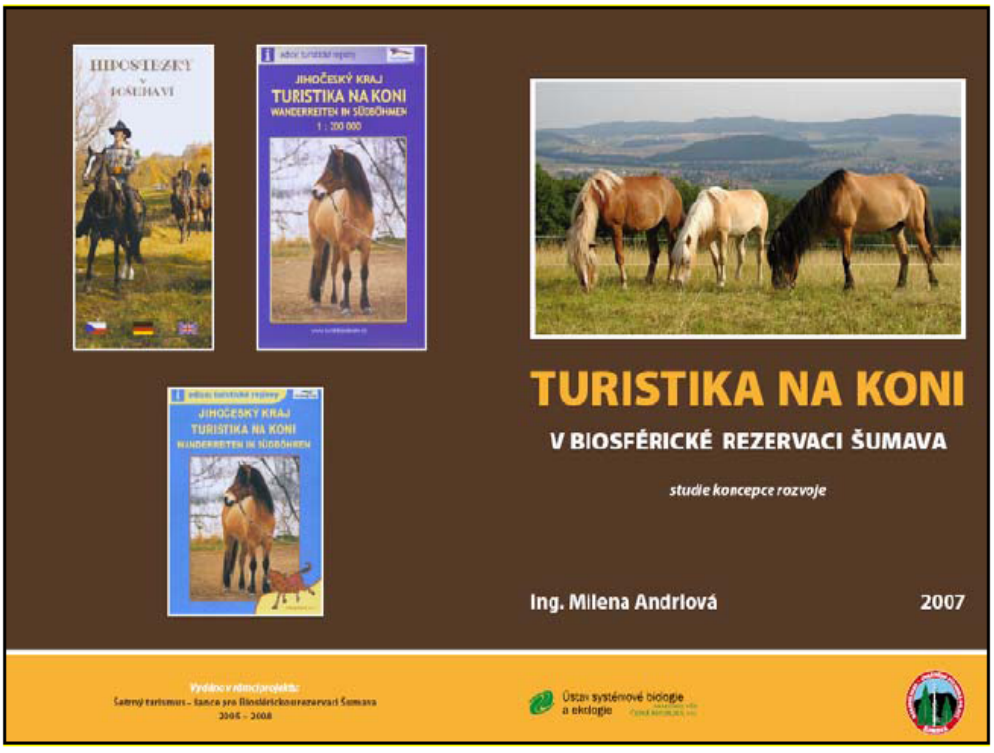


Figure 18. Cover page of the study “Hippoturistics in the Šumava BR” elaborated within the project.

Figure 19. Educational trail in Dešenice built with the financial support of the grant scheme.

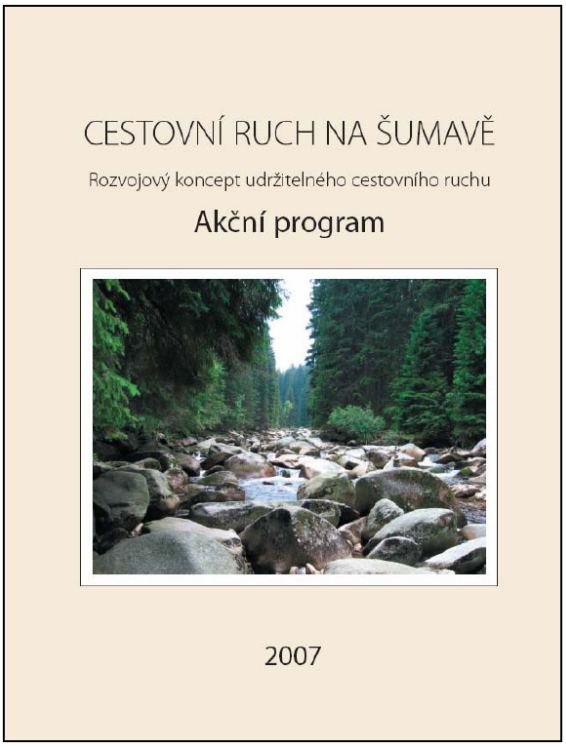
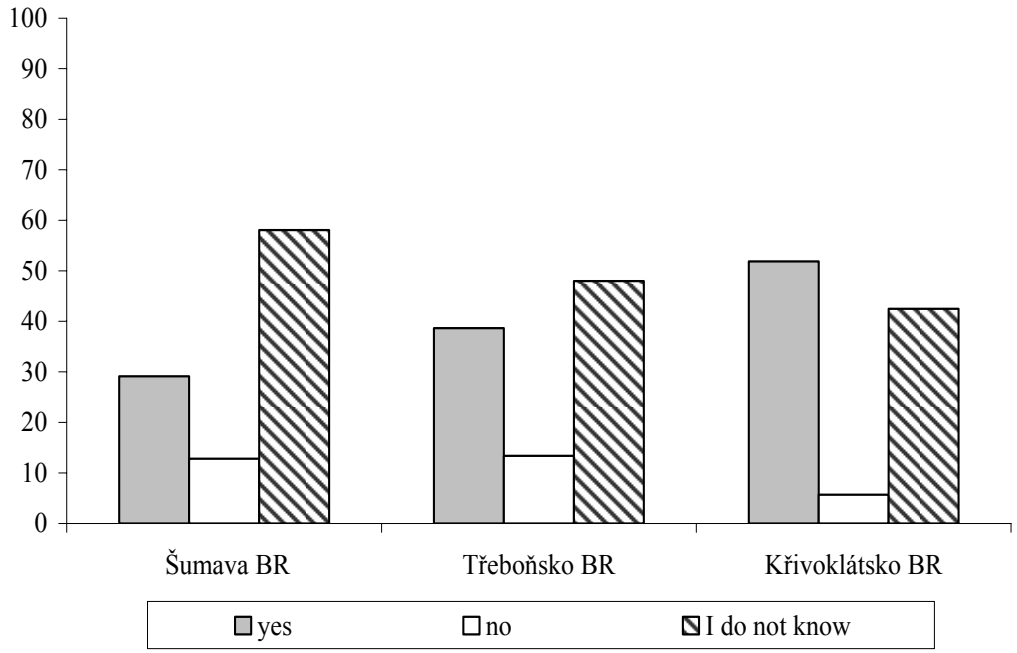


