

SUSTAINABLE DEVELOPMENT OF RECREATION
AND TOURISM IN THE PROTECTED AREAS OF CROATIA:
ISSUES AND INDICATORS

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INTRODUCTION

Croatia is a country with long tourist tradition. Exceptional natural and geographic conditions, abundance of historical and cultural heritage, favorable traffic position and integration into Mediterranean and Central European culture gave impetus to tourism development in mid-19th century. A century later, Croatian tourism was based on mass (summer-bathing) tourism, and Adriatic Coast became a dominant tourist zone. Today, tourism is of an exceptional importance for Croatia.

Tourism is one of the leading economic activities in the world, and its importance lies in its complementarity and positive influence on development of other activities, such as agriculture, trade and other services. Maintaining position on global tourist market includes keeping up with contemporary trends of tourism development. Since 1980s there has been an increasing demand for those types of tourism that contribute to bonding with nature and individual experience ("ecotourism"). These new demands occurred as a reaction to excessive development of mass tourism, but they are also in accordance with social awareness on nature protection (B a u m g a r t n e r, 2001). Tourism trends in world predict change in behavior of travelers who strive to experience as much as possible. In next ten years collision of sun and beach, fun and adventure (without real risks), with sustainability, eco-awareness and increase in quality of tourism offer, will dominate world tourism market (F e i g e, 2000). In accordance with this trend, it is possible to expect an increased pressure of recreation and tourism on protected areas.

Protected areas in Croatia comprise approximately 10 per cent of the national territory, which is a relatively high share, especially for a transitional country. The most dominant categories of nature protection in Croatia are national parks and nature parks. All of them provide recreational and tourist activities and some of them record exceptional number of visitors. The aim of this paper is to consider the basic problems of the protected areas in Croatia, especially regarding recreation and tourism, and to explore which indicators are used in concept of their (sustainable) development.

HOW TO CONSIDER THE ISSUE OF RECREATION AND TOURISM IN PROTECTED AREAS IN RELATION TO SUSTAINABLE DEVELOPMENT CONCEPT?

The notion of sustainable development is an omnipresent contemporary concept on acceptable development of society and space. Origins of sustainable development concept date from 1960s when some institutions, non-government agencies and movements were founded in order to increase public interest in environment protection (Robinson, 1990). The essence of this concept is expressed by famous Brundtland definition of sustainable development (World Commission on ..., 1987): "Development that meets the needs of the present generation without denying the same opportunity for future generations". Although the above-mentioned definition does not offer the possibility for determining (measuring) whether a certain development is indeed sustainable, it is important because it does not only take into consideration environment protection, but it also focuses on the relationship between environment, society and economy (as a part of a unique system) (Pierce, 1996). According to the definition, one (the only?) of the possible approaches to the issue of sustainable recreation and tourism in protected areas is to perceive them in the "triangle": environment-economy-society.¹

In accordance with previous statements, the purpose of this chapter is to briefly present the indicators that are commonly used in evaluating recreation and tourism in the "triangle" of sustainable development, particularly in protected areas. However, before examining these indicators, it would be wise to ask the following questions: Why is it necessary to use indicators anyway? Isn't tourism an activity that depends primarily on the quality of the environment (clean sea, healthy environment...) and quality of life of the local community? Isn't it in the best interest of tourism as an economic activity to act cautiously with natural and cultural resources on which it is based, in order to prolong this exploitation (and financial benefit)? Isn't tourism an ideal economic activity in terms of sustainable development (compared to industry, for example)? Despite this logic, numerous examples prove otherwise. Welford (Pravdić, 2003; after Welford et al., 1999) made a list of eight basic "truths" on tourism from point of view of environment, economy and society. He defines tourism as follows:

1. an industrial activity creating waste, and setting demands on infrastructure (communications, energy, water);
2. a consumer, or even an overconsumer, of natural resources and space;
3. as a resource dependent industry, a competitor for scarce resources with other activities;
4. as a private-sector dominated industry, based predominantly on profit maximalization;
5. as a multifaceted industry almost impossible to control (either socially or environmentally);
6. dominated by consumers, not scientifically minded people;
7. entertainment;
8. unlike other industries, importing people (consumers), rather than exporting products.

¹ This statement is also in accordance with WTO's definition of sustainable tourism: "Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems." (WTO, Concepts & definitions: <http://www.world-tourism.org/sustainable/concepts.htm>, Accessed: April, 12th 2004)

In relation to this, there are some doubts on how to develop and control recreation and tourism as an economic activity, particularly in protected areas, on behalf of the environment and local community and how to avoid negative consequences of recreation and tourism in protected areas. The possible answer to these questions, which is often stressed as an inevitable precondition for ecologically sustainable tourism, is to take the carrying capacity into consideration. This notion is perceived as maximum pressures an ecosystem, a place or a region can take in order to achieve sustainability (P r a v d i ć, 2003; after IUCN/UNEP/WWF, 1991). Carrying capacity has four components: physical, perceptual, social and economic component (P r a v d i ć, 2003; after G ö s s l i n g, 1999, 2000, 2002):

1. Physical carrying capacity is characterized by limits of loads imposed by various activities, beyond which environmental problems arise.

