



GEF/UNDP PIMS 4279: Catalyzing Financial Sustainability of the PA System

ECONOMIC VALUATION OF MONTENEGRO'S PROTECTED AREA SYSTEM

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Map 1: Map of Montenegro



Source: <http://www.montenegromap.net>

Population: 0.620 million

Capital: Podgorica

Old Royal Capital: Cetinje

Territory area km²: 13,812

Borders countries: Serbia, Bosnia and Herzegovina, Croatia, Albania and Italy (sea border)

Nationalities¹: Montenegrins 44.98%, Serbs 28.73%, Bosniacs 8.65%, Albanians 4.91%, Muslims 3.31%, Roma 1.01%, Croats 0.97%

GDP in 2009 (current prices): 2.980.9 (million €)²

GDP in 2009 (constant prices): 2911.0 (million €)

GDP per capita in 2009: 4,720 €

GDP 2010 growth rate estimations³: 1.1%

GDP 2011 growth rate estimations⁴: 2.5%

GDP - composition by sector⁵:

- ✎ 12% *Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods*
- ✎ 9.5% *Transport, Storage and Communications*
- ✎ 8.5% *Public administration and defence, compulsory social security*
- ✎ 8.4% *Real estate, renting and other business activities*
- ✎ 8.4% *Real estate, renting and other business activities*
- ✎ 5.7% *Production of electrical energy, gas and water*
- ✎ 5.4% *Construction*
- ✎ 5.1% *Hotels and restaurants*
- ✎ 4.2% *Education*
- ✎ 4.1% *Financial intermediation*
- ✎ 4% *Health and social work*

¹ MONSTAT, Census 2011.

² MONSTAT: Statistical Yearbook 2010 (data for 2009).

³ Ministry of Finance. The International Monetary Fund has the very same estimation.

⁴ Ministry of Finance. The International Monetary Fund estimation is 2.2%

⁵ MONSTAT.

EXECUTIVE SUMMARY

Introduction

Montenegro is one of the oldest European countries. Throughout history it has changed three names: Doclea, Zeta and Montenegro. Its first international acknowledgment had been in 1078 by Pope Gregory VII; second happened in 1876 at the Berlin Congress while third and final was in 2006. Simultaneously with that second international sovereignty acknowledgement happened first event concerning the environment protection in Montenegro. In 1878 King Nikola established a so called royal ban for the area of Biogradsko lake.⁶ That area converges to the area of the current National Park of Biogradska gora. This can be taken as establishment of the second world's protected park and it happened just six years after proclamation of Yellowstone park. Second important nature protection date is 1907, King Nikola proclaimed the Black Lake as royal ban area. In the modern times, another date is important – 1992 when Montenegro is being officially proclaimed as first ecological state in the world.

Nowadays, Montenegro is country in transition – from state planned to market oriented economy but also from sovereignty to supra-nationality. If we add ecological state trademark to these two transitions, we reach common denominator seen as protection of the nature i.e. specific areas.

Quite important question is how to preserve nature and its parts and how to make natures' goods and services marketable. The balance between economic and environment issues is significantly important. Within such discussion is important to determine whether some areas are financially sustainable. Such determination is crucial at least for two reasons. First, it will enable parts of limited disposable funds (central and local budgets, private initiatives, world nature protection organizations and etc.) to be used for other less sustainable areas. This is especially important in the crisis period. Second, it will identify that for some areas inclusion in respective world donor and partner organizations is essential and also the only viable solution.

Economic valuation is important because of identification of traditional and additional sources of financing the area, to identify all indirect losses either by marginal stakeholders or by natural causes and should be an important guide to the management authorities.

⁶ Precisely, he was not king at the time as Kingdom was proclaimed in 1910. However, such title is being used in accordance to higher familiarity of that range comparing to the previous one.

Protected areas

According to the International Union for Conservation of Nature (IUCN) *protected area* represents “an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources and managed through legal or other effective means”. Each one of us can imagine the beauty of landscapes and scenery within such areas. Probably such places are among the most beautiful parts of the known world.

The key issue regarding protected areas is their preservation and overall contribution to the individuals and society either through education and research or visits in order to fulfil their needs. However, if it is possible it is important to establish their actual financial sustainability in order to achieve aforementioned preservation. Lack of success in this process may lead to the decrease of life quality in the society. Even though it is *meant* to be protector and manager of such areas state sometimes fails to do so. That is why reports on protected areas and their management system are crucial. They will even contribute to the debate about who should protect such places – state or maybe market itself because of further borderline business activities.

However, five protected areas have been identified in Montenegro for the needs of pilot project. Those were Skadar Lake, Biogradska gora, Durmitor, Komovi and Tivat Saltpan. More of them were added for national level scaling-up. Even though we do suggest reconsideration of the protected areas list in Montenegro as some of them have not been protected while some may not even be able to be protected.

Certain direct, indirect, existing and option values have been identified. Having in mind that idea was to define direct and indirect values but according to the economic significance as well as available data and used techniques we did not evaluate all values.

Skadar Lake

The area of Skadar Lake both, national park and protected area (wider area) is unique area in this part of the world. Remarkable landscapes, endangered and unique species, historical sites, cultural monuments as well as vivid sustainable tourism potential (hospitality, cruising, souvenirs and etc.). In addition, fishery is tremendous potential of the area. However, it must be undertaken in a very sustainable manner. The quite important fields are wine and honey production, bird watching, exploitation of peat and gravel. The following table provides information about economic values and users.

Table 1: Values and users per goods/services in Skadar Lake PA

	Economic values	Number of users
Fishing	Revenues from overfishing the bleak - €1368000 Revenues from overfishing the carp - €475000	300 fishermen 3 municipality government 1487 citizens (local people – respective municipalities)
Honey production	Revenues from honey production - €825000	150 producers 2 restaurants 3 municipality government 375 citizens (local people – respective municipalities)
Wine production	Revenues from wine production – €3500000	35 wine producers restaurants 3 municipality government 80 citizens (local population – respective municipalities)
Cruising	NP revenues from cruising (entrance tickets) - €138072 Boat owners revenues from cruising - €402240	40242 tourists 30 boat companies, 11 travel agencies, 3 Municipality Governments, National Park Skadar Lake
Bird watching	NP revenues from bird watching - €328	82 tourists, 7 boat companies, 3 travel agencies.
Restaurants	Restaurants revenues - €380000	27000 tourists, 2 restaurants, 4 hotels, 1 tavern, 3 Municipality Government, 300 citizens (local population – producers of agricultural products), National Park Skadar Lake
Exploitation of peat and gravel	NP revenues from exploitation of peat and gravel - €46504 “Cijevna komerc” revenues from exploitation of peat and gravel - €232055	1 peat concessionary, 1 Municipality Government, National Park Skadar Lake
Souvenirs	NP revenues from souvenirs selling - €9756	4580 Tourists National Park Skadar Lake

Source: ISSP, 2011.

Biogradska gora

Natural resources within Biogradska gora are tremendous and still are far beyond from sustainably used. Because of the natural beauties potential for development of tourist facilities suitable for recreation is enormous. Skiing, climbing, hiking are just some of the activities that can be practiced on Bjelasica mountain but there are not enough agencies which could organize, in a good way, such activities. Additionally, the accommodation capacities are quite modest comparing to the natural resources that can be used for commercial purposes. Therefore, local administrations expecting large investments in tourist facilities, ski resorts and related recreational facilities in the following period. Agriculture is quite poorly represented, although there are excellent conditions for development of organic food. Lack of interest and lack of financial support is the most likely reason for lack of higher production. In the future, this potential could bring great benefits to individuals or companies that decide to invest in this economic activity. Therefore, it can be concluded that there are great potentials in all economic sectors (tourism, manufacturing). Greater utilization of resources requires significant investments which failed so far due to the crisis, more attractive options and non-favourable business environment. However, future development of this area is expected to be in accordance to environmental standards, nature conservation and sustainable exploitation of those resources.

Table 2: Values and users per goods/services in Biogradska gora PA

	Economic values	Number of users
Tourism (around and inside protected zone)	Revenues (tickets, boat rental, accommodation, camping)	50 000 tourists 100 000 potential tourists 5 municipalities 5 hotels 10 restaurants 5 travel agencies
Water springs	Concessions	9 water spring concessioners (4 now +5 in future) 1 government directorate (budget of the state)
Nature	Revenues from recreational uses (fishing, skiing, hiking, biking, mountaineering, bird watching)	30 000 tourists (2010) 100 000 potential tourists 3 municipalities 5 travel agencies
Restaurants	Revenues	1 restaurant inside and 10 around protected zone
Wood	Revenues from production (timber, furniture)	4 wood concessioners and timber collectors
Agriculture	Revenues from production (milk products, meat, fruits & vegetables)	100 citizens
Herbs	Collection and sale (medicinal plants collection)	3 concessioners

Source: ISSP, 2011.

Durmitor

In addition to all the values that PA Durmitor owns, there are values that should be developed in the future. These values certainly can contribute to the development of PA Durmitor and all municipalities in which it is located. Some of the potential for future development are:

- Many hydrographic objects. As noted above PA Durmitor has great potential for hydropower development.
- Forests and forest habitats are one of the most important natural resources of PA. The area owns significant areas covered with forests and pastures that allow the development of specific types of agricultural production (presentation of healthy food)
- Inclusion of PA Durmitor in international programs funding research and protection of valuable and vulnerable areas
- Inclusion of PA Durmitor in the international system of development and ecological monitoring
- PA Durmitor area has natural conditions for the development of high tourism and favourable position in relation to the main tourist flows which in the long term can very affect at the development and potential of the park.
- Cultivation of plantations of rare and protected species and organization of nursery production
- Small business with small factories based on processing agricultural and other goods.

Table 3: Values and users per goods/services in Durmitor PA

	Economic values	Number of users
Tourism (inside and around PA)	Revenues (tickets, boat rental, accommodation, camping)	47 000 tourist 80 000 potential tourist 10 restaurants 9 hotels 2 camp 4 travel agencies timber and non-timber collectors 5 municipalities 1 400 habitants inside PA 55 000 citizens around PA
Nature	Revenues from recreational uses (<i>skiing, visiting, caving, hiking, biking, mountaineering, sport fishing, jeep safari, free climbing, mountain biking, orienteering, paragliding, snowboard...</i>)	47 000 tourist 80 000 potential tourist 5 municipalities 4 travel agencies
Rafting on Tara river	Revenues	9 000 tourists
Ski centre "Savin"	Revenues	7 000 – 9 000 tourists

kuk"		
Restaurants	Revenues	10 restaurants (around PA)
Hotels	Revenues	9 hotels (around PA) 2 camp (inside PA)
Agriculture	Revenues from production (milk products, meat, fruits & vegetables)	400 citizen in PA
Herbs	Collection and sale (medicinal plants collection)	Tourists, habitants inside and around PA

Source: ISSP, 2011.

Komovi

Komovi are rich in potential values that have not yet been used or are not fully exploited. Some of them are deforestation, picking herbs, recreational tourism, and religious tourism. Here will be singled out deforestation and harvesting herbs, two values that are already in use but are not sufficiently exploited.