Figure 20. Cover page of the Concept of Sound Tourism Development in the Šumava Mts., elaborated with contribution of the project.

Figure 21. Round table with mayors of the Šumava BR municipalities, Modrava village, July 3. 2007.



Comment: The figure documents the situation before the project was implemented. Nowadays we can presume that the awareness on BR is likely to be higher in the Šumava Mts. as the UNEP-GEF project was heavily informed about in the region by varied promotional materials, and circa 500 local personalities were, in some way, directly involved in the project implementation.

Figure 22. Do you think that the protected area has the status of biosphere reserve?

The scope of the project was to complex to be executed by one expert or institution. As a result, one of its main "social by-products" was an establishment of several social networks, partly overlapping, by use of which particular project activities were realized. Šumava National Park and Protected Landscape Area Administration, Regional Development Agency Šumava, Regional Environmental Centre Czech Republic, as well as NEBE Agency formed a core of these networks, coordinated as a rule by the Institute of Systems Biology and Ecology AS CR. In parallel to forming social networks, network of projects emerged around individual activities. In this manner, the UNEP-GEF project was linked with two INTERREG-type projects – PANet (Protected Areas Networks – Establishment and Management of Corridors, Networks and Cooperation) and Certification of Local Products in the Šumava Mts., pooling thus experts, know-how and financial resource with the aim to use them as much as effectively (Těšitel et al., 2007)[21].

The complexity of the problems solved by the projects has resulted in time chaining. Viewed from this perspective, the projects network proved to be an efficient impetus to start solving the problems, delivering however, neither financial sources nor time enough to accomplish the task in its full extent. As the networks of interested partners has already been established, some projects activities are expected to continue in the future, supported however by another grants, both running and applied for. The projects network thus spans far beyond the "lifetime" of particular projects, setting a base for a long term activities related to the concept of biosphere reserve. In particular, the system of local guides (Figure 23) was adopted by the Šumava National Park Administration and included into its regular agenda. Building of data base on cultural heritage (Figure 24) is expected to continue in terms of integrating information sources from the Czech, German (Bavarian) and Austrian side, financially supported by the South Bohemia regional government and EU Structural Funds.

It was a fortunate coincidence of facts that caused the network of projects fulfilled two types of expectations – that it produced outputs excellent by themselves, and that contributed substantially to the discussion on the notion of the biosphere reserve in the region, in fact introducing the term into strategic planning documents as well as into more practical discussions around tables.

First of all, the issue itself – sustainable tourism – has been a relatively consensual theme[22]. Secondly, the project yielded concrete and visible outputs, aimed at promoting of sound forms of tourism development. Though the national park was an important project partner, in fact it itself initiated formulation of the project and applied for it, officially the project was coordinated by an independent body (the academician institute) and thus perceived as not being directly linked to the national park and its rather restrictive policy.

[21] For example, thanks to this cooperation, certification system ŠUMAVA–originální produkt® originally focused on local products was extended to include as well services related to sound tourism. As a result, Šumava Mts. can be considered a region where the process of certification has been most advanced, compared to the other regions within the Czech Republic where the system was implemented.