2. Perceptual capacity is the subjective view that tourist have on the conditions in an area (environmental quality, the comfort index) which in turn decides on their willingness to travel to that destinations.

3. Social carrying capacity arises from the domestic population's willingness to tolerate foreign visitors, and accept the accompanying levels and rates of social change.

4. Economic carrying capacity measures the ability of a local community to absorb tourist activities accepting the associated benefits, but without displacing or disrupting traditional activities or preferences, or the existing environmental quality.

All four components of carrying capacity are actually closely connected to the "triangle" of sustainable development, as well as with "perceptual" quality of the environment necessary for tourism as an economic activity. The real challenge lies in determin-

Table 1
Core indicators of sustainable tourism

INDICATOR	SPECIFIC MEASURES
Site protection	Category of site protection according to IUCN index (International Union for Conservation of Nature and Natural Resources)
Stress	Tourist numbers visiting site (annum/peak month)
Use Intensity	Intensity of usage in season and in peak period (persons/hectare)
Social Impact	Ratio of tourists to locals (peak period and over time)
Developing control	Existence of environmental review procedure of formal controls over development of site and use densities
Waste Management	Percentage of sewage from site receiving treatment (additional indicators may include structural limits of other infrastructural capacity on site such as water supply)
Planning process	Existence of organized regional plan for tourist destination region (including tourism component)
Critical ecosystems	Number of rare/endangered species
Consumer satisfaction	Level of satisfaction by visitors (questionnaire based)
Local satisfaction	Level of satisfaction by locals (questionnaire based)
Tourism Contribution to Local Economy	Proportion of total economic activity generated by tourism only
COMPOSITE INDICES	
A. Carrying Capacity	Composite earl warning measures of key factors affecting the ability of the site to support different levels of tourism
B. Site Stress	Composite measure of levels of impact on the site (its natural and cultural attributes due to tourism and other sector cumulative stresses)
C. Attractiveness	Qualitative measure of those site attributes that make it attractive to tourism and can change over time

Source: EDEN, 2000–2002 (after World Tourism Organization)

Table 2
Supplementary indicators of sustainable tourism (in mountains)

ISSUE	INDICATORS	SUGGESTED MEASURES
Loss of flora and fauna	Reproductive success of indicator species	Species counts Changes in mix of species
	Continuing presence of wildlife at traditionally occupied areas	Number of road kills of specified specie Visual inspection and photographic record
Erosion	Extent of erosion caused by tourists Rate of continuing erosion	% of surface in eroded state Visual inspection and photographic record
Lack of access to key sites	Length of vehicle line-ups	Number of hours spent in vehicle Cost of entry/lowest average local wage
Lack of solitude	Consumer satisfaction	Number of people at peak period (accessible area only) Questionnaire on whether solitude objectives met
Loss of aesthetic qualities	Site attraction	Visibility of human presence (e.g. litter counts)
Diminished water quality	Pollution counts	Measures of fecal coliform, heavy metal

Source: EDEN, 2000–2002 (according to World Tourism Organization)

ing and implementing the indicators for “measuring” carrying capacity. Tabl. 1 and 2 provide examples of indicators that are commonly used for “measuring” sustainability of tourism, with special emphasis on mountainous regions. Determining indicators, their measurement, evaluation and integration of the results into tourist development plans are some of the most important answers to the question stated in the headline of this chapter: How to consider the issue of recreation and tourism in protected areas in relation to sustainable development concept?

Before analysis of selected sustainable tourism indicators an overview of legal basis and main problems of protected areas in Croatia is given.

LEGAL BASIS AND OVERVIEW OF THE PROTECTED AREAS IN CROATIA

Nature protection in Croatia depends largely on laws and regulations, which are passed not only to preserve natural resources from exploitation, but also to protect the endangered species. First laws of that kind in Croatia were: *Bird Protection Act* (1893), *Hunting Act* (1893) and *Cave Protection Act* (1900) (O p a č i ć, 2001a).

The first steps toward more integral protection of particular areas in Croatia were undertaken in the area of Plitvička Jezera, Gorski kotar and Velebit Mountain. *Financial Act* passed in 1928/1929 designated Plitvička Jezera, Bijele Stijene and Štirovača as national parks (V i d a k o v i ć, 2003). However, these were not national parks in contemporary terms or in accordance with international criteria, but merely a reflection of tendencies to prevent further logging at these locations.

The beginnings of contemporary nature protection in Croatia go back as far as 1949, the year when *National Parks Act* was passed, designating Plitvička Jezera and Paklenica as Croatia’s first modern national parks. The turning point in integral protection of particular areas was marked by *Nature Protection Act* in 1960. Unlike previous acts, which referred only to individual natural resources, this act emphasized the importance of integral nature protection in a particular area.

Table 3
Categories of protected areas in Croatia

Category	Number	Total surface (in ha) ¹
National Parks	8	98,292
Nature Parks	10	409,826
Strict Reserves	2	2,395
Special Reserves	69	30,372
Park-forests	23	7,660
Protected Landscapes	28	17,544
Nature Monuments	72	83
Monuments of Park Architecture	114	912
TOTAL	326	567,084

Source: Opačić, V. T. (2001a).