Deforestation is part of the population income in Komovi area. Cut up wood is mostly used for heating. One part of the wood household used for personal use, a second part is for the sale. There is information about concession for forest as well as the price at which it is sold, but it is not possible to obtain accurate and complete data. But, from direct interview with citizens of Komovi area it is obtained information about significance of deforestation.

Second important value is non-wood forest products such as picking herbs, blueberry, raspberry and mushrooms. At the territory of Montenegro at 2010 year is picked 1755 tons of blueberry, 30 tons of raspberry, 842 tons of mushrooms and about 300 tons medicinal plants.⁷ Collecting on Komovi makes 2% of the total number. But, there is again problem with data: there no institution who is charge to count number of collectors. It is difficult to assess part of non-woods product for special purposes, and how much is sold on the market.

Table 4: Values and users per goods/services in Komovi PA

	Economic values	Number of users
Tourism	Revenues (accommodation, food, biking, skiing, mountaineering)	2000 tourists 4000 potential tourists 12business entities (no. of restaurants, hotels, wood concessionaires, biking tour agencies, hiking tour agencies, travel agencies, timber and non-

⁷ Agency for Environmental Protection

		timber collectors) 7 municipality/ government 10 000 citizens (population – respective municipalities)
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Source: ISSP, 2011.

Tivat Saltpan

In accordance with the legal limitations that exist in Saltpan of Tivat it is not fully possible to extract values and users of these values. This is impossible because these values do not exist in the area of Tivat Saltpan and their evaluation has not been achieved. Therefore, the following table will include the potential, future values as well as users of these values in the future.

Table 5: Values and users per goods/services in Tivat Saltpan PA

	Economic values	Number of users
Recreation: - bird watching - biking - hiking	Tickets	200 Tourists 500 Potential tourists 10 Business entities (Biking and hiking tour agencies, travel agencies)
Fishing and sport fishing	Fishing	Tourist Potential tourists Business entities (restaurants, hotels) Municipality Citizens
Medical tourism	Accommodation	Tourist Potential tourists Travel agencies Business entities (restaurants, hotels) Municipality Citizens

Source: ISSP, 2011.

As already mentioned, the economic valuation of Tivat's saltpan is being based on the potential future values. This situation is exclusive in the case of Tivat Saltpan because it is any kind of exploitation of values and resources is prohibited.

Activities that are allowed (generating income activities are prohibited) in this area are related to the promotion of the area and education use within education and research system.

The major future value, which will certainly be possible to valorise, is bird watching. This resource could be used because of varieties of protected bird species.

In addition, there is tremendous potential for health tourism. A large concentration of salt, muddy bottom, clean water, a favourable environment and good climatic conditions are sufficient reasons for the development of health tourism within the borders of the protected area.

Development of marine cultures is additional future value due the convenience of the coast in the area for such activities.

Results

The results of the study should provide information to the stakeholders about decision making process and direction towards it should go; should provide economic reasons for future investments in respective areas; should influence management authorities where to find new niches and opportunities and inform and educate broad audience. These results have shown current and to be financial sustainability of some protected areas. In addition, they have shown that few of them are not financially sustainable even in the long term.

However, this is pilot project and it does not have ambitious to cover all areas and provide final answers. It is a first attempt and that was an idea behind its undertaking. The project team believes that this attempt will have significant influence on interconnection of economy and ecology and that it will be first important step.

Conclusions and recommendations

Overall conclusion is that some of the protected areas are financially sustainable. First element of their financial sustainability is existence of management companies that have revenues from both, government budget and from some own resources (tickets, fees, concessions and etc). Second, some of them can become financially sustainable due to contribution from the business sector which base own operations on features of the protected area. On the other hand, some of the areas are not financially sustainable and it cannot be expected even in the long term. Therefore, the most appropriate scenario for them is to be under the auspices of government and international donors.

Research has shown that all respective areas do not have the same level of actual and potential sustainability. The most sustainable area is Skadar Lake and it closely followed by Biogradska gora and Durmitor. Komovi are not that sustainable at this moment while Tivat saltpan is the least sustainable PA among respective five.

Recommendation comprehends issues from education and research through infrastructure to establishment of management authorities.

Education and research have been defined as very important issue for all respective PA's. that gathers all types of education and research, includes importance of involvement of certain ministries for inclusion of that in education system but also of some international donors and partners due to the size and importance of the research.

Infrastructure improvement is also an important recommendation. This relates to hotel accommodation (where there are existing capacities), creation of new accommodation facilities such are eco villages, logs and etc as well as provision of new biking and hiking paths, climbing and speleological options, bird watching infrastructure, new beach facilities (in certain areas), potential renewable energy facilities (some areas are perfect for small wind and sun energy generators as well as hydro potential), new points of sale (for food, wine, honey, souvenirs and etc.), new ski facilities (in respective areas) and etc.

Having in mind remarkable potential of these PA's in collecting of fruit, herbs and plants it is recommended to organize *buy-out and storage/processing facilities* at the borders of PA's and to increase revenues of entrepreneurs and of PA management authorities. This can also be applied to meat and milk products. However, it is important to promote such opportunities to investors and also to educate local producers about significance and potential outcomes of joint internal organizing.

Due to features of at least four out of five observed PA's it is recommended to *promote cultural, religious and historical tourism as well as archaeological research*.

It is also recommended to *increase management control over the certain business activities based on natural features*. Such control would lead to higher tax revenues, higher revenues for management authorities and more sustainable management over those features. This refers to cruising, rafting, water springs and facilities (concessions, fees and etc), fishery (sale and quota for fishing), marine cultures development, medical and health features and etc.

It is also recommended to establish *management authorities* for two PA's. That would enable more viable and sustainable management and promotion of the respective PA's.

Recommendations comprehend *necessity of solving the fire and flood problems*. Higher investments in early warning systems, flexible and better organized watch system, fire and flood stopping system and future prevention.

-The End of Executive Summary-

I ECONOMIC VALUATION OF SKADAR LAKE

Skadar Lake map



1.1. Introduction

The subject of this analyzes is protected area of National Park (NP) Skadar Lake. Lake is located in Zeta valley and is surrounded by mountains and is 7 km distant from Adriatic Sea. Two Thirds of Skadar Lake is located in Montenegro and rest of it is in Albania. Depending on the water level space of already mentioned Lake varies from 530 to 370 km². It is considered to be 44 km long and 14 km wide during most of the year. Coast line is discontinuous, especially in North Western side. Low valley on northern part of the Lake is often flooded.⁸

Skadar Lake is the largest lake at the Balkan Peninsula as well as one of the last fresh water spaces and largest national park in Montenegro, most famous by its diversity of flora and fauna. Lake itself is unusual for mutual vicinity of different living areas and their feeding chain.



There is large number of bird species. It is stated that 280 kinds of birds inhabit this Lake.⁹ Around 90% of birds are migratory and are of international importance. During season of migrating, white little egret, white spoonbill and various kinds of ducks pass over this region. Cormorant nest in the north swamps - represent one of three most important colonies in the world.¹⁰ Rare and endangered kind of curly pelican nest at floating peat islands in north end of the Lake.

There are 50 species of fish living in the Lake and 3 snakes. The most important from economic point of view are bleak and carp.

Flora of this park is very important and is differentiated by the regions in which in which are common floods, or exists little stone islands and steep mountain cliffs. There are three rare and protected plants and trees and large number (30 +) of rare plants in park.



⁸ SAP for Skadar Lake – Albania and Montenegro 2007

⁹ www.npskadarlake.org

¹⁰ ITR, Ecological Research Study on Peat exploration, 2001

In the area of Skadar Lake there are 20 monasteries, churches, villages, fortresses and sacred monuments. This lake is witness of Montenegrin history from 11th century up to now. Around Lake itself there are 18 important historic monuments.¹¹

History of humans who were settled around Skadar Lake dates back to times of early manhood. Earliest written documents from this region are from 11th century, the period of creating the first Montenegrin dynasty - Vojislavljevici. By turning over Roman Catholics into Orthodox many monasteries and churches, in the beginning of 1400 AD were built around the lake. In 1478 Turks occupied Zabljak and region of lake and ruled over it until 1878, when Montenegro -liberated itself from the Turkish occupation. During Turkish occupation Montenegro was ruled by Cetinje Metropolitans and it survived this period. Some strongholds were used by Italians during World War II.¹²



Bird watching, fishing, hunting, renting and ride in boat, swimming and sunbathing are main recreational activities around the Lake.

The Park was founded in 1968 for keeping and protection of a wonderful surrounding of the Lake and its shore. Development Plan for this park was made in 1997.



Park is easily accessible from direction of Podgorica and Bar by highway Podgorica - Petrovac or by train from Bar or Podgorica through central part via Virpazar. To other regions inside park you can come by own car or taxi. Travel agencies from Podgorica offer one day trips to Lake including boat trip round the Lake and lunch at far fishermen village.

¹¹ www.npskadarlake.org

¹² Ibid.

1.2. Identifying the values of the protected area

1.2.1. Use values

Direct values

Key direct values of National Park Skadar Lake are excursion tourism, activities of commercial tourist enterprises, fisheries and exploitation of sand and gravel.

The entrance tickets to the National Park are charged only for excursion tourism arrivals i.e. cruise ships. During 2010 the Lake has been visited by 40,242 guests. Respective visits were hosted as it follows: in Virpazar 25,933, in Vranjina 12,207, in Murici 451, in Plavnica 843 and in Rijeka Crnojevica 838. Under this category, the National Park Skadar Lake has earned €64,336. Tourism excursions have been mainly organized as a one-day tour including ship cruise and introduction of the natural, cultural and historical values. National park has signed a contract with 20 entrepreneurs with the 32 vessels which have undergone tourists' transportation. Furthermore, the tickets to the park and info centre are also charging. On this basis, in 2010, Park has earned €138,072. In the Information Centre exists souvenir shop and it earned €9,756¹³ during the last year.



The fishing season lasts approximately 9 months (depending on the type of fish). Commercial fishing is performing by local people from the shore area. They have to have license for performing fishing and currently 250 permits have been issued annually. On the other hand, for sports and daily fishing, annually issues around 500 permits. Of fishing permits and overfishing bleak the Park has earned €64,336 and €21,366, respectively¹⁴. During 2010 Park has earned €4,274 from filming and licenses for it.¹⁵ On the other hand, at the same period Park has earned €61,878 on the basis of income from previous years (rent) by well-known Montenegrin wine producer *Plantaze*.

¹³ Annual Report of National Parks in 2010, p.57

¹⁴ Ibid.

¹⁵ At this very moment we do not have more data about movie, but what we know since now is the fact that the movie was conducted by the international enterprise.

All together during 2010 Park has earned €603,946 which is more for approximately 21% comparing to the previous year.¹⁶

During 2005-2010 exploitation of sand and gravel has been carried out in the Park. Respective activity was carried out the in two locations:

- On site *Ponari* exploited the gravel and sand and
- On the site from bridge on the river *Moraca* to the left mouth of the same river.



During 2010 only one firm, Cijevna Commerce LTD, took concession for the sites on which were exploited gravel and sand. The revenues generated from these activities represent an important source of funding. Considering, Lake is located on the main traffic route (road Podgorica – Petrovac, railway Podgorica – Bar), it is very easy to get by road or railway. The both traffic route pass through over Lake, through settlement Virpazar.