[22] Tourism was recognized as key factor for local development as early as at the beginning of nineties, both by local elite and general public (e.g. Těšitel et al., 2003, 2003a). As to the form, tourism has developed in a more or less sustainable way in the Šumava Mts., which is a fact valued by nature protection representatives.

Figure 23. Leaflet promoting local guides in the Šumava BR (2007).

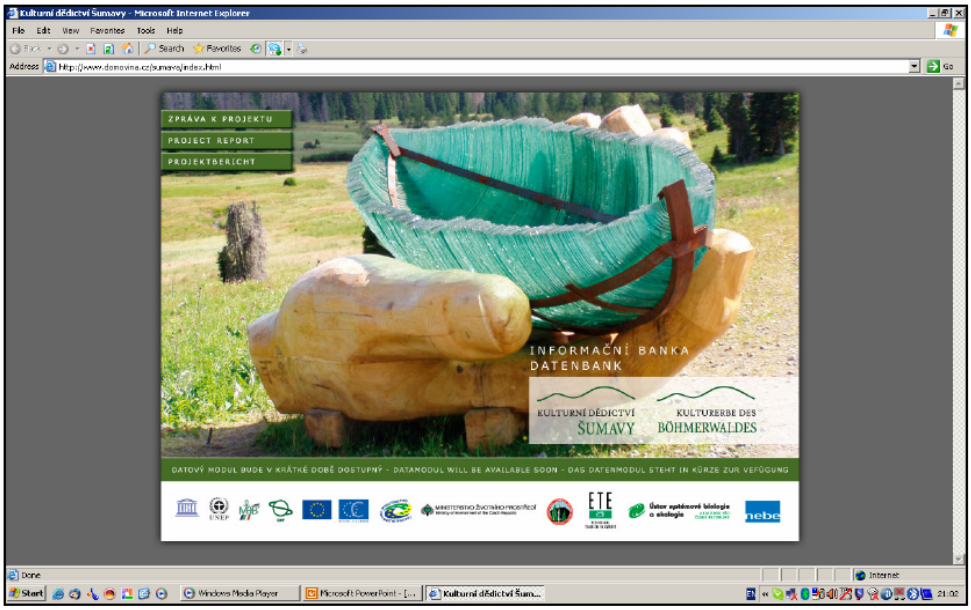


Figure 24. Home page of the electronic database on cultural heritage of the Šumava BR.

The "trade mark" of the biosphere reserve was used as being in "legislative vacuum", which was perceived as a weak point at the beginning of the project, namely by the representatives of state nature protection. In the end, however, the legislative vagueness proved to be an advantage as it "liberated" all the stakeholders from their bred-in-the-bone schematic viewpoints. The project seemed to "break the behavioral stereotypes", of particular personalities involved. Being mentally "free" from a legal framework, they behaved rather cooperatively, concentrating on achieving concrete output instead of pushing forward official doctrines of particular institutions they were expected to represent. Formal independence of the projects network from the Šumava National Park and Protected Landscape Area Administration led to the situation when all the partners, including representatives on nature protection themselves, ceased to prejudice and started actively cooperate. The projects network formed thus concrete out-of-official-policy-standing platform of cooperation among experts, not biased by official doctrines. As a result, sound tourism ceased to be viewed as being a-priori in contradiction with nature conservation. In this perspective the concept of biosphere reserve itself proved to have a big potential of becoming a good trade mark. Referring to the concept allowed representatives state nature protection "not to loose their face" when discussing "developmental issues" with other stakeholders. The process of achieving desired project outputs proved to be as much important as the outputs themselves, in some perspective even more important, as it enabled linking stakeholders and forming flexible alliances, both formal and informal. Gradual building and reconstructing of the network-like arrangements could be thus explained in terms of learning by interacting process (e.g. Lundvall, 1997; Gunjan, 2005; Kušová et al., 2008a) on mutual communication among stakeholders involved about the innovative concept of biosphere reserve.

Successful realization of the projects, more specifically the way the process of implementation was guided, suggests that the project based management could yield success in achieving the biosphere reserve functions, at least its fourth one – promotion of sustainable development. Goal oriented network of interested stakeholders, permanently reconstructed, seems then to be a more adequate organizational form to be applied when attempting to implement the BR concept into practice.