The basic legal document for nature protection nowadays is *Nature Protection Act* from 2003. According to this act "**protected natural resources** are those natural resources designated as such by an authorized corporate body determined by this Act, registered into Protected Natural Resources Registry; they may relate to **protected areas, protected plants, fungi and animal species as well as protected minerals and fossils**". In accordance with Nature Protection Act there are eight categories of nature protection in Croatia (tabl. 3).

As seen from the table above, most of the protected area is related to two categories: nature parks and national parks, which comprise almost 90 per cent of all protected areas in Croatia. According to Nature Protection Act, *national park* is a spacious, mostly unaltered part of the land and/or the sea with many exquisite natural resources; it comprises one or more preserved or slightly altered ecosystems, and its primary function is to preserve the original natural resources. National parks have scientific, cultural, educational and recreational functions. The only activities permitted in national parks are those that do not endanger the nature itself, and any economic exploitation of natural resources is strictly prohibited. The activities that are allowed within the park include catering, tourism and recreational activities that exist for the purpose of visiting and sightseeing, agricultural activities, fishing and traditional crafts, as well as economic activities that were performed in this area before it was declared a national park.

According to Croatian legislation, *nature park* is a spacious, unaltered or slightly altered part of the land and/or the sea with ecological attributes of international and national importance, with special values such as landscape, educational, cultural, historical, tourist and recreational values. All activities that do not endanger its basic features are allowed within the park.

The above-mentioned definitions clearly reflect that national parks receive higher degree of protection. National parks are proclaimed in order to protect the natural resources and as such they can be a base for good quality tourist offer, but should not be disrupted by accommodation facilities as it is the case with some Croatian national parks (e.g. Plitvička Jezera, Brijuni). On the other hand, the main purpose of nature parks is protection of the natural environment, i.e. the whole landscape, from further concentration of economic activities or excessive building. Unlike national parks, nature parks used to be affected by some economic activities and facilities before they became protected areas.

² Total surface of the protected areas is an approximate value because some categories overlap. For example, Hajdučki and Rožanski Kukovi Strict Reserves are a part of Sjeverni Velebit National Park, and Sjeverni Velebit National Park is situated within Velebit Nature Park.

National parks and nature parks are designated by the Croatian Parliament that passes special legislations for each national park or nature park. National parks and nature parks are managed by public institutions established by the government. Their primary task is to protect and preserve the specified area, and their second task are education and promotion, including tourism and recreation.

Spatial organization, land use, improvement and protection of national parks and nature parks are all determined by their own regional plans, but these plans are not a part of the regional plans issued by the local government (municipalities or counties). Regional plans for national parks and nature parks are issued by the Croatian Parliament. Legal act that regulates management of protected areas more thoroughly is called *Rules on Internal Organization* and it should be inevitable in every national park and nature park.

Croatia is abundant with diverse natural resources, which is evident from spatial distribution of its national parks and nature parks (fig. 1); they are evenly distributed in littoral, mountainous and lowland part of Croatia.