In 2010 a regional water supply system in place „Bolje sestre” has been opened. Comprehensive analysis and research experts and institutions confirmed that water sources from „Bolje sestre” have high quality. The advantages of this source are water quality Class A1 bounty in the hydrological minimum of 2,000 litres per second and the fact that the sanitary protection easy is to be performed. This solved a long-term water supply problem of the Montenegrin coast. Construction of regional water supply system in the amount of 81.7 million litres with high quality and stability resolved one of the basic issues of the citizens of Montenegro (taking also into account the long-term projection of population growth and the expectation of migration). Water from the water sources used by Bar, Budva, Tivat and Kotor is carried out on the pipeline route up to after Dobre Vode.

Water is pumped from the edge and not from the lake as is often perceived in public. It is separated from the lake and dam is eligible for bottling by adding that the current capacity of six municipal water at the coast in the minimum between 1,500 and 1,700 litres per second.

¹⁶ Annual Report of National Parks in 2010, p.57.

Indirect values

Within rich diversity of Montenegrin nature, important place belongs to aquatic and wetland ecosystems. Wetlands are highly valuable to the life and economic development because they are extremely important for the purification of aquatic ecosystems. In addition, they are important food chain and they establish a connection between migratory species, effective flood protection system. The vegetation of ponds, lakes and wetlands and peat lands to which they belong are very interesting not only as a blend of various floral elements, but also as a habitat of various representatives of the fauna and biodiversity as a whole. These ecosystems include flood area of Lake Skadar and Bojana River. Habitats are characterized by the large numbers of endemic, especially rare species of flora and fauna. One of the most important segments of the biodiversity of wetland ecosystems of Montenegro are the birds.



Skadar Lake and its surroundings are wintering grounds for more than 281 bird species. This area is known locally as a “bird airport.” Different laws and regulations protect more than 98 percent of the species.¹⁷ In the area of Lake Skadar, the diversity of wading birds is among the highest in Southeast Europe. The avifauna shows a large number of species: some 271 belonging to 18 taxonomic orders. Respective bird species are linking the region to neighbouring countries, Asia and Africa as 90% of them are mobile throughout the region and between continents. Around 73 species of migratory nesting birds inhabit the lake in spring and summer, leaving in autumn, about 18 species fly over the area during autumn and spring, 45 species are regular winter guests and 12 species spend summers on the lake, while their populations nest in the north. In addition, there are some 90 species that visit the lake irregularly, including those that fly over or visit the lake during the winter or summer season. This area also represents specific value in hydrologic and ecologic sense taking into account connection of the Lake with a larger hydrographical net in the Balkan through Drina River (Ohrid and Prespa lakes) and with the Adriatic Sea through Bojana River.

The region of Skadar Lake is located in a zone where two major zoogeographic areas meet: the Palearctic region (Europe, Asia, the Mediterranean and North Africa) and the Paletropic region (Africa). Their linkage and influences can be seen among ornithofauna,

¹⁷ www.npskadarlake.com

with incidences of African species (e.g. African cuckoo, African black heron, flamingo) and winter migratory species of West Siberia (ducks, geese).

During the last glacial period Skadar Lake represented a shelter for several species. As a result, today some relict and endemic animal and plant species are met in the area. Syrian woodpecker and Spanish sparrow have come to this region as they expanded their distribution area.

Skadar Lake and its watershed represent a complexity of habitats with a high diversity of living organisms. It encompasses several types, subtypes and many smaller classification units of habitats, such as lacustrin, palustrin, riverin, limnetic, littoral, open water areas, vegetated and non vegetated, floating, emergent and submergent vegetation, hard and soft bottom, forest, shrub and herb vegetation etc. This diversity of habitats' shelters constitutes the mainstay of a high diversity of plants and animals.

The following table shows the species number for the main groups in watershed of Skadar Lake.

Table 1: Number of species in the watershed of Skadar Lake

Species	No.	No. of aquatic organisms ¹⁸
Vascular plants	1900	147
Freshwater molluscs	54	
Insects	6000	210
Fish	54	
Amphibians	16	
Reptiles	28	4
Birds	282	112
Mammals	57	3

Source: SAP for Skadar Lake – Albania and Montenegro 2007

Skadar Lake has a high variety of fish fauna. Besides the potentials of the lake itself, the high diversity of fish is also given due to a large network of rivers and streams in the lake watershed and the communication with the Adriatic Sea.

¹⁸ Aquatic organisms – organisms that lives in water

The fauna in this basin includes highland coldwater, warm freshwater and several marine species. Certain number of fish species (54) is quite recognized as part of this area. The relatively high number of endemic kinds makes the Lake significant at the regional level. About 10 species are the most important for the fishery in the lake, especially carp, bleak and eel. Two fish families are especially important: cyprinids (most abundant in species) and salmonids (which are much rarer). The lake and its basin are very rich in amphibians and reptiles. These include endemic and endangered species. The lake, with its wide zone of water vegetation, floodplains, humid forests as well as many streams, is an ideal habitat for amphibians like the Ranidae. Currently, 51 species of herpetofauna has been met, including a large number of protected species and many endemics and sub endemics.



Option values

A special and important resource of the lake is pure nature that surrounds it, with all its elements as a major renewable potential (solar, wind and wave). From the aspect of environmental values to mention what makes this complex ecosystem with great possibilities of using extremely high-quality which is reflected in the unity of nature and cultural landscape. This resource can be characterized as certain regional typicality, which can be the basis and inspiration for solving problems of balanced development. The whole area of National Park belongs to the type of natural areas (according to the classification established by UNEP, which includes a modern map of the world divided into regions: natural, natural and anthropogenic, anthropogenic areas).

Natural landscapes, according to this classification include a very small influence of man in changing ecosystems, i.e. most change is of natural origin. In these areas used the traditional way of land and extensive agriculture. National Park Skadar Lake is classified

into the zone first class values, where the principles are intended to preserve sharp and protection of natural values. This zone is intended to use the plans for education and scientific research.

Economic evaluation of potential opportunities and environment of Lake Skadar basically boil down to food production and the tourist trade. Both are very significant and represent a serious chance of long term development of the region. The way of exploiting these opportunities, they may determine the choice of the time sequence of activation and so on. Assume a very complex and systematic scientific research.

As special potentials existing National Park Spatial Plan¹⁹ allocated the following: geographic location Lakes, reliance on primary traffic routes between the littoral and hinterland, and well preserved environment, a very rich wetland flora and fauna, cultural richness historical areas. From an economic point of view-potential areas of National Park, in the opinion of many planners in the tourism base, this saw its chance for development. Economic potentials of lakes are numerous and diverse, thanks to the great wealth of flora and fauna, and other economic resources.

Fishing is one of the great potential of Skadar Lake. Environmental conditions allow the formation of ponds for cyprinid species, which has not been realized. The wealth of fish and potentially large arable land account is huge potential for a large and economically sustainable economic resource. Emerzna vegetation and willow tree are traditionally used to produce items of handicrafts. This skill can become very important in the future in terms of employment and achieve economic profit.



¹⁹ National Park Spatial Plan (Official Gazette of Montenegro, vol. 46/01)

1.2.2. Non-use values

Existence values

The area of Skadar Lake represents an exceptionally attractive landscape with a very rich fund of the cultural-historical heritage of Skadar Lake. It consists of:

- Archaeological localities,
- Monastery complexes,
- Fortifications,
- Sacral monuments and
- Ethnographic fund.

The area of Skadar Lake is witness of Montenegrin history from the early middle century. More than 20 monastery complexes, churches, settlements and other cultural historical monuments are located in surrounding of the Lake dating from different periods of time. The Skadar Lake, with the immediate surroundings, has numerous recorded archaeological sites from prehistory to the late Middle Ages. Significant archaeological movable material, which is occurred during previous research (a large number of metal jewellery, pottery, military equipment, money, etc.), is on the expert treatment and presentation in the Centre for Archaeological Research of Montenegro in Podgorica Museum and Heritage Museum in Bar. Finds from the territory of Malesia are located in the monastery in Tuzi. Fortifications - fortress of the Tower and the Skadar Lake were built since 14 to 19 century. It includes: Topala, Grmozur, Besac, Lesendro, Zabljak Crnojevica and Obod – River city.

Significant and extensive segment of the cultural heritage of the National Park belongs to religious architecture: monasteries, churches and mosques. Monastery complexes are the most sacred entity, and the islets, in addition to the west coast of Krajina, Balsic masters raise monasteries churches with modest grave in the late 14th and early 15th century: Precista krajinska, St. Nikola on Vranjina, Starcevo, Beska, Moracnik, Orahovo, Donji Brceli and Gornji Brceli.

The Skadar Lake area represents one of the most important centres of geo diversity and biodiversity for Western Balkan and South-Eastern Europe. NP Skadar Lake is a unique example of well-preserved freshwater ecosystems with specific geomorphologic, hydrological, geological, soil and climatic features. It is also characterized by high biodiversity including numerous endemic and relict species of flora and fauna.

Skadar Lake is very popular both among locals and among tourists who often purposefully come to Montenegro to enjoy its natural beauty. Bearing in mind the already stated on the capacity of Skadar Lake, the following table shows the perceived values.

Table 2: Values at the Skadar Lake

Identifying the values of Skadar Lake	
Direct Values	Recreational uses (visiting, boat trips, caving, hiking, hunting, bird watching, holiday homes)
	Commercial tourist enterprises (restaurant, boats, transport)
	Water supply
	Commercial resource uses (timber harvesting, fishing, hunting, medicinal plants collection, exploitation of sand and gravel)
Indirect values	Erosion control for hydropower scheme
	Erosion control for irrigation reservoir and fisheries resource
	Landscape and amenity for holiday homes
	Habitat for rare and endangered fauna and flora
Option values	Future possible uses of wild fauna and flora
	Future recreational developments
	Future uses of water
Existence value	Cultural/spiritual significance of churches and Monasteries (archaeological localities; monastery complexes; fortifications; sacral monuments; ethnographic fund)
	National and global biodiversity significance (High variety of fish fauna; Represent a refuge for several species; High diversity of plants and animals; Two major zoogeographic areas)

Source: ISSP, 2011.

NP Skadar Lake is rich in direct and indirect values. We identified several of them such as: visiting, boat trips, caving, hiking, hunting, bird watching, holiday homes, restaurant, boats, transport, timber harvesting, fishing, hunting, medicinal plants collection, exploitation of sand and gravel, water supplier as well as erosion control for hydropower scheme, erosion control for irrigation reservoir and fisheries resource, landscape and amenity for holiday homes and habitat for rare and endangered fauna and flora. Apart from direct and indirect values, when it comes to NP Skadar Lake it is very important to note optional values as well as existing ones: cultural/spiritual significance of churches and monasteries (archaeological localities; monastery complexes; fortifications; sacral monuments; ethnographic fund) and national and global biodiversity significance (high variety of fish fauna; represent a refuge for several species; high diversity of plants and animals; two major zoogeographic areas). Skadar Lake is a real gem abounded with various specificities. However, in order to improve economic conditions in the National Park, certain laws need to be upgraded. Already existing values have the capacity for further expansion as well as potential ones.