CONCLUSION

On the Method

The mosaic depicted by the triangulation approach was rather complex. Picture about quality of life in biosphere reserves drawn by use of objective statistical data did not differ from that we got when analyzing the data gained by questionnaire survey. Both views, objective and subjective ones, overlap to a great extent. Sustainable tourism as the most promising factor fostering local development appeard as an output of content analysis of media, questionnaire survey as well as key informant interviewing. While all the three model areas can be viewed as similar in most aspects content analysis revealed fundamental diferences between Šumava BR and the remainig two model areas as to the relationship between nature protection bodies and local communities. Different positions on the scale between conflict and cooperation, occupied by particular biosphere reserves introduced a question of time necessary in order local economic activities with nature protection to be reconciled. By use of interviews and case study analysis we were able to analyze behavioural strategies of individual stakeholders and assess effectiveness of institutional setting of biosphere reserve, which led us to the suggestion of network like organizational arrangement as a complement to an existing hierarchical scheme of state nature protection.

Biosphere Reserve as a Learning Site

Biosphere reserves are poised to take on a new role in nature protection. Not only they are expected to be a means for the people who live and work within and around them to attain a balanced relationship with the natural world. As they do not operate in isolation but form a network of global scale, individual biosphere reserves are supposed to serve as pilot sites or "learning places" to explore and demonstrate approaches to conservation and sustainable development, providing lessons which can be applied elsewhere[23].

On the other hand, it is recommeded by the Seville Strategy that the general concept should be implemented in many different ways in order to meet local needs and conditions. In fact, one of the greatest strengths of the biosphere reserve concept has been the flexibility and creativity with which it could been realized in various situations. Hence, each biosphere reserve could be a context-specific experiment in sustainable development at varying scales.

Learning from each other, or to come to more general conclusions, seems thus to be to a great extent dependent on level of similarity in terms of internal conditions as well as external

[23] (http://www.unesco.org/mab/faq_br.shtml#functions

(regional and national) milieu particular biospheres share. When we are to asses our outcomes from this perspective, it is necessary to point out two aspects.

Firstly, we have to state that, all the three biosphere reserves studied are embedded in a very similar regional milieu, being situated in regions where serious social conflicts are not present. This is mainly thanks to the relatively low unemployment rate occurring there (Figure 25). This type of external milieu cannot be, however applied to the remaining three Czech biosphere reserves that have to operate in regions facing more complicated socioeconomic situation[24]. As the attitude of people to nature, and consequently to nature protection, is presumed to be dependent on particular socioeconomic situation, more precisely on the level of satisfaction of what is perceived as appropriate level of material needs (e.g. Ingelhart, 1990; Librová, 1994) we should be cautious when trying to generalize results and apply them nation-wide.

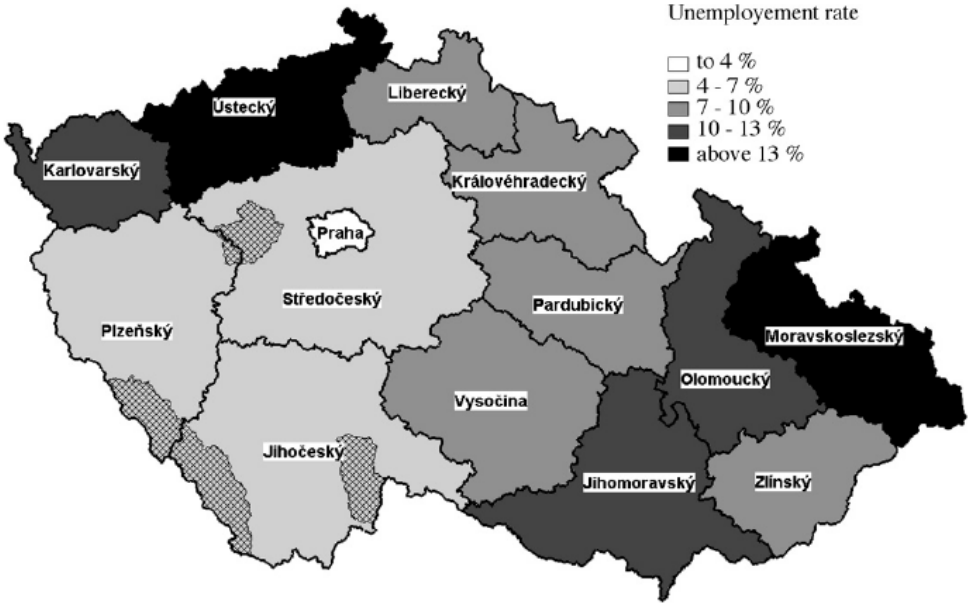


Figure 25. Regional distribution of unemployment—Czech Republic, 31-12-2004 (after Ministry of Labour and Social Affairs of the Czech Republic).