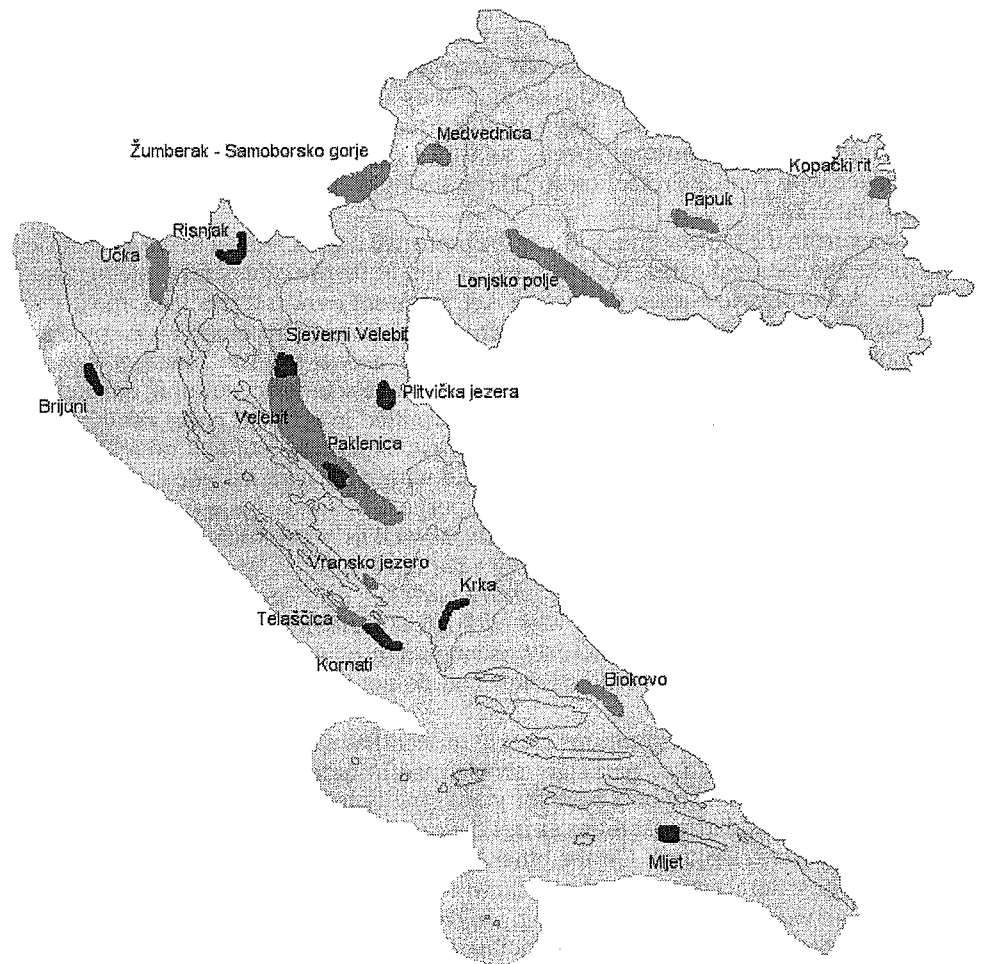


Fig. 1. Croatian National and Nature Parks
Source: Hrvatski homepage, www.hr (accessed 20.04.2004.)

Table 4
National Parks and Nature Parks in Croatia and their basic characteristics

National Park	Established	Surface (in ha)	Basic features	Nature Park	Established	Surface (in ha)	Basic features
Plitvička Jezera	1949	29,482	Karst hydrography phenomenon, 16 lakes with numerous travertine barriers and waterfalls. Well preserved forests, rich fauna. Since 1979 on UNESCO's list of World's Natural Heritage.	Kopački Rit	1967	22,894	Forests flooded by Drava and Danube Rivers with numerous bird species.
Paklenica	1949	9,600	Geomorphological and vegetational attributes – deep canyons of Velika and Mala Paklenica; autochthonous forests of black pine and several types of beech forest.	Velebit	1981	200,000	The most important mountain in Croatia regarding relief and vegetation. It was designated Biosphere Reserve in 1978. Includes Sjeverni Velebit and Paklenica National Parks as well as Hajdučki and Rožanski kukovi Strict Reserves.
Risnjak	1953	6,400	Even vertical distribution of the forests in Gorski Kotar. Karst sink-holes, rich and diverse fauna.	Biokovo	1981	19,550	Attractive karst geomorphological forms, rich flora and fauna.
Mijet	1960	5,375	Specific coast indentation with two "lakes" (submerged Karst depressions); Aleppo pine forests, black pine forests. Rich cultural heritage. Rich marine life.	Medvednica	1981	22,826	Well preserved forests – eight forest reserves, recreational zone of Zagreb.
Kornati	1980	21,800	The most indented group of islands in the Mediterranean. Rich and diverse marine life.	Telašćica	1988	6,706	Eight km long bay that cuts into southern part of Dugi Otok Island; "cliffs" of the western side of the Island (up to 180 m high).
Brijuni	1983	3,635	Autochthonous Mediterranean black pine forests on 14 islands. Landscape parks, marine life and rich cultural heritage dating from Roman and Byzantine Period.	Lonjsko polje	1990	50,650	One of the largest flooded areas in Europe (by Sava River). Rich flora and fauna (spoonbills, storks). Interesting architecture – wooden houses.
Krka	1985	11,100	Example of karst river canyon with travertine barriers and waterfalls and some lakes. Cultural heritage (Visovac monastery, Arandjelovac monastery, medieval hill-forts).	Učka	1999	14,600	Specific from geomorphological, climatic and vegetational point of view. Luxuriant forests growing from sea level to the top of the mountain.
Sjeverni Velebit	1999	10,900	The richest part of Velebit Mountain regarding landscape, geomorphological features, botanic and forests.	Papuk	1999	33,600	The most important mountain in Slavonia Mountains; preserved forests.
				Žumberak – Samoborsko Gorje	1999	33,300	Rich meadows and pastures. Deserted settlements – fossilized cultural landscape. Preserved forests.
				Vransko Jezero	1999	5,700	Largest natural lake in Croatia. Remains of a swamp with specific vegetation in submerged karst polje. Numerous species of birds and fish (eels).
TOTAL		98,292		TOTAL		409,826	

Basic features, year of establishment and surface of Croatia's national parks and nature parks are shown in tabl. 4.

As it can be observed from tabl. 4, after a relatively long period (1990-1999) of turbulent political events (Croatian War of Independence, Croatia becoming an independent state), tendencies for increasing the number and surface of protected areas has become conspicuous again; Sjeverni Velebit was proclaimed national park, while Papuk, Učka, Vransko Jezero and Žumberak-Samoborsko Gorje became nature parks. It is a well known fact that there is a close connection between the surface of the protected areas and social and economic development of the state. Developed countries tend to protect 12 to 15 per cent of their national territory under different categories of protection. In Croatia about 10 per cent of the state territory is protected under different categories of protection, which is a relatively high share for a transitional country. The number of visitors in protected areas of Croatia in 2003 reached almost 2 million, which is 20 per cent of all tourists in Croatia (tabl. 5). In developed countries of the world this percentage is about 30 per cent. This indicator shows that Croatia is still far behind the developed countries. However, contemporary trends indicate that the share of selective forms of tourism is increasing.