1.3. Selecting the goods and services to be valued

Data, time and other resources are almost always limited. In most cases it is impossible to value each and every ecosystem value associated with a particular PA. Because of this reason, it is necessary to decide and to select exactly which ecosystem values will be evaluated.

Selection is made according to two parameters:

- Economic significance and
- Availability of data.

In following table are enumerated all direct and indirect values. The values marked with (√) are going to be further assessed while the other marked with (x) - will not be further evaluated.

Table 3: Selected goods and services for valuation within National Park Skadar Lake

Identifying the values of Skadar Lake		
Direct Values	Recreational uses (visiting, boat trips, hiking, bird watching, holiday homes)	√
	Commercial tourist enterprises (restaurant and boats)	√
	Commercial resource uses (fishing, medicinal plants collection, exploitation of sand and gravel, water supplying)	√
Indirect values	Erosion control for hydropower scheme	x
	Erosion control for irrigation reservoir	x
	Erosion control for fisheries resource	x
	Landscape and amenity for holiday homes	√
	Habitat for rare and endangered fauna and flora	√

Source: ISSP, 2011.

NP Skadar Lake is already recognized as touristic place. Visits of domestic and foreign tourists are commonplace. They have the ability to individually visit Skadar Lake, stop by the souvenir shop, watch birds (among other things, 15 artificial nesting platforms for the pelican ornithological reserves), or enjoy riding a bike. In addition, they can board the tourist boats (currently 20 entrepreneurs are offering services with 32 vessels) and from the water enjoy wild beauty. For those who like fishing this is right place to spend its time. In addition, it is possible to build a cottage on the edge of the lake and thus enjoy the Lake magnificence. Furthermore, few restaurants which provide regular income to the National Park exist on the Skadar Lake. For commercial purposes are used several boats which daily cruise on the Lake. In addition, there is couple of recourses that are being used by various companies and local governments for

commercial purposes. Certain fees are being paid by already mentioned entities. However, by the ISSP preliminary estimations there is space for further improvement. Apart from direct values we consider existence of habitat for rare and endangered fauna and flora of a great importance for further development of NP Skadar Lake.

1.4. Choosing the valuation techniques

When we have chosen the values that will be evaluated, we need to identify which techniques are the most appropriate and feasible to conduct evaluation. The choice of method will be influenced both by technical considerations and by more practical concerns such as the availability of the required data, expertise and funds to carry them out. This should also indicate the kinds of data that will need to be collected to apply the selected valuation techniques, and what kind of methods will be used to obtain this information.

For evaluation of Skadar Lake techniques shown in the following table will be used.

Table 4: Valuation techniques for the Skadar Lake

IDENTIFYING THE VALUES OF SKADAR LAKE		VALUATION TECHNIQUE
Direct Values	Recreational uses (visiting, boat trips, hiking, biking, hunting)	For recreational users: Looking at average spending to get to NP, and on purchases, hotel and other costs while there. And then disaggregate between broad categories of users.
		For government: revenues earned
	Commercial tourist enterprises (restaurant, boats)	For businesses and operators: Income generated (change in production), including employment and wages to employees
		For government: revenues earned
	Commercial resource uses (timber harvesting, agriculture, fishing, hunting, water springs, stone, medicinal plants collection, water supplying)	For businesses and operators: Income generated (change in production)
		For government: revenues earned
Indirect values	Habitat for rare and endangered fauna and flora	Modified contingent valuation technique: a certain number of respondents will be surveyed about their willingness to pay or willingness-to-accept compensation for a rare and endangered fauna and flora

	Landscape and amenity for holiday homes	Simplified hedonic valuation: compare sale/rental prices of holiday homes around the PA with those for houses in less beautiful places in the locality
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Source: ISSP, 2011.

1.5. Specifying the data needs for valuation

When the selection process of valuation techniques is completed, the next step is to decide carefully about what kind of information needs to be collected, and from where it can be accessed. Also it is important to think about the availability of information, because some data are not available or does not exist.

Table 5: Specifying data needs for valuation of the Skadar Lake

SPECIFYING DATA NEEDS FOR VALUATION OF SKADAR LAKE	
	Recreational use
	<ul style="list-style-type: none"> • Number of visitors of NP Skadar Lake in past 5 years (by nationality, by gender, by season) and any projected future increase in tourists and tourist developments • Average entrance ticket price in the past 5 years and any projected future increases in ticket prices • Number of overnight stays in past 3 years • Number of tourist who took boat trip in past 5 years • Number of tourist who visited NP to ride a bike in past 5 years • Number of tourist who visited NP to practice hiking in past 5 years • Number of fishermen fishing in Skadar lake and local prices of fish • Price of taxes for fishing and any projected future increases in tax prices • Number of visiting speleologists at Skadar Lake PA each year • Income from boat rentals • Amount of investments in protected area in past 5 years • Amount of planed investments in protected area
	Commercial tourist enterprises
	<ul style="list-style-type: none"> • Number of tourists enterprises and any projected future increase in tourist enterprises • Number of tourist in past 5 years and any projected future increase in tourists • Turnover of companies (dealing with tourism on the Lake) in past five years • Number of local employees, and wages paid to them • Increase/decrease of the number of tourist companies and any projected future increases in companies • Income to PA authorities from concession fees, rental charges and other payments made by tourist enterprises (including taxes paid to the national/local authorities)
	Commercial uses
	<ul style="list-style-type: none"> • Number of people collecting other resources (firewood, minerals, medicinal herbs,

	<p>berries, etc.) and types of resources collected. If possible estimates of how much resource has been collected. Any projected future increase in number of people collecting resources</p> <ul style="list-style-type: none"> • Number of companies collecting other resources (firewood, minerals, medicinal herbs, berries, etc.) and types of resources collected. If possible estimates of how much resource has been collected. Any projected future increase in number of companies collecting resources • Identification of buyers for the collected plants • Identification of the final products • Numbers of workers of companies/individuals creating for the final products • Price of concession (per type, per duration) • Number of concessionaires (per type, per duration) and any projected future increases in concessionaires • Number of workers with companies having concessions • Buyers and prices for water from "Bolje sestre" and any projected future increases in volume of water purchased • Hydro potential of water from Skadar Lake
	Habitat for rare and endangered fauna and flora
	<ul style="list-style-type: none"> • Ask respondents their willingness-to-pay (WTP) or willingness-to-accept compensation (WTA) for a rare and endangered fauna and flora
	Landscape and amenity for holiday homes
	<ul style="list-style-type: none"> • Average sale and rental price for homes in the area (of similar size and facilities to those in and around the PA) • Average sale and rental price for homes in and around the PA

Source: ISSP, 2011

1.6. Important data about Skadar Lake PA

Protected area of Skadar Lake encroaches on the territory of three Montenegrin municipalities: Podgorica, Bar and Cetinje. First two municipalities have had a growing number of inhabitants in the last 20 years, unlike the municipality of Cetinje, which has had a long period of stagnation and a strong indication towards negative demographic trends.

Table 6: Population by municipalities

MUNICIPALITY	1971	1981	1991	2003	2011
Podgorica	98,796	132,290	152,025	169,132	187,085
Bar	27,580	32,535	37,321	40,037	42,368
Cetinje	22,024	20,213	20,307	18,482	16,757

TOTAL	148,400	185,038	209,653	227,651	246,210
MONTENEGRO	529,604	584,310	615,035	620,145	625,266

Source: Statistical Yearbook 2010, Census 2011, MONSTAT

Table 7: Basic information about municipalities

Municipality	Surface km²	Number of inhabitants	Number of settlements	Population density
Podgorica	1,441	187,085	143	101-150
Bar	598	42,368	83	71-100
Cetinje	910	16,757	98	11-30

Source: Census 2011, MONSTAT

In the territory of those three Municipalities 17 settlements are located in the protected area of Skadar Lake, of which 8 belongs to the Municipality of Bar, 6 belongs to the Municipality of Cetinje and 3 major ones belongs to the Municipality of Podgorica.

Table 8: Number of households and average number of household members in 17 settlements located in the National Park Skadar Lake

Settlement/ Municipality	Areas with municipalities	Number of households	Population	Average number of members in household
Boboviste, Bar	Krajina	92	181	2.0
Besa, Bar	Krajina	40	42	1.1
Donji Murici, Bar	Krajina	47	101	2.1
Krnjice, Bar	Crmnica	9	18	2.0
Godinje, Bar	Crmnica	23	49	2.1
Virpazar, Bar	Crmnica	97	282	2.9
Krusevice, Bar	Crmnica	0	0	0
Komarno, Bar	Crmnica	6	15	2.5

Donje Selo, Cetinje	Rijecka nahija ²⁰	8	10	1.3
Rijeka Crnojevica, Cetinje	Rijecka nahija	77	175	2.3
Prevlaka, Cetinje	Rijecka nahija	10	15	1.5
Sindjon, Cetinje	Rijecka nahija	10	22	2.2
Dodosi, Cetinje	Rijecka nahija	29	43	1.5
Zabljak, Cetinje	Rijecka nahija	12	26	2.2
Vranjina, Podgorica	Rijecka nahija	70	212	3.0
Begova Glavica, Podgorica	Ljesanska nahija	16	23	1.4
Podhum, Podgorica	Zeta	50	273	5.5

Source: Census 2011, MONSTAT

Three settlements, Virpazar, Vranjina and Podhum, are most populous settlements at the whole territory. Analyses of demographic trends, which involve settlements that administratively belong to the Park, as well as those directly adjacent to the Park, indicate an absolute decrease in the number of inhabitants on a long-term basis. In the last ten years, the decrease has been slowed down, but it is more a result of demographic exhaustion than actions undertaken to consolidate and improve the lake and its surroundings.

On the other hand, the number of households in settlements of the National Park "Skadar Lake" varies depending on different social and economic entities. The highest number of households are located in Virpazar, Rijeka Crnojevica i Vranjina. Those areas are at the same time mostly independent from surrounding urban area. Settlement Podhum, located in Zeta Valley, exemplifies a settlement with a high number of inhabitants on one side and high average number of members per household (5.5). Those, already listed areas are economically most developed, respectively.

The main activities in these areas are tourism and agriculture with fishery. Farming is common along the lake's edges, across the Zeta Valley (in our case Podhum), which is the most populous part of this region. In the whole area of Skadar Lake, large and small stock farming is present to some extent. Individual households are growing cattle, sheep, goats, pigs, etc (like it is shown in table 9). Stock farming, in most cases, is sufficient to

²⁰ "Nahija" is an old administrative unit and term. However, it is still used within citizens.

meet basic needs of households. On the other hand, some households partially supplement their monthly income by selling surplus products in nearby markets. However, number of household primary involved in stock farming, is reducing on regular bases. Furthermore, the reduction in the number of household members is followed by the fall in volume of stock farming. The conditions for livestock breeding (climate, infrastructure, etc.) are solid. However, outdated technology and lack of interest of younger people in this branch of agriculture have led to the fact that this activity slowly fades away.