Secondly, the BR concept builds upon cooperation among stakeholders in the locality or region. Jointly shared vision on what could be considered common ground for discussion around the future coexistence of biodiversity protection and acceptable forms of its sustainable use can be viewed as condition necessary, making implementation of the concept likely, at least. In our case, sustainable tourism has played the pivotal role, which, as a branch of local economy, seems to be more flexible, compared to the more traditional and conservative economic activities such as agriculture and forestry. The need for cooperative approaches arises from a change in the competitive strategies that are influenced by the volatility and sensitivity of tourism industry (Gunjan, 2005) that requires key actors to think about which of their resources and activities are most sensibly combined (Crompton, 1990;

[24] The Krkonoše BR, Bílé Karpaty BR and Dolni Morava BR are located in Liberecký region, Zlínský region and Jihomoravský region respectively

Palmer, 1998). Having this in mind we can conclude that the example discussed above should be thought as being limited to sound tourism related activities as flexible networks are most likely to appear there.

At the very end it can be stated, that the chapter indicated possibilities and limitations of the BR concept implementation in the Czech Republic. Generally speaking, the concept proved to be an efficient tool supporting platform of communication on local as well as regional levels aimed at harmonizing of diverse interests. Viewing from this perspective, presented results may become an inspiration for other biosphere reserves. As the chapter tries to interpret biosphere reserve, among others, in terms of the process of social learning, it can be seen as a contribution to the debate on ideas of the ongoing UN Decade on Education for Sustainable Development 2005-2014.

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REFERENCES

Amin A. & Thrift N. (1994): Living in the global. In: Amin A. & Thrift N. (Eds.): *Globalisation, institutions and regional development in Europe* (pp 1-22). Oxford: Oxford University Press.

Antrop, M. (2001). The language of landscape ecologists and planners. A comparative content analysis of concepts used in landscape ecology. *Landscape and Urban Planning, 55,* 163-173.

Antrop, M. (2006). Sustainable landscapes: contradiction, fiction or utopia. *Landscape and Urban Planning, 75*(3-4), 187-197.

Bartoš, M., Kušová, D. & Těšitel, J. (1998). Integrated endogenous regional development concept and the role of Šumava National Park administration. *Silva Gabreta*, *2,* 385–394.

Bartoš, M., Kušová, D. & Těšitel, J. (2005). Life in Large Scale Areas with Specific Regime. *Životné Prostredie*, *39*(2),76–79 (in Czech).

Blažek, B. (1998). *Venkov, města, média [Countryside, cities, media]*. Praha: SLON (in Czech).

Blažek, J. & Uhlíř, D. (2002). *Teorie regionálního rozvoje [Theories of regional development]*, Praha: Karolinum (in Czech).

Bourdieu P. & Passeron J. C. (1990). *Reproduction in education, society and culture. Second Edition*. London: Sage.

Brock W.A, & Xepapadeas A. (2003). Valuing Biodiversity from an Economic Perspective: A Unified Economic, Ecological, and Genetic Approach. *The American Economic Review, 93*(5), 1597-1614.

Brunckhorst, D. (2001). Building capital through bioregional planning and biosphere reserve. *Ethics in Science and Environmental Politics,* 19-32.

Collados, C. & Duane, T. P. (1999). Natural capital and quality of life: a model for valuating the sustainability of alternative regional development paths. *Ecological Economics, 30*(3), 441-460.

Costanza, R., d'Arge, R., de Groot, R., Farber, S. C., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R. V., Paruelo, J., Raskin, R. G., Sutton, P. & van den Belt, M. (1997). The value of the world's ecosystem services and natural capital. *Nature, 387* (6630), 253-260.

Crompton J. L. (1990). Attitude determinants in tourism destination choice. *Annals of Tourism Research, 17*, 432-448.

DeFleur, M. & Ball–Rokeach, S. (1996). *Teorie masové komunikace [Theory of mass communication]*. Praha: Karolinum (in Czech).

Disman, M. (1993). *Jak se vyrábí sociologická znalost [Way to produce sociological knowledge]*. Praha: Karolinum (in Czech).

Dredge D. (2006). Policy networks and the local organisation of tourism. *Tourism Management, 27*, 269-280.

Faber, M. (2008). *How to be an Ecological Economist. Discussion Paper Series No. 454,* University of Heidelberg.

Farina, A. (2000). The Cultural Landscape as a Model for Integration of Ecology and Economics. *BioScience, 50*(4), 313-320.

Garrod B., Wornell R. & Youell R. (2006). Re-conceptualising rural resources as countryside capital: the case of rural tourism. *Journal of Rural Studies, 22*, 117-128.

Getzner, M. & Jungmeier, M. (2000). Conservation policy and the regional economy: the regional impact of Natura 2000 conservation sites in Austria. *Journal of Nature Conservation, 10*(1), 25-34.

Gunjan S. (2005). Relationships, networks and the learning regions: case evidence from the Peak District National Park. *Tourism Management, 26*, 277-289.

Hajer, M. (2003). Policy without polity? Policy analysis and the institutional void. *Policy Sciences, 36*, 175-195.