Table 5
Tourist turnover in Croatian National Parks and Nature Parks³

Establishment	Number of visitors (January–August 2003)	Change in number of visitors (compared to year 2002, in %)	Income (January–August 2003, in EUR)	Estimated income (till the end of 2003, in EUR)
Plitvička Jezera National Park	622,000	+8	6,005,002	6,666,667
Krka National Park	512,000	+7	2,368,738	2,800,000
Brijuni National Park	115,916	+8	1,181,416	1,600,000
Paklenica National Park	81,025	-4	330,712	393,333
Telašćica Nature Park	78,954	+4	228,965	253,333
Mljet National Park	68,867	+15	466,776	520,000
Kornati National Park	56,563	+12	274,265	290,800
Biokovo Nature Park	38,600	+3	45,333	53,333
Vransko Jezero Nature Park	12,500	+25	26,667	29,333
Velebit Nature Park	12,459	+3	20,133	23,467
Risnjak National Park	10,531	+11	198,478	240,000
Kopački Rit Nature Park	5,070	+1	18,037	21,333
Sjeverni Velebit National Park	5,062	+15		
TOTAL ¹	1,619,547	+9	11,164,522	12,891,599

³ Data was presented at the conference "Tourism in protected areas", December 2003.

⁴ Data is mostly based on the number of sold tickets, which is not the best indicator since it is not possible to control all the entrances; this data is incomplete since there is no data for five protected areas which do not have reliable methods for establishing the number of visitors due to many entrances. Nevertheless, they also contribute to total income and number of visitors through their educational programs, excursions etc.

MAIN PROBLEMS IN CROATIAN NATIONAL PARKS AND NATURE PARKS

National parks and nature parks in Croatia are threatened by some general problems, such as lack of regional plans for the protected areas (for all ten nature parks and three national parks), lack of employees in public institutions in charge of managing the protected areas, poor ecological awareness of the local government resulting in different management strategies, conflicts with the local population (e.g. redundancies from local forestries), excessive number of tourists, contamination threats, but there are also some specific problems that are characteristic for different national parks or nature parks.

Some of the most frequent specific problems are: inadequate drainage of waste waters and sewage improvement, direct and indirect consequences of war that reflect themselves in flora and fauna, devastated infrastructure, poaching, neglecting of traditional crafts, uncontrolled illegal logging or unsolved issues with local forestries, active stone-pits, illegal building, inappropriate locations of waste dumps, fire threats, floods, sea contamination etc. (tabl. 4).

One of the most prominent problems is financing. Namely, public institutions that are in charge of protected area management are often forced to operate under market conditions (raise incomes by selling tickets and providing tourist and catering services).

Table 6
Main problems in Croatian National Parks and Nature Parks

National Park	Main problems	Nature Park	Main problems
Plitvička Jezera	Drainage of waste waters and sewage system improvement; direct and indirect consequences of war; poaching; neglecting traditional crafts; inappropriate locations of waste dumps; state road Zagreb-Split passes through the Park.	Kopački Rit	Direct and indirect consequences of war; poaching; illegal logging; unsolved disputes with local forestries.
Paklenica	Poaching; fire threats.	Velebit	Direct and indirect consequences of war; poaching; illegal building.
Risnjak	Drainage of waste waters and sewage system improvement; illegal logging; unsolved disputes with local forestries.	Biokovo	Poaching; inappropriate locations of waste dumps; fire threats.
Mljet	Drainage of waste waters and sewage system improvement;	Medvednica	Active stone-pits; illegal building; arrogation of the park by many parties with different interests.
Kornati	Poaching; illegal building; illegal anchoring of the yachts; wastes brought by the sea.	Telašćica	Inappropriate locations of waste dumps; fire threats; wastes brought by the sea.
Brijuni	Drainage of waste waters; decayed buildings and communal infrastructure; uncertainties whether to keep this area under protection or to promote it into elite tourist destination.	Lonjsko polje	Poaching; neglecting traditional crafts; floods.
Krka	Drainage of waste waters and sewage system improvement; poaching; inappropriate locations of waste dumps; fire threats; power plants; state highway Zagreb-Split (under construction).	Učka	Active stone-pits; illegal building; poaching; illegal logging.
Sjeverni Velebit	Poaching; illegal logging; unsolved disputes with local forestries; illegal building; poor access roads (macadam roads).	Papuk	Poaching; stone-pits.
		Žumberak – Samoborsko Gorje	Neglecting traditional crafts due to depopulation and ageing of the local population; meadows are turning into forests (reduction of biodiversity); illegal building; illegal waste dumps.
		Vransko Jezero	Poaching; illegal building; fire threats; unsolved existential issues of the local inhabitants who fished in the lake before this area was protected.

In this way their primary goal, nature protection and education, are replaced by tourism development, marketing etc. Such situation is caused by the tendency of the state to reduce the number of budget beneficiaries, so the state financing for the public institution decreases. In the end, money from the budget is often merely sufficient for salaries of the employees, while the provisions for nature protection and education are scarce.