Table 9: Stock farming in the area of Skadar Lake

Village	Households	Horses	Mules	Cattle	Sheep	Goats	Pigs	Poultry	Bees
Besa	11	0	11	9	86	11	0	93	30
Boboviste	21	0	2	46	0	6	0	192	5
Virpazar	7	0	0	17	0	3	2	16	250
Godinje	4	0	1	1	0	0	5	10	10
Donji Murici	23	0	9	25	28	82	0	197	145
Komarno	4	0	2	10	42	1	6	30	0
Krnjice	1	0	0	0	0	30	0	0	0
Begova Glavica	5	0	1	4	0	0	4	0	4
Vranjina	5	0	0	0	0	13	6	0	20
Podhum	45	0	0	66	7	0	71	0	0
Dodosi	12	14	0	82	0	10	3	19	0
Donje Selo	3	0	0	5	30	190	0	0	0
Zabljak	7	11	0	59	0	1	8	0	0
Rijeka Crnojevica	3	1	0	0	0	100	2	0	0
Sindjon	3	1	0	7	35	0	2	35	0
TOTAL									

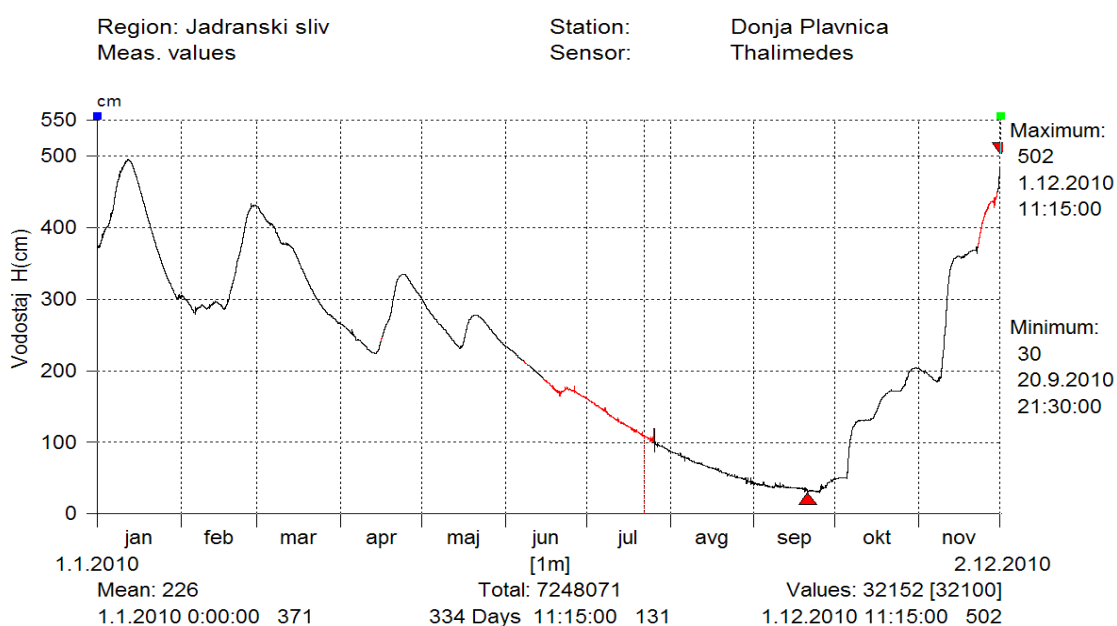
Source: Census of agriculture 2010, MONSTAT

Stock farming is mostly present in already mentioned Podhum, followed by Donje Selo, Donji Murici, Virpazar, etc. Unfortunately, the flooding of a significant portion of this area considerably reduces its utility.

As a result of simultaneous action of three factors: heavy rainfall, lack of snowfall and melting of existing snow cover and very strong southerly wind, came to a sudden deterioration of the hydrological situation and in particular the situation was very unfavourable for hydrological system of the Zeta - Skadar Lake – Moraca - Bojana²¹. This simultaneous combination of meteorological parameters, and the already burdened hydrological system caused the images that hydrological assumes to be of alarming character.

In certain hydrological stations in the basin of Moraca and Zeta record water levels have been measured since measurements are made. The level of Lake Skadar had a tendency of steady increase; reaching a record value of measurements. Also the water level of the Bojana was constantly rising, reaching an absolute record.

Graph 1: Level-gram of the Skadar Lake for the period January-December 2010²²



Source: Analysis of meteorological parameters for November and December 2010

²¹ Analysis of meteorological parameters for November and December 2010, p.3

²² HS automatic hydrological station Plavnica for the period January 1st 2010 - December 2nd 2010th (maximum 502cm, 1.dec. 2010 at 11:15 pm)

This graph shows how the level of the lake rose during the flood wave in January, followed with a sharp increase during the month of November. In September level of the lake was at an altitude of only 30 cm. In the following table the levels of extreme water stages are given in centimetres. For Plavnica (Skadar Lake) next to the relative dimensions the absolute elevation of the above sea level was given in meters.

Table 10: Maximum water levels on rivers in the basin of the Adriatic Sea and Skadar Lake

Hydrological station	Waterway	Maximum by flooding	Date	Maximum after flooding	Date
Plavnica	Skadar Lake	530 cm (9.86m _{nv})	14.01.1963.	588cm (10.44m _{nv})	04.12.2010.
Duklo	Zeta	243cm	18.10.1992.	243cm	02.12.2010.
Fraskanjel	Moraca	603cm	05.12.1966.	636cm	04.12.2010.
Podgorica	Bojana	1226cm	17.11.1979.	1177cm	02.12.2010.

Source: Analysis of meteorological parameters for November and December 2010, p.10

Hence, in late November and early December of 2010, due to heavy rains and high water level of Skadar Lake, which is poured out, many coastal settlements were flooded. In the suburban municipality of Golubovci and Tuzi damage due to floods was reported by 801 and 38 households, respectively.

Total funds allocated for the rehabilitation of these two regions (individual housing and other facilities without damages inflicted on agricultural land) accounted for €1,373,729. Having in mind that in the area of National Park Skadar Lake lives 136 families, total compensation due to flooding in this area should be around €222,768 or in average €1,638 per household. As for the areas which belong to municipalities of Cetinje and Bar, the total compensation to households should amount to €544,471. Total number of households which were affected by floods in these particular areas was 287. Furthermore, the water element caused various damages on infrastructure facilities and greenhouses. Floods have affected 12 commercial facilities and 7 restaurants. Damage to infrastructure in these two municipalities is estimated to €1,905,610. As for the compensation to all these areas funds were allocated in the amount of €218,237, from the current budget reserve and solidarity funds for the mitigation of floods from the account of Montenegrin banks. Both entities are equally involved in the settlement of the costs caused by flooding. All together, for the recovery of all three municipalities, both

private entities and infrastructure, is spent €441,005. It is just a beginning of several years of investment. Damages that have arisen because of flooding have had considerably larger consequences. There are no precise data on the direct harm, on farms, caused by flooding in the territory of the protected area of Skadar Lake. However, according to representatives of Association of Agricultural Producers Zeta and Malesija "Ratar", production capacities in this area have been reduced for over 4,000 tons due to floods and other natural disasters that followed.

Pursuant to the changes that occurred in 2010, the Agro-budget for 2011 was passed by the Ministry of Agriculture and Rural Development. In the financial statement of Agro-budget is stated that € 15,536,000 will be financed out of general revenue budget, and € 5,586,000 from grants and loans. World Bank loan earmarked for project development and institutional strengthening of agriculture in Montenegro (MIDAS). Total assets at Agro-budget 2011, are larger than the previous year by 11.7%. Funds from the general revenue budget remained at last year's level, while the significant occurred due to the planned use of funds for loans and donations from the World Bank and Danish project for development of organic agriculture.

According to already mentioned representatives from the Association of Agricultural Producers Zeta and Malesija "Ratar", the efforts of government and the persistence of individual farmers, will lead to an increase in production by approximately 30-40%, which would help partially reparation of the damage caused by natural disasters during the past year.

1.7. Economic valuation

One of the major economic activities in the protected area Skadar Lake is fishing. Fish resources of Skadar Lake represent more than 95% of the total freshwater fishery in Montenegro. By its bio production and fish weight Skadar Lake is far from other lakes in the Balkans. On the basis of statistical data on annual catches, production of fish in the lake is 80kg/ha (8 t/km²)²³. Fishing season for the bleak lasts for four months and fifteen days (from 31 October until 15 March) or 135 days. According to calculations of the Hydro meteorological Institute of Montenegro that 30% of these days are unfavourable for those and similar activities (bad weather) which brings us to a more realistic number of 95 days available for hunting bleak. The main fishing tackle for hunting bleak is net and the average catch of this tool for one day is 20 kg. The estimated number of fishermen on the lake is 300²⁴ and for setting up this network requires one or two fishermen. All of this provides the basis for the following calculation for the average bleak catch annually:

²³ Drecun, Djordje (1983), Modified fish populations in Lake Skadar, CANU 9, Ttiograd, p.129-140

²⁴ Mrdak, Danilo (2009), *Assessment of the environmental impact of dams on the fish fauna in Moraca River and Skadar Lake*, NGO Green Home, p. 30

$$(95 \text{ fishing days}) \times (20 \text{ kg average daily catch}) \times (300 \text{ fishermen}) = 570000 \text{ kg bleak per season}$$

However, much of the catches in the nets is not including bleak (in the words of local fishermen that amount of non bleak is usually 20% of catch) which brings us to the amount of *456000kg* of bleak annually. Average selling price of bleak in the market was €3 per 1kg. Having in mind that fact, local people earned *€1368000* from overfishing the bleak during last season.

On the other hand, carp hunting season lasts nine months, from 1 June to 1 March or 270 days if the decline of this number is 30% of days that are not favourable for fishing, it gives us a number of 190 days for fishing. The most important legal tool for catching carp is a small net and the average catch per day of hunting is a 5kg fish. The total estimated number of fishermen who enrol carp hunting is smaller, around 100 and for this net requires one or two fishermen for its setting, which gives us the data for the calculation of the average annual catch of carp:

$$(190 \text{ fishing days}) \times (5 \text{ kg average daily catch}) \times (100 \text{ fishermen}) = 95000 \text{ kg carp per season}$$

Market price of the carp is at average €5 per 1kg, which brings us to amount of *€475000* that local population earned from overfishing the carp. Bleak and carp represent 70% of the total catch on Skadar Lake²⁵. Catch of other species is very difficult to assess in particular catch eels, which is the most expensive fish species that lives in the lake (price varies from 10-15 €).

Having in mind that 596 households are living in the protected area of Skadar Lake, the average revenue per household of overfishing the bleak and the carp is around *€3,093*. Furthermore, each family is not involved in fishing activities. However, even if the revenue of the single family is higher, fishing is just secondary source of income for the whole family.

The biggest industrial plant-processing factories and fish canning is in Rijeka Crnojevica. Fish production is an important issue but also some problems initiator because of large amounts of overfishing from the lake. From the factory depends around 70 households and 250 residents. Area Plan of the National Park Skadar Lake is planned to relocate factories to the area Velji lug, with the default technological modernization.

Biodiversity is also of great significance for the strategy sustainable development that explores how and to what extent these potentials can be used and not to destroy the

²⁵ Ibid, p. 3

existing natural balance. The lake is separated from other national parks as area with exceptional richness and fish fauna and ornithological lush swamp vegetation. It is one of the most interesting biotopes of the area. Growing season on the Lake starts early in the first decade of March, and drapes floating vegetation cover shallow water areas from May to October. Also, climate has a big role. The importance of climate on man, his life, the establishment of settlements, the types of architecture and so on is indisputable.