Hajer, M. (2003 a). A frame in the fields: policymaking and the reinvention of politics. In: Hajer, M. & Wagenaar, W., (Eds.), *Deliberative Policy Analysis* (pp. 88-110). Cambridge: Cambridge University Press.

Honzík K. (1965). *Tvorba životního stylu [On the creation of lifestyle]*. Prague: NPL (in Czech).

Imhoff, Marc L. (2004). Global patterns in human consumption of net primary production. *Nature, 429*(6994), 870–73.

Imperial, M. T. (1999). Institutional Analysis and Ecosystem-Based Management: The Institutional Analysis and Development Framework. *Environmental Management, 24*(4), 449-465.

Ingelhart, R. (1990). *The culture shift in advanced industrial society*. Princeton.

Ira, V. (2005). Sustainable development, quality of life and tourism. In: Hesková M., Šittler E. & Dvořák V. (Eds.), *Tourism, regional development and education. Reviewed proseedings of the 10th International conference „Tourism, regional development and education",* Tábor, 12–13. May 2005. Katedra cestovního ruchu Tábor, Jihočeská univerzita České Budějovice, 51–56.

I.U.C.N. (1980). *World Conservation Strategy: Living Resources Conservation for Sustainable Development.* Gland: I.U.C.N.

Jarman, B. (1984). Identification of Underprivileged Areas. *British Medical Journal*, *289,* 1587-1592.

Jehle, R. (1998). Pojetí endogenního rurálního rozvoje a jeho zavádění do regionální politiky České republiky. [The concept of endogenous rural development in the framework of its introduction in the regional policy in the Czech Republic.] *Zemědělská ekonomika, 44*(1), 9-12 (in Czech).

Jeník, J. (2006). Polarita přírody a kultury v teorii a praxi. [Polarity of Nature and Culture in Theory and Practice.] *Životné Prostredie, 40*(5), 234-237 (in Czech).

Jenkins, T. (Ed.) (2001). Integrated tourism: a conceptual framework, Deliverable 1, Ms. Supporting and Promoting Integrated Tourism in Europe's Lagging Regions, 64 pp, online reference http://sprite.econ.upatras.gr/.

Kaval, P. (2006). Valuing Ecosystem Services: A New Paradigm Shift. *Working Paper in Economics 1/6.* University of Waikato.

Kooten, C. G. & Wang, S (1998). Estimating Economic Costs of NatureProtection: British Columbia's Forest Regulations. *Canadian Public Policy – Analyse De Politiques, 24*(2),63-71.

Kušová, D., Bartoš, M. & Těšitel, J. (1999). Potential development of the right shore of Lipno Lake area – comparison of landscape and urban planning documentation with ideas of local inhabitants. *Silva Gabreta, 3*, 217–227.

Kušová, D., Bartoš, M. & Těšitel, J. (2002). Role of traditions in tourism development in the Czech part of the Bohemian Forest. *Silva Gabreta, 8*, 265–274.

Kušová, D., Těšitel, J. & Bartoš, M. (2005). The media image of the relationship between nature protection and socio-economic development in selected protected landscape areas. *Silva Gabreta, 11*(2),123–133.

Kušová, D., Těšitel, J., Matějka, K. & Bartoš, M. (2005a). Nature protection and socio-economic development in selected protected landscape areas. *Ekológia (Bratislava), 24,* (Supplement 1), 109-123.

Kušová, D., Těšitel, J., Matějka, K. & Bartoš, M. (2006). Socio-economic conditions in selected biosphere reserves. *Silva Gabreta, 12*(3), 157–169.

Kušová, D., Těšitel, J. & Bartoš, M. (2007). Možnosti využití konceptu biosférické rezervace na Šumavě. [Implementation possibilities of the BR concept in the Bohemian Forest]. In: Dvořák L., Šustr P., Braun V. (Eds.): *Aktuality šumavského výzkumu III*. [*Research actualities in Bohemian/Bavarian Forest*], Správa Národního parku a Chráněné krajinné oblasti Šumava, Srní, 4.-5.10. 2007, 139 – 143 (in Czech).

Kušová, D., Těšitel, J., Matějka, K. & Bartoš, M. (2008). Biosphere reserves – an attempt to form sustainable landscape (A case study of three biosphere reserves in the Czech Republic). *Landscape and Urban Planning, 84*(1), 187-197.

Kušová, D., Těšitel, J. & Bartoš, M. (2008a). Biosphere reserves – learning sites of sustainable development ? *Silva Gabreta, 14* (3)*,* 221-234.

Librová, H. (1987). *Sociální potřeba a hodnota krajiny. [Social need and landscape value.]* Brno: UJEP (in Czech).