RECREATIONAL AND TOURIST FUNCTION OF MEDVEDNICA NATURE PARK (CASE STUDY)

Strong connection between Medvednica mountain and city of Zagreb, which is situated at the foot of its southern slope, is one of the best examples of interaction between natural and cultural, i.e. anthropogenic landscape in Croatia. Medvednica is a 42 km long mountain ridge that stretches in NE-SW direction, forming the northern boundary of the city of Zagreb, i.e. of its agglomeration. At first glance, Medvednica may seem like a compact elevation, but at a close range one may notice the differences between the central part (highest peak is Sljeme – 1,033 m) and two lower, peripheral parts (eastern and western – 600–700 m above the sea level). There are also numerous lateral ridges that stretch vertically to the main ridge, separated from one another by streams that spring at the top of the ridge. Medvednica has a complex petrographic composition as a result of turbulent geologic past and tectonic uplifting during Tertiary. On the southern foot of the mountain there is a valley with former villages that are now Zagreb's suburbs. Lower boundary of the forests may be considered as the most evident element for distinguishing the mountain from its foot (O p a č i ć, 2001b).

Nature protection on Medvednica is based upon extremely well preserved autochthonous forests, which are more or less evenly distributed along hypsometric zones. Such well preserved forests are quite rarely found in suburban areas. The area above 350 m is almost exclusively covered with forests. Out of the total surface of the Park (22,826 ha) as much as 63.6 per cent is covered with forests; 78 per cent of the forests are beech forests, 12 per cent oak and 10 per cent chestnut. In the uppermost part of Medvednica there is a zone with beech and fir forests between 800 and 1,000 m above the sea level. It was also inevitable to protect Medvednica because of its flora, which includes 1346 species (20 protected, 93 endangered and 14 endemic).

Before Medvednica actually became a nature park, there were many disputes and conflicts between those who wanted to protect it and those who sought their profit in exploiting it. This conflict derived from different visions of forests and their function. For some, the forest was an irreplaceable natural resource for recreation, while the others primarily saw it as a source of profits. Accordingly, Medvednica had been through different stages of management, ranging from exploitation and profitable activities which used its natural resources (timber, mines, stone-pits) to preservation and recreational activities (mountaineering, excursions, skiing) and turning Medvednica into a mass recreational area. Croatian Parliament, finally, proclaimed Medvednica as Nature Park in 1981 and so, the preservation prevailed over exploitation.

Why nature park and not national park? Nature parks generally protect those areas that do not completely comply with the national park criteria in view of their surface and expected forms of use. The case of Medvednica completely fits into aforementioned context, because intensive interaction between man and its surroundings has been present here for many years, and Medvednica is expected to become a recreational area of Zagreb with many different attractions and activities. Due to this, we cannot expect complete preservation of nature in the future, as can be expected in a national park, for example, but its basic feature (i.e. forests) should be preserved. Medvednica also fits into nature

park category because of its borders, which do not only encompass the ridge and forests, but also part of the piedmont with autochthonous cultural landscape. There are also eight special reserves of forest communities within the park, in order to protect the most preserved parts of the forests on Medvednica.

Recreational and tourist potential of Medvednica is supported not only by its natural resources, but also by good traffic accessibility and vicinity of Zagreb agglomeration with almost one million inhabitants. The peak of Medvednica can be accessed by a road or a cable railway from southern piedmont, which takes about 20 minutes. In the last few years the perception of Medvednica as a popular, mass resort for Zagreb population, i.e. their recreational zone, has become a nature hazard. This hazard has induced considerations on sustainable development so that Medvednica could continue meeting recreational needs of the population, but still preserve its original form for future generations as much as possible.

The importance of Medvednica as a favorite leisure place for different groups of people is best presented by the number and diversity of activities it offers:

- Hiking
- Mountaineering
- Free climbing
- Mountain cycling
- Orienteering
- Paragliding
- Recreational education
- Speleology
- Skiing
- Rally.

In the near future Medvednica Nature Park Public Institution is planning to introduce new activities such as paintball (part of team-building programs) and horse riding. Besides recreational activities, Medvednica Nature Park also provides half-day or whole-day tours around the Park, educational programs for children (e.g. Project Learning Tree; educational trails) as well as sightseeing cultural and historical monuments within the Park, e.g. medieval Medvedgrad Castle, then in due course of time, Zrinski stone-pit (example of medieval mining activities on Medvednica), museums of Hrvatsko Zagorje etc.

Present day recreational and tourist offer is comprised of:

- Infrastructure (two hotels, about 10 mountain lodgings, catering services)
- Ski tracks
- Tours around the Park and visits to several localities with professional guides
- Visits to Veternica Cave
- Visits to the castles at the foot of the mountain (e.g. Golubovec, Junkovec, Oršić) and medieval Medvedgrad Castle
- Visits to Zrinski stone-pit from 16th century (available soon)
- Info Center in Stubički Golubovec (available soon).

Although Medvednica Nature Park Public Institution promotes sustainable development of recreation and tourism, due to increased interests from different groups, tourism and recreation have reached mass dimensions and present a threat for the environment (waste waters, litter, traffic, disturbances, artificial snowing, air, water and soil pollution, building new facilities etc.). So, the Park is faced with many problems, but let us mention only some of them. Due to very good road access and wide range of activities available in the Park, especially during the winter season, traffic congestions are very frequent as a result of many cars and insufficient number of parking spaces. On the other hand, the cable railway is obsolete and cannot support so many visitors. Despite the lack of parking spaces, their number should not be increased. Instead, it would be better to organize

public transportation from the piedmont to the mountain top. Another important issue is inadequate sewage system from tourist and catering facilities.