The Skadar Lake is located in the transitional climate zone between Mediterranean subtropical and moderate-continental climate which is especially good for wine-growing and beekeeping. So, this is the main reason that beekeeping and producing a wine is developing more intensive in the last few years, and have great potential to grow in the future. The households producing honey and wine for own purposes, but also for sale on the market. There are various stimulate development programs of the two branches, so that the future be expected to become even more developed.

In the area of Skadar Lake, there are 150²⁶ producers of honey. Each producer of honey has an average of 50 hives. From one hive can be produced around 10 kg of honey.

$$(150 \text{ producers}) \times (50 \text{ hives}) \times (10 \text{ kg of honey}) = 75000 \text{ kg per season}$$

Market price per 1 kg of honey, on average is €11, so that means that one producer earns income of €5.500 or €825.000 is the income of all producers of honey in the area of Lake Skadar. The Skadar Lake is the only area which recorded a growth in the number of beekeepers in relation to other parts of Montenegro, in which the number is decreasing.

Apart from bee keeping, the wine production makes high portion of the revenue of the local population. Wine production in Montenegro has increased considerably and takes place over an area of 4.535 hectares. Annual production is approximately 17 million litres, and exports around 5.6 million litres. The number of wine producers is growing; at the beginning of 2011 were registered 35 wineries as compared with 2007 when there were only 4, nine times more. In the region of Skadar Lake have 17 companies that are producing wine for a commercial usage. The register of growers and winemakers counts 140²⁷ producers out of which more than half are located in the region around Skadar Lake.

Ministry of Agriculture and Rural Development provides subsidies to tenants of €4,000 per hectare and credit support for the planting of new vineyards in the amount of half of the investment. They also support fair events, exhibitions and the work of national associations, which also favours growth in the number of entrepreneurs engaged in the

²⁶ Beekeepers Association of Montenegro (www.pcelarstvo.me)

²⁷ Ministry of Agriculture and Rural Development

production of wine in couple next years.

Each wine producer in the area of Skadar Lake has average 700 to 2000 plants of grapes vines tree vines, and some even up to 6800. Yield per vine on average 2.5 kg of grapes, which means that if someone has a 2000 plants of grapes vines tree has producing of 5000kg of grapes per year, which will allow the average production of wine around the 2500l. If you want to buy “Crnicki vranac” you must to pay from 10€ to 50€. Individual producer of vine an average has annually profit about 25 000€.

Natural basis Skadar Lake basin allows extraction of peat and gravel, but in a strict regime of protection and restoration of land. The uncontrolled exploitation of gravel and Sand has so far carried out in alluvial deposits and riverbed Moraca pipe, with the consequences of changes sandbars and character streams.

Further exploitation is conditioned by the ecological criteria and strict protection reserves Manastirska tapija, at the mouth of the Moraca.

Peat was incorporated in Humsko blato, Rzavce and Gornje malo blato. Exploitation of peat could be developing other economic activities, but only with the programs which will not interfere with established natural balance. During 2010 only one firm, Cijevna Commerce LTD, took concession for the sites on which were exploited gravel and sand. The revenues generated from these activities represent an important source of funding. The following table presents revenues derived from it during 2008-2010.

Table 11: Revenues peat exploitation during 2008-2010 within Skadar Lake PA

Year	Revenues
2008	€108,785 (10.02 € per m3)
2009	€52,922
2010	€46,504

Source: Annual Report of National Parks in 2010.

The average price in the market for this material is minimum 20.00€ per m3 when it comes to direct sales. However, the cost of this material which used for concreting and etc is much higher, even twice higher comparing to respective direct price. „Cijevna komerc“ sales one m3 of gravel at a cost of 50€²⁸, which is actually two times more than the price paid by the concession NP Skadar Lake. Therefore, there is an additional profit margin for the concessionaire. Respective profit margin is value added for the fulfilment

²⁸ “Cijevna komerc”

of the market needs. However, it shows that probably there is a space for increase of concessions fee.

Nevertheless, there is a downward trend in the previous period. That can be results of the overall economic crisis that significantly affects construction business.

The area of Skadar Lake is an attractive tourist destination. It is particularly characterized by unusual landscapes, tame and wild at the same time, picturesque fishermen villages, medieval towns and fortresses, the rich spiritual, historical and cultural heritage, particularly the ancient monasteries, at one time there were some 20 of them, which is why this part was called the Mount Athos of Zeta.

It's natural and anthropogenic motives, the existing transport infrastructure and sources of tourist demand are providing favourable conditions for certain types of tourism, throughout the year. Primary motives for directing tourists to this area can be regarded as a desire to stay in a preserved natural environment and a sense of freedom, authenticity and tradition, which together result in a feeling of relaxation and tranquillity. These incentives are contrary to the lifestyle in urban areas that are antithetical to life in these environments. It seems that the actual or implied rural an important factor determining the size and structure of tourism demand to the rural areas, so that tourists are primarily motivated by the overall attractiveness of rural areas and not able to participate in certain activities (recreational and other).

The most developed form of tourism has so far been recreational swimming tourism. Localities with the greatest potential for this type of tourism are: Donji Murici, Vranjina and zone Karuc-Dodosi-Zabljak, Virpazar River Crnojevica. Transit tourism is also an important form of tourism, where as the most important points identified Virpazar and Vranjina. Nautical tourism, which includes shipping and deployment of boats, sightseeing areas, parking and service, has also developed.

Excursion tourism has also developed, and is a great opportunity of development lakes. It is believed that the benefit in this regard is the proximity of the coast. The greatest potential for this type of tourism lies in its cultural and historical monuments in this area, and specific environments, flora and fauna in an environment of unprecedented nature. There are many reasons for developing and newer forms of tourism-known to be a cultural tourism, hunting, bird watching, etc. On the Lake, there are all prerequisites for the development of sport tourism-rowing, sailing; snowboarding ... Sport fishing has been around for many years on Skadar Lake. It is one of the biggest sports. Every year has organized the competition: *SKADAR LAKE TROPHY* (Trofej Skadarskog jezera)"and *MAY ENCOUNTERS* (Majski susreti)".

Bird watching has become the most popular activity. Serious observers of birds are known to travel from one end of the world to another to see a particular bird species in

its habitat. The Skadar Lake becomes an attractive destination for bird watching, in 2010. 82²⁹ tourists have had round tour on Skadar Lake for bird watching. Individuals pay a ticket in the amount of 4€. Furthermore, NP Skadar Lake earned from those tickets 328€ during last year. However, the number this people who observe a birds a growing from year to year.

At the entrances Vranjina and Virpazar there are two toll points. The ticket is paid in the amount of €4 per person. However, those tickets are exclusively paid by those tourists who are engaged in boat cruising. At the Skadar Lake operates approximately fifty boats, owned by roughly thirty entrepreneurs. Capacities range from 6 to 80 passengers, with the exception of Plavnica which can accommodate up to 280 individuals. From the interviews which are being organized with some boat owners we concluded that there are few obstacles which are preventing the further development in this area, such are:

- Bad coordination among registered entrepreneurs and local population (few local people offer cheaper cruse because of the lower fixed cost in the sense of licensing, contract renewal, the fee for using the waterway to be paid to the National Park etc.);
- Inability to mount info point at the entrance to the Park;
- There is not marked fairway;
- Poor infrastructure in places where the passengers are boarding.

Despite those disturbing facts, attendance of the Skadar Lake is growing from year to year. Average number of employees per firm is 2. Once we connect this fact with the number of companies we get around sixty households who are living primarily from wages that have been earned within this business. However, we must be very careful because of the fact that the season of cruising on Skadar Lake lasts from May to October. The total number of visitors in the Park (According to the report on the work of National Parks) in 2010 amounted to 40,242.

Furthermore, that number corresponds to the number of individuals who have cruised round lake in this period. Price is charged in two ways: one hour of cruising per boat or per person, depending on the carrier. One hour of cruising on the boat that embarks 12 people is €40, 30 passengers €50 and over 30 individuals €70. However, the tours with fulfilled capacities are very rare. This is the reason why entrepreneurs decide to charge €10 per person per hour of cruising. Bearing in mind all above mentioned, entrepreneur's income from cruising in one season ($40242 \cdot 10$) in amount of €402240. Consequently, on average, each entrepreneur earns about €13,414.

²⁹ Source: "In Travel": "Planet tours"; 2011.

In the area of NP Skadar there are three hotels: “13 July” (2-star hotel), “Pelikan” (3-star hotel) and “Eco resort Plavnica” (4-star hotel). Attendance at the hotel is small because it mainly carried out by the lake one day excursions. Fourth previous accommodation facility – motel Gazivoda is being closed for three years.

At Vranjina couple of restaurants are located. One of them is the restaurant “July 13th – Plantaze”³⁰ have visited 20,000 tourists in 2010. If we take the price of an average expenditure per one tourist around 13€ for lunch, we can conclude that the revenue was around 260.000€. It can be said that this is potentially a large resource of national parks and general public company for the national parks of Montenegro and will certainly make a large income annually because of its good location and the possibilities to work whole year (either to profit share or increased lease). The other restaurants on Skadar Lake recorded a good number of visitors. Restaurant “Badanj”³¹ which is opening whole year, have visited an average 7000 tourists, annually. Price per serving varies from 10€ to 15€, that means that his annual income on average amounts to 70,000€. Tavern “Crnicki vinotok”³² on Virpazar has annual revenues near 50.000€.

1.8. In summary

Table 12: Summary of values and users per goods/services

	Economic values	Number of users
Fishing	Revenues from overfishing the bleak - €1368000 Revenues from overfishing the carp - €475000	300 fishermen 3 municipality government 1487 citizens (local people – respective municipalities)
Honey production	Revenues from honey production - €825000	150 producers 2 restaurants 3 municipality government 375 citizens (local people – respective municipalities)
Wine production	Revenues from wine production – €3500000	35 wine producers restaurants 3 municipality government 80 citizens (local population – respective municipalities)
Cruising	NP revenues from cruising	40242 tourists

³⁰ Source: Restourant “July 13th – Plantaze”

³¹ Source: Restourant “Konoba Badanj”

³² Source: Restaurant “Crnicki vinotok”

	(entrance tickets) - €138072 Boat owners revenues from cruising - €402240	30 boat companies, 11 travel agencies, 3 Municipality Governments, National Park Skadar Lake
Bird watching	NP revenues from bird watching - €328	82 tourists, 7 boat companies, 3 travel agencies.
Restaurants	Restaurants revenues - €380000	27000 tourists, 2 restaurants, 4 hotels, 1 tavern, 3 Municipality Government, 300 citizens (local population – producers of agricultural products), National Park Skadar Lake
Exploitation of peat and gravel	NP revenues from exploitation of peat and gravel - €46504 “Cijevna komerc” revenues from exploitation of peat and gravel - €232055	1 peat concessionary, 1 Municipality Government, National Park Skadar Lake
Souvenirs	NP revenues from souvenirs selling - €9756	4580 Tourists National Park Skadar Lake

Source: ISSP, 2011.