Librová, H. (1988). *Láska ke krajině?[Love for landscape?]* Brno: Blok (in Czech).

Librová, H. (1994). Pestří a zelení: kapitoly dobrovolné skromnosti. [The colorful and the green: chapters on voluntary modesty] Brno: Veronica (in Czech).

Lowe, A. (1988). Small Hotel Survival: An inductive approach. *The International Journal of Hospitality Management, 7*(3), 197-223.

Lundvall, B. Å. (1997). Information Technology in the Learning Economy. *Communications & Strategies, 28*, 117-192.

MacLeod, G. (2001). New Regionalism reconsidered: Globalisation, regulation and the recasting of political economic space. *Internatioinal Journal of Urban and Regional Research*, *25*, 804-829.

MacLuhan, M. (1991). *Jak rozumět médiím. Extenze člověka. [To understand media. Human dimension.]* Praha: Odeon (in Czech).

Mareš, P. (1999). *Sociologie nerovnosti a chudoby. [Sociology of unevenness and poverty.]* Praha: SLON (in Czech).

Maršálková, M. & Todlová, M. (1983). *Podklady, informace a náměty pro další rozvoj rekreace v ČSR. [Information materials and proposals for further development of recreation in the Czech Republic.]* České Budějovice: ÚKE ČSAV (in Czech).

Maskell, P. & Malmberg, A. (1999). Localised Learning and Industrial Competitiveness. *Cambridge Journal of Economics, 23*(2), 167-186.

Massam, B. H. (2002). Quality of life: public planning and private living. *Progress in Planning, 58*, 141 – 227.

Millennium Ecosystem Assessment, (2005). *Ecosystems and Human Well-being:Synthesis*. Washington, DC: Island Press.

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

Naveh, Z. (2001). Ten major premises for a holistic conception of multifunctional landscapes. *Landscape and Urban Planning, 57*, 269-283.

Nolte, B. (2005). *Tourism in Biosphärenreservaten Ostmitteleuropas. Hoffnungen, Hindernisse und Handlungsspielräume bei der Umsetzung von Nachhaltigkeit.* Berlin: Mensch&Buch Verlag.

OECD (2005). *Report on policy, state and development of the environment: the Czech Republic*. Praha: Ministry of Environment of the Czech Republic.

Olsen, W. (2004). Triangulation in social research: Qualitative and quantitative methods can really be mixed. In: Holborn, Ormskirk (Eds.): *Developments in Sociology*. Ormskirk: Causeway Press.

Orians, G. H. (1980). Habitat selection: general theory and application to human behavior. In: Lockard, J.S. (Ed.), *The Evolution of Human Social Behavior*. New York: Elsevier.

Oszlányi, J. (2001). Research in UNESCO Biosphere Reserves as one of the elements of the Seville Strategy. *Ekologia (Bratislava)*, *20*(Supplement 3), 36-45.

Paavola, J. & Adger, N. W. (2005). Institutional ecological economics. *Ecological Economics, 53*, 353-368.

Paiders, J. (2007). How nature protection restrictions affect economic development? An example of municipalities from the North Vidzeme Biosphere Reserve, Latvia. *Working paper*, University of Latvia.

Palmer, A. (1998): Evaluationg the governance style of marketing groups. *Annales of Tourism Research, 25*(1), 185-201.

Parto, S. (2005). "Good" Governance and Policy Analysis: What of Institutions?. Maastricht Economic Research Institute on Innovation and Technology. *MERIT-Infonomics Research Memorandum series 2005-001.*

Palang, H., Helmfrid, S., Antrop, M. & Alumäe, H. (2005). Rural Landscapes: past processes and future strategies. *Landscape and Urban Planning, 70*, 3-8.

Pavlásek, Z. (2006). Netradiční aktivity v Biosférické rezervaci Šumava (studie možnosti rozvoje netradičních sportovních a turistických aktivit). [Non-traditional activities in the Šumava Biosphere Reserve – study on development potential of non-traditional sport and touristic activities]. Vimperk, České Budějovice: NP Šumava and ÚSBE AV ČR, v.v.i. http://www.npsumava.cz/storage/setr_aktivity1.pdf (in Czech).

Price, M. F. (2002). The periodic review of biosphere reserves: a mechanism to foster sites of excellence for conservation and sustainable development. *Environmental Science & Policy*, *5,* 13-18.

Rolston, H. (1997). Feeding People versus Saving Nature. In Gottieb, R. S. (Ed): *The Ecological Community* (208-225). New York, London: Routlege.

Roth, S. (2007). Summary of Outcomes of the Workshop on NATURA 2000 and Tourism. Bonn: Ecological Tourism Europe (ETE).