Still, the most dangerous potential problem for the environment and the forests are the plans for expanding the existing ski tracks and building new ones (for organizing women's World Cup ski races), expansion of road infrastructure and new tourist and catering facilities. The fiercest advocates of these unrealistic and legally unfounded ideas about turning this traditional recreational area of Zagreb population into elite winter tourism area are some members of Zagreb City Council and part of the local community. Seeing that, "Sljeme-Medvednica" Corporation was founded and it is in charge of all catering and tourist facilities as well as ski tracks within the park. Due to great influence of the politicians and ecologically unaware entrepreneurs, Medvednica Nature Park Public Institution very often has no means for stopping these plans and cannot control further development of recreation and tourism within the Park in accordance with sustainable development postulates. The above-mentioned projects have no legal basis (since this is a nature park), their financing is not justified in view of contemporary domestic and international market trends and climatic features are not particularly favorable (insufficient quantity of snow and its short retainment). Above all, these ski resort plans are not consistent with Medvednica's traditional role of recreational area for all people, regardless of their social status.

Instead of these grandiose plans about expanding the ski tracks, it would be much wiser to attend to the existing tracks, adjust them to ecological standards, organize public transportation and limit the access for cars. In this way skiing on Medvednica would still provide weekend recreation for those people who cannot afford going to ski resorts in the Alps, or do not have enough free time for that. Additionally, Medvednica would retain its nature park features due to ecologically accepted activities within it.

The main task of the regional plan and management plan, which are still being prepared, is to divide Medvednica into zones and protect the most valuable zones from negative influences. Until these plans are made, strict rules on nature protection should be introduced and increase the control of the Supervision Service.

Forms of tourism that should be developed within the Park are: ecotourism, rural tourism, adventure tourism or to put it shortly, all those types of tourism that are in line with nature protection and support education and preservation of natural and cultural heritage. At the same time, these types of tourism promote acceptable behavior of the visitors, reduce negative influences on the environment and enable visitations throughout the year.

Additional efforts should be made in order to perceive and promote Medvednica as a protected area where all activities are in accordance with sustainable development and stop treating it as a source of income based on its natural resources or tourist potentials.

INDICATORS OF SUSTAINABLE DEVELOPMENT OF RECREATION AND TOURISM IN PROTECTED AREAS OF CROATIA

According to available research, Croatia still has no efficient system for monitoring environmental quality (except for the Adriatic Sea) nor has it got a determined carrying capacity limit. This also refers to coastal and insular areas, which are more prominent as tourist destinations and ecologically more fragile (P r a v d i ć, 2003). In lack of a unique system, all responsibility for planning, protecting and monitoring environmental quality is within the scope of organizations that are managing the protected areas. As an example, indicators of sustainable development in Medvednica Nature Park are compared with WTO indicators (tables 1 and 2).

Table 7
*Issues, indicators and specific measures of sustainable recreation and tourism
 in Medvednica Nature Park*

Issue	Indicator	Specific measures
Biodiversity	Plant and animal species	Species counts; potential changes in numbers and mix of species (database in progress)
Management	Planning process	10-year plan is in preparation; employees are being educated in planning process (preparing plan, implementation, monitoring, evaluation)
Quality of service	Consumer satisfaction	e.g., number of children attending educational programmes in Park
Critical ecosystems (Veternica Cave)	Rare and endangered species (bats...) Overall monitoring of cave ecosystem, especially human impact	Species counts Research projects and defining indicators for monitoring
Ecological destruction	Erosion and biotope degradation	Monitoring of meadows and hiking, biking and educational trails
Waste	Waste management	Quantity of waste in recreational zones
Loss of protected/natural area	Fires	Number of fires caused by visitors during recreational activities
Safety	Accidents and medical interventions	Number of accidents and medical interventions in peak recreational zones of Park

Source: Interview with Management of Medvednica Nature Park, March 2004.

Several conclusions can be made:

- Indicators that are most commonly taken into consideration are those concerning environmental quality (biodiversity, endangered ecosystems, fire damages, wastes, soil erosion and environment degradation);
- Much less attention is paid to social indicators (visitors' satisfaction or their safety);
- Economic indicators are not taken into consideration at all.⁵

Out of all key indicators in Medvednica Nature Park, perhaps the most important one is missing – potential or present carrying capacity of the Park. Other indicators of environmental quality that are not monitored currently include: increase in number of newly build facilities (mostly illegally built houses in border areas), degree of environment pollution (air, water and soil), and influence of traffic on the environment. More attention should be paid to the following social indicators: number of visitors, number of visitors in peak zone, which is the most attractive, seasonality of number of visitors (especially during the week, but also during the year). Other social indicators, such as ratio of visitors to locals, content of the local population etc., are not so important because only marginal and less attractive zones of the Park are inhabited. As for the economic indicators, it is important to take into consideration the number of workplaces in service industry based on recreation and tourism, and total income of this industry. It is also possible to monitor real estate and land prices in the Park, and investments of the public sector. As this is a protected and marginally inhabited area, it is not necessary to investigate the influence of recreation and tourism on local economy.