Brief description

Bearing in mind everything that had been already expressed, it is especially necessary to emphasize the potential of this area. Considering its geographic position, hydrographical properties, cultural heritage and land structure Skadar Lake region has great potential for all types of tourism. With its easy proximity to the highly developed Montenegrin seacoast, it is vital to the enlargement of tourism with all the features that the lake possesses.

In the area of Protected Area Skadar Lake there is a great chance for expansion of the excursion tourism (apart from broadening restaurants and hotels visits, cruises and more recently bird watching) in terms of encouraging hiking and biking. Moreover, in the Skadar Lake, there are several localities where it is possible to organize activities

such are: regattas, sailing, motor - sailing, skiing, windsurfing, rowing, swimming, and jumping.

Attractive tourist offer indicates growth in the number of tourists and hence more revenue to the NP and businesses, as well as local residents. During summer time, in the area of Zabljak and Dodosi there is a possibility for the organization of sport riding.

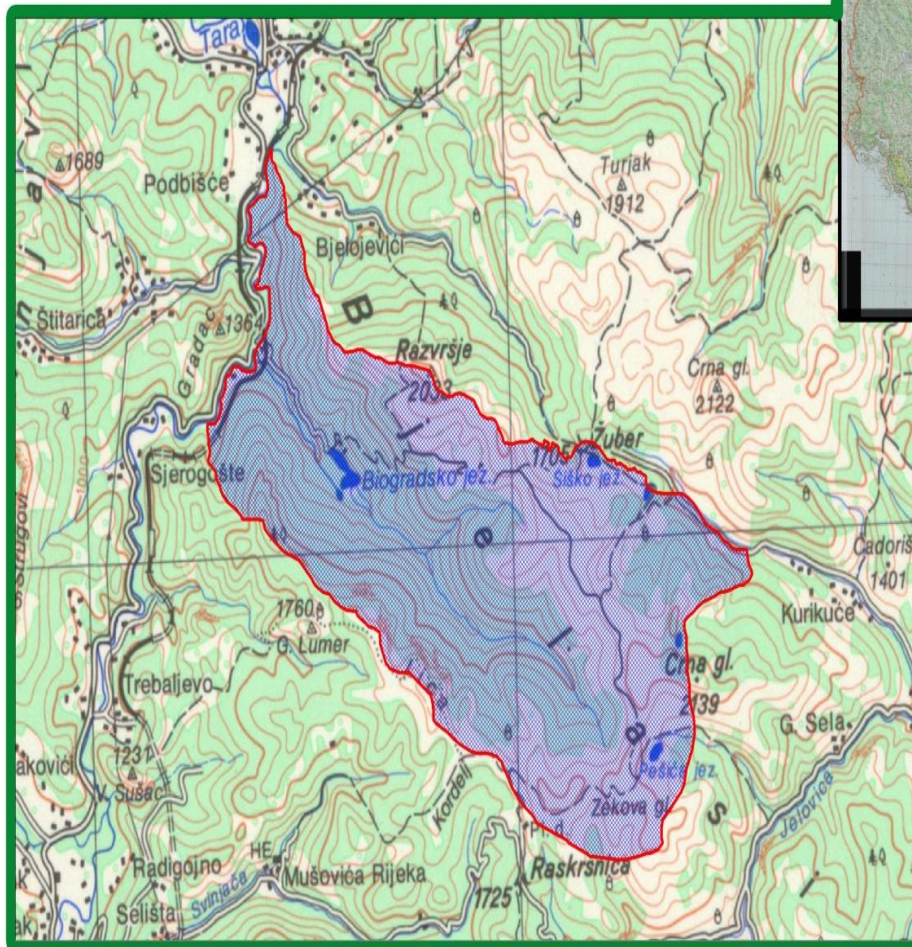
There is an opportunity for organizing various scientific, cultural-entertainment and gastronomy events in many cultural and historical locations and ethnic settlements. In addition to these varieties of tourism, this region has favourable conditions for pastoral tourism, which could be further encouraged in villages along the lake coast as well as weekend tourism, which is currently in expansion and which could be further supported.

Also, there is a great opportunity for further development of fishing tourism in the sense of extension of the zone predicted for hunting, fishing and breeding, as well as the organization of supporting facilities.

II ECONOMIC VALUATION OF BIOGRADSKA GORA

Biogradska gora map

Nacionalni park "Biogradska gora"



2.1. Introduction

The subject of this analyze is protected area of Bjelasica and National Park (NP) Biogradska gora. The mountain massif of Bjelasica is situated in the north-eastern part of Montenegro, between the urban communities: Kolasin on the southwest, Andrijevica on the southeast, Berane on the east, Bijelo Polje in the north, and Mojkovac in the northwest. According to the natural characteristics and tourist potentials, Bjelasica represents one of the biggest winter tourism potentials of South East Europe, which is very important for the overall development of Montenegro.



Table 13: Population in 2009

Municipalities	Population
Andrijevica	5447
Berane	34767
Bijelo Polje	49548
Kolasin	9159
Mojkovac	9412
Total	108333

Source: MONSTAT

In the entire northern part of Montenegro there is a problem of depopulation, including the Bjelasica region. The population moves from rural areas to the cities, mostly in central and southern parts of Montenegro. Bjelasica territory covers five municipalities, with a total population of 108 333 inhabitants.³³ Therefore we can say that a large number of people gravitating in this area and has the ability to use potential of Bjelasica.

Bjelasica Mountain together with National Park Biogradska gora represents a unique bio-geographical and ecological entity. The purity of the nature with incredible genetic, specie and



³³ Source: MONSTAT, Population projections for 2009.

ecosystem diversity remained intact until the present day. Mosaic of natural and almost fully natural landscapes with characteristic way of utilization, makes a unique phenomenon in Europe.

Bjelasica massif is characterized by great vertical articulation and numerous forms of mountainous relief. It consists of four mountain ridges of Dinaric direction, divided by deep river valleys. All relief forms and phenomena had been created in a heterogeneous geological environment which is characterized by the share of volcanic complex of intricate lithostratigraphic composition.³⁴ The share of carbonate rocks is relatively small, so that Bjelasica looks like an island of silicates in the sea of carbonates.



Geographic position, silicate geological layer, impermeability of rocks and different climate influences, made Biogradska gora an important suitable habitat for relict species.

Within Bjelasica there is a National park Biogradska gora, which consists of Biogradsko Lake and Biogradska gora. Biogradska gora National Park was established in 1952. It is situated in the north-eastern part of Montenegro, between the Tara and Lim rivers in the central part of the Bjelasica mountain massif. National park encompasses area of 5,650 ha, out of which 3,470 ha within the municipality of Kolasin, 370 ha within the municipality of Mojkovac, 1,800 ha within the municipality of Berane and 10 ha within the municipality of Andrijevisa.

According to the Spatial plan of the National Park Biogradska gora, protected zone covers the area of 19,470 ha, out of which 7,070 ha is situated within the municipality of Kolasin, 3,830 ha within the municipality of Mojkovac, 5,600 ha within the municipality of Berane, 2,320 ha within the municipality of Andrijevisa and 650 ha within the municipality of Bijelo Polje.



³⁴ It relates to physical and petrographic properties of rocks.

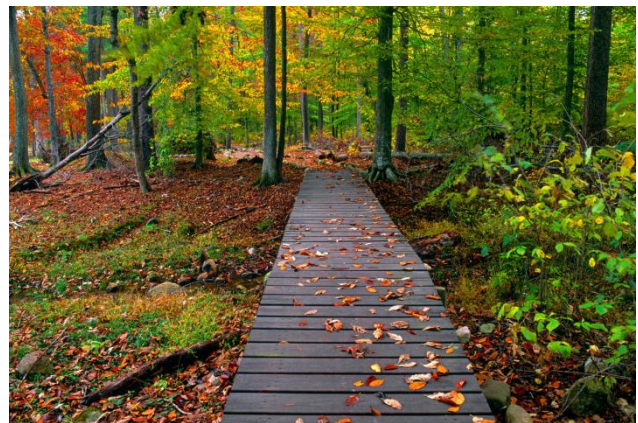
Total area of the National park Biogradska gora with the zone under the protection amounts 25,120 ha, out of which 10,540 ha is situated within the municipality of Kolasin, 4,200 ha within the municipality of Mojkovac, 7,400 ha within the municipality of Berane, 2,330 ha within the municipality of Andrijevica and 650 ha within the municipality of Bijelo Polje.³⁵



Over and through Mount Bjelasica massif there is a hydro-geological watershed between the terrains to the West, which bring water to the Tara River, and those to the East, bringing water to the River Lim. The last *ice age* left traces that it was *there*: six glacial lakes (Biogradsko, Pesica, Veliko Ursulovacko, Malo Ursulovacko, Veliko Sisko and Malo Sisko) located at various levels above sea (between 1000 and 2000 m). They had been created by the bracing of ravines by terminal moraines along the glacier's route.

Biogradsko Lake is situated at the height of 1094 m, surrounded by wild forest, 1100 m long, 400 m wide and 12 m deep. The shore of the lake is 3.5 km long. Around the lake there is a tourist path. The biggest and the most significant biological value belong to the wild forest Biogradska gora, covering the area of 1600 ha.

There are a great number of dynamic and complex eco-systems, high degree of habitat features for relict species as well as a considerable number of endemic and rare plant and animal species, that all represent extraordinary values of the Biogradska gora National park. It is also an important evidence of the specific history and evolution of the living and non-living world of the Tertiary, from Ice Age up to the present day.



The area of National Park is characterized by extraordinary specie and eco-system diversity that makes it the 'area of interest' and the centre of diversity of both flora and fauna of the Balkan Peninsula and Europe.

³⁵ Spatial plan of the National Park Biogradska Gora, Ministry of Space Development, Montenegrin Institute for Town Planning and Design.

National Park's special value makes a virgin forest reserve one of the last European virgin forests. This is the region of *magnificent* beauty and aesthetic experience.



Basic elements of the Park are: untouched forest, large mountain slopes and tops over 2000 meters high, six glacial lakes, five at an altitude of 1820 meters and one easy accessible low land lake located at the very entrance to the park, Biogradsko Lake. Swift streams cut through scenery of Biogradska Gora, green pastures and clear lakes reflecting centennial forests. The Park is renowned as a unique geomorphologic region and, as such, it is attractive for scientific research.³⁶

The most important natural feature of this National Park is the primeval Biogradska gora forest which covers 1,600 ha and represents one of the last three primeval forests in Europe. It has been given the highest status of protected reserve. The amenities of the virgin forest reserve, other natural assets as well as the beauty of the National park landscape qualify this area for inclusion in the World's natural heritage and international ecological program called "Man and Biosphere".³⁷



In the territory of Montenegro fauna is very diverse. Biogradska Gora is one of the most important reserves respecting this. In the main areas of the highlands and forest you can see many animal species even where human presence is constant. In the forest it's possible to hear deep tapping of woodpeckers, the tit's whistling, the voice of thrush, the sound of the Yellow-bellied Toad, the croaking of frogs. Particularly noteworthy is the sighting of the goshawk, the most dominant winged predator in this region but also very beautiful.