Sharpley, R. (2000). Tourism and Sustainable Development: Exploring the Theoretical Divide, *Journal of Sustainable Tourism, 8*,1-19.

Stoll-Kleemann S., Bender S., Berghöfer A., Bertzky M., Fritz-Vietta N., Schliep R. & Thierfelder B. (2006). Linking Governance and Management Perspectives with Conservation Success in Protected Areas and Biosphere Reserves. *Discussion paper 01 of the GoBi Research Group*. Berlin: Humboldt-Universität.

Storper M. (1997). *The regional world: Territorial development in a global economy*. London: Guilford Press.

Tait, J. & Lyall, C. (2004). A New Mode of Governance for Science, Technology, Risk and the Environment ? *Innogen Working Paper 17* (November 2004).

Těšitel, J**.,** Kušová, D. & Bartoš, M. **(**1999). Non marginal parameters of marginal areas. *Ekológia (Bratislava), 18*(2), 39–46.

Těšitel J., Kušová D. & Bartoš M. (2003). Tourist's reasons for visiting mountain areas: a case study of the Šumava Mountains. *Landscape Research, 28*(3), 317 – 322.

Těšitel J., Kušová D. & Bartoš M. (2003a). Role of tourism in development of rural marginal areas (region Šumava Mts., Czech Republic). In: Banski J., Owsinski J. (Eds.): *Alternatives for European Rural Areas* (81-91) Warsaw: European Rural Development Network, Institute of Agricultural and Food Economics, Institute of Geography and Spatial Organization, Polish Academy of Sciences.

Těšitel, J**.,** Kušová, D., Matějka, K. & Bartoš, M. (2005). *Lidé v biosférickiých rezervacích* [*People in biosphere reserves*]. České Budějovice: Institute of Systems Biology and Ecology, Academy of Sciences (in Czech).

Těšitel, J., Kušová, D., Matějka, K. & Bartoš, M. (2005a). Protected landscape areas and regional development (the case of the Czech Republic). In: Florianczyk, Z., Czapiewski, K. (Eds.): *Rural Development Capacity in Carpathian Europe* (113-126) Warsaw: European Rural Development Network, Institute of Agricultural and Food Economics, Institute of Geography and Spatial Organization, Polish Academy of Sciences.

Těšitel, J., Kušová, D. & Bartoš, M. (2006). Rural areas development – local needs or external forces. In: Florianczyk, Z., Czapiewski, K. (Eds.): *Endogenous factors stimulating rural development* (87-97). Warzaw: European Rural Development Network, Institute of Agricultural and Food Economics, Institute of Geography and Spatial Organization, Polish Academy of Sciences.

Těšitel, J., Kušová, D. & Bartoš, M. (2007). *Šetrný turismus v biosférických rezervacích – nástroj formování sítí spolupráce: případová studie Biosférické rezervace Šumava. [Sound tourism in biosphere reserves – a tool to form a network of cooperation: a case study of the Šumava Biosphere Reseve.]* Klagenfurt: Úřad vlády Korutan, (in Czech).

Townsend, P. (1987): Deprivation. *Journal of Social Policy, 16*(2)*,* 87-103.

UNESCO, (1996). *Biosphere Reserves: The Seville Strategy and the Statutory Framework of the World Network.* Paris: UNESCO..

UNESCO, (2001). *MAB Report Series No. 69*. Seville+5 International Meeting of Experts in Pamplona (Spain, 2000), Proceedings. Paris: UNESCO.

UNESCO, (2002). *Biosphere reserves: Special places for people and nature.* Paris: UNESCO.

UNESCO, (2008). *The Madrid Declaration.* Paris: UNESCO.

Urban, F. (2006). *Institutional and management frameworks in the Biosphere Reserve Šumava*. Bonn: ETE..

Vos, W. & Klijn, J. A. (2000). Trends in European landscape development: prospects for sustainable future. In: Klijn, J. A., Wos, W. (Eds.): *From landscape ecology to landscape science* (13-30). Wageningen: Kluwer Academic Publishers.

Wilson, O. E. (1984). *Biophilia - The human bond with other species.* Cambridge: Harvard University Press.

Wilson, J., Tyedmers, P. & Pelot, R. (2007). Contrasting and comparing sustainable development indicator metrics. *Ecological Indicators, 7*(2), 299-314.

Zemek, F., Heřman, M. (1998). Socio-economic potential of landscape integrated in GIS frame. *Ekológia (Bratislava), 17,* (Supplement 1), 232–240.

Zemek, F., Heřman, M., Mašková, Z. & Květ, J. (2005). Multifunctional land use – a chance or resettling abandoned landscapes? (A case study of the Zhůří territory, the Czech Republic). *Ekológia (Bratislava), 24,* (Supplement 1), 96–108.