⁵ This is probably the result of the fact that Medvednica Nature Park Public Institution does not control catering and tourist facilities nor ski tracks within the Park. These facilities are under control of "Sljeme-Medvednica" Corporation.

It is obvious that no general conclusions about monitoring sustainable development indicators in all Croatian protected areas can be made on the grounds of one case. However, most Public Institutions monitor environmental quality indicators, while social and economic indicators are somewhat neglected.⁶

The structure of employees in public institutions that are in charge of the protected areas shows that implementation of the sustainable development "triangle" demands some changes to be made. Complexity of this problem calls for integral and multidisciplinary approach in managing sustainable development of recreation and tourism in protected areas. The basic precondition for sustainable development in protected areas is cooperation between the experts from different scientific fields (ecologists, biologists, forestry engineers, geographers, geologists, economists, sociologists, lawyers etc.).

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⁶ There is a big difference between National Parks and Nature Parks. Namely, National Parks are financially more independent and have their own source of income (ticket sale), while Nature Parks almost exclusively depend on the budget. Of course, this significantly affects the monitoring of economic indicators, e.g. number of visitors, because National Parks can approximately establish the number of visitors on the grounds of sold tickets.

УСТОЙЧИВО РАЗВИТИЕ НА РЕКРЕАЦИЯТА И ТУРИЗМА
В ЗАЩИТЕНИТЕ ТЕРИТОРИИ НА ХЪРВАТИЯ:
ПРОБЛЕМИ И ПОКАЗАТЕЛИ

В. Опачич, Ал. Лукич, Б. Биелис

(Р е з ю м е)

В статията се разглежда развитието на защитените територии в Хърватия, най-вече от гледна точка на рекреацията и туризма. В нея също така се представят често използвани показатели за устойчиво развитие, изяснява се правната основа и се определят категориите природозащитна дейност в страната. Специален акцент се поставя върху съвременните проблеми на защитените територии (липса на регионални планове за защитените области, недостатъчен брой заети лица в обществените институции, занимаващи се с управление на природозащитната дейност, пренатовареност с туристи, опасност от замърсяване, конфликти с местното население и т.н.). Въпросът за рекреацията и туризма в защитените райони е доразработен въз основа на проведените в моделна област Природен парк „Медведница“ изследвания. Използваните показатели за устойчиво развитие са сравнени с критериите за устойчив туризъм. На примера на Природен парк „Медведница“ авторите стигат до извода, че някои от показателите за устойчиво развитие в защитените територии се съблюдават, но няма единна система за мониторинг на качеството на природната средата и капацитета ѝ за антропогенно въздействие.

ЗНАЧЕНИЕ НА РЕЗУЛТАТИТЕ ОТ ШВЕЙЦАРСКО- БЪЛГАРСКИЯ ИНСТИТУЦИОНАЛЕН ПРОЕКТ ЗА ТУРИСТИЧЕСКАТА ПРАКТИКА

Марина Йорданова

(ЗАКЛЮЧЕНИЕ)

Към резултатите от изпълнението на Институционалния проект беше проявен значителен интерес от редица институции, свързани в една или друга степен с развитието на рекреацията и туризма. Това пролича най-ярко по време на провеждането на научно-полевия семинар в България в началото на май 2004 г., организиран по програмата на проекта. Освен изпълнителския екип, главно от Експертната група към Географския институт — БАН, в него взеха участие представители от страната координатор — Швейцария, и от страните съпартньори — Молдова и Хърватия, както и от администрациите на трите природни парка — моделни области — „Рилски манастир“, „Русенски Лом“ и „Златни пясъци“. Активно участие взеха и представители на държавни ведомства, свързани с развитието на туризма в защитени територии — Министерство на икономиката и туризма и Министерство на земеделието и горите.

За провеждането на научно-полевия семинар бяха избрани четири туристически дестинации със специализация в съответни области на туризма: Копривщица — културен, Стрелча — балнеолечебен, Пампорово — планински, и Триград — селски туризъм. Основната научно-презентационна част на семинара се проведе в Копривщица, а маршрутната — в другите три дестинации. Навсякъде бяха организирани срещи с представители на местни общински власти, браншови туристически организации (съвети, агенции, фирми и др.), собственици на туристически комплекси, хотели, санаториуми, музеи, къщи и др. Презентираните резултати от общите концептуални и от частните разработки с дефинирани критерии и индикатори за устойчив туризъм предизвикаха еднакво оживени разисквания при различните аудитории във всяка дестинация. Същевременно те станаха основа за бъдещи контакти и творчески идеи особено по отношение на възможностите за колаборация при обосновката на предложения за финансиране на практически проекти.

Стъпка към внедряване на резултатите от Институционалния проект в практиката се прави с изпълнението на научноизследователски проект по договор с Фонд „Научни изследвания“ — МОН на тема: „Разработване на апробационни модели на система от индикатори за развитие на устойчив туризъм (на примера на защитени територии)“. Провеждането на анкетно проучване