Although it is the smallest of five National Parks in Montenegro, Biogradska Gora National Park contains great diversity of flora and fauna. There are 26 different habitats of plants with 220 different plants, 150 kinds of birds, and 10 kinds of mammals live in this Park and in its forest, there are 86 kinds of trees and shrubs. In the waters of the park exists three kinds of trout and 350 kinds of insects.³⁸

³⁶ Data from National Park Biogradska Gora

³⁷ UNESCO: The Man and the Biosphere (MAB) Programme

³⁸ Data from National Park Biogradska gora

The national park is inhabited by a wide variety of birds, which are of interest to the ornithologists or bird-watchers. Registered so far are 150 species of birds in the region, including the: grouse, lark, Crested Titmouse, Yellow and Blue Titmouse, and the Dipper. The Imperial Eagle, hawks, kestrels and buzzards are protected species.



Despite the constant presence of people fauna is still endangered, due to the prohibition of hunting and fishing in certain areas and due to the activities of employees in Biogradska Gora, who are trying to preserve rare flora and fauna. Because of natural processes wolves, roe deer and wild boars are diminishing, while some large mammals are rare or extinct, including brown bears and chamois. The weasel family is present in force, with seven species: badgers, weasels, Western polecats, pine martens, otters and stoats. The large number of these carnivorous animals is an indication of a similarly rich presence of micromammals, of which the park is home to 11 species. The Fire Salamander (*Salamandra salamandra*) and tritons can also be found. There are many family groups of Grey Partridges present at the unusual altitude of almost 2,000 meters.



As stated before thing that makes the national park unique is its virgin forest, Biogradska Gora with trees over five hundred years old. In the very heart of Biogradska gora's virgin forest is Biogradsko Lake, the largest glacier lake in this National park. The most common tree species around the lake are European Beech, Sycamore Maple and European Ash, and on the slopes Beech and Silver Fir.³⁹

History has left deep traces on these territories. The cultural and historical heritage of Biogradska gora National Park is made up of archaeological localities, sacred monuments and traditional architecture. The numerous autochthonous objects of national architecture in the villages and "katuns", houses, cottages, towers, water-mills are scattered along the borders of the primeval reserve of Bjelasica Mount. Moraca Monastery is one of the most famous and magnificent medieval monuments of



³⁹ Ibid.

Montenegro. The monastery was built in the 13th century. Also in this region is situated another famous monastery called Djurdjevi stupovi from 13th century in Berane. A few more cultural and historical monuments are located in this part of Montenegro, such as monument in Mojkovac, Berane, etc.

The most popular activities in the park are mountaineering, biking, hiking around lake and visiting. Through the park are many paths of different lengths. Some of them lead only through the park others will bring you to closest mountain peaks. For entering the park a fee of €2.00 will be asked by National Park rangers. The camping fee for a big tent is €5.00 and for a small tent it is €3. There is the possibility to rent a boat on the Biogradsko Lake for €5.00 an hour. In the national park can also be rented wooden bungalows located in a green forest near the lake.



Among all sectors of the economy strongest potential for development is in tourism. Currently accommodation capacities are limiting factor because of the small number of hotels that exist. Only in Kolasin there are quality hotels, while hotels in other cities are in poor condition or closed. In the previous period several small hotels are opened, but their capacities are not sufficient to be able to talk about serious tourist offer. In the following period much more attention should be paid to this problem. Good quality restaurants with national cuisine, good service and price can be found in every city, as well as bars and night clubs for younger people.

The Government of Montenegro recognized the great potential of this area and was made Special Purpose Spatial Plan (SPSPBK)⁴⁰ for the region of Bjelasica and Komovi. The main purpose of this plan is to provide a vision and framework for the development of the region in which the plan applies. In accordance with the plan Regional tourist organization (RTO) was established, in cooperation with the Austrian-Montenegrin Partnership. They are working on promotion of tourist offer and the potential of the Bjelasica Komovi.

⁴⁰ *Special Purpose Spatial Plan "Bjelasica and Komovi" (SPSPBK)*, Ministry of Economic Development of Montenegro and Republic Institute for Urban and Designing.

2.2. Identifying the values of the protected area

2.2.1. Use values

Direct values

According to Recommended Methodology for Protected Area Economic Valuation Direct values are the raw materials and physical products found in protected areas that are used directly for production, consumption and sale, such as those providing energy, shelter, foods, agricultural production, water supply, transport and recreational facilities.

The values of this protected area which is now mostly used include tourism with all related activities like skiing, hiking and biking, mountaineering, fishing, jeep safari, which is at a much lower level of development than the level for which there are conditions, then the production of timber and other wood products, manufacture of medicinal herbs. Tourism was the major activity because in this area is a ski centre Kolasin. Many traditional restaurants and huts customize their offer according to nearby ski resort. The tourist centre of this part of Montenegro and winter tourist centre of the whole Montenegro is Kolasin. Also in this area, there are good conditions for hunting, fishing, eco-friendly agricultural production, manufacturing medical herbs. Agriculture production is really low level despite the existence of more than good conditions. The production is just as much as it's sufficient to satisfy the needs of the household, and rarely in production for the market.

Direct values may result in certain financial benefits. At this point those benefits are not as high as they possibly can be. According to the *Annual Report* for National Parks *activities* in 2010 this Park has had total income of €223,029.00. Park has received €104,121.00 from the state budget. That represents 46.7% of the total revenues. Besides state budget's contributions Park has so called *own resources*. These resources make the remaining 53.3% of the total income or €118,908.00. They comprehend revenues from the fees for registered visitors, lease of the restaurant, accommodation revenues, camping fees, sale of promotional materials, boat renting, contributions from the Employment Office, distributed revenues from the previous years and *other* revenues. The number of registered visitors in the Park in 2010 was 30,900. Therefore previous year's revenues were €55,720.00. Significant decrease of visitors' revenues is probably an outcome of visitor's arrivals decrease but also insufficient payment system on the borders and entrances of the park. Revenue generated from leasing the restaurant was at the level of €19,382.00. In addition, revenue from accommodations amounted to €12,164.00 while revenue from the sale of promotional materials and souvenirs

amounted €12,101.00. Revenue from fishing permits was at the level of €3,100.00 while revenue from boats renting was €5,043.00. In 2010 Park earned €3,613.00 from camping fees. Finally, there are revenues from the Employment Office of Montenegro (€7,766.00), revenues from the previous year's (755.00) and other incomes which were at the level of €2,058.00.

Indirect values

Indirect values are the ecological functions that maintain and protect natural and human systems through services such as maintenance of water quality and flow, flood control and storm protection, nutrient retention and microclimate stabilization.⁴¹

Biogradska gora protected area is located in the mountainous region, so its erosion control and watershed protection functions are particularly important. Benefits of protecting these values have all stakeholders, such as visitors and those which carry out economic activities in this area. However, such protection systems do not exist, and it is impossible to measure their value. In the long run this can cause problems and cause great damage to the area. Possibility of floods in this area is minimal because this is a mountainous region. Air pollution is not expressed because this is a natural area where there is no heavy industry and factories. Problem can cause forest fires because it is hardly accessible mountainous terrain where it is difficult to perform fire fighting. National Park every year makes an annual plan against fires where it is explained how they will fight against fires, which equipment they can use and other similar things. This region is habitat for rare fauna and flora, so this is a real reservoir of natural wealth. The problem of erosion was expressed in one part of the park due to the accumulation of mud at the bottom of the lake, but the National Park does not have sufficient resources to solve this problem entirely, alone without the assistance of external partners. A large amount of the asset is concerned, which is difficult to provide. However this problem in the short term can't lead to major problems, but NP and related organizations must make long-term plan that would be in a qualitative way solve the problem completely.

Option values

In the Methodology for Protected Area Economic Valuation Optional values are defined as additional premiums over and above actual use values which are placed on maintaining a pool of ecosystems, species and genetic resources for future possible uses, some of which may not be known now, such as leisure, commercial, industrial, agricultural and pharmaceutical applications and water-based developments.

This protected area is rich in water, so there are many natural springs which can be used for commercial uses. Also a large number of endemic plant species exist, which can be used in medicine, or for production of herbs. Various fruits, such as wild strawberries, in

⁴¹ Methodology for Protected Area Economic Valuation

the industry can be used for the production of juices and other food products. This region has fertile land and plenty of water so it is suitable for agricultural development at a much higher level than it is now. With small investments it is possible to start agricultural production, which could bring significant financial funds in the following years.

2.2.2. Non-use values

Existence values

Existence values comprise the intrinsic value of protected areas their component ecosystems and species, regardless of their current or future use possibilities, such as cultural, aesthetic, heritage and bequest significance.⁴²

The following table shows the perceived values of the protected area Biogradska gora.

Table 14: Identified values of PA Biogradska gora

Identifying the values of Biogradska gora	
Direct Values	Recreational uses (skiing, jeep safari, visiting, caving, hiking, biking, mountaineering, holiday homes, fishing)
	Commercial tourist enterprises (hotels, mountain eco-villages, restaurants, rent a boats)
	Commercial resource uses (timber harvesting, agriculture, fishing, hunting, water springs, stone, medicinal plants collection)
Indirect values	Habitat for rare and endangered fauna and flora
	Erosion control (forestation)
	Fish breeding and nursery
	Landscapes and amenity for holiday homes
	Annual forest fire protection plan
Option values	Future tourism and recreational development
	Future possible uses of nature potential
	Future uses of water (water springs)
	Future possible clean energy production (hydro-energy and wind-energy potential)
Existence value	Historical or cultural sites
	Items of national heritage and bequest for future generations
	World and national heritage site

⁴² Methodology for Protected Area Economic Valuation

	Cultural and spiritual significance of churches and monasteries
	National and global biodiversity significance

Source: ISSP, 2011.

Protected area Biogradska gora contain many iconic landscapes (such as canyons, caves, mountains and lakes), cultural artefacts (monasteries), and host an exceptional level of rare, endangered and endemic fauna and flora. There are high existence values attached to these features from a local and national perspective, as well as a global one. Because of all these reasons NP Biogradska gora is on UNESCO World Heritage tentative list, which is good proof of all natural and cultural wealth in this region.

2.3. Selecting the goods and services to be valued

Data, time and other resources are almost always limited. In most cases it is impossible to value each and every ecosystem value associated with a particular PA. Because of this reason, it is necessary to decide and to select exactly which ecosystem values it will be valued. Which values in particular PA will be subject of detailed valuation will be determined by two main factors: their relative economic/development significance, and the availability of data with which to value them. Detailed analysis of all observed values is impossible to do because of these reasons, and accordingly decide which values have the greatest potential and in the future would bring major benefits to protected area. According to this we, values presented in the following table are subject of valuation.

Table 15: Selected goods and services to be valued for PA Biogradska gora

Identifying the values of Biogradska gora		
Direct Values	Recreational uses (skiing, jeep safari, visiting, caving, hiking, biking, mountaineering, holiday homes, fishing)	?
	Commercial tourist enterprises (hotels, mountain eco-villages, restaurants, rent a boats)	?
	Commercial resource uses (timber harvesting, agriculture, fishing, hunting, water springs, stone, medicinal plants collection)	?
Indirect values	Habitat for rare and endangered fauna and flora	?
	Erosion control (forestation)	?
	Fish breeding and nursery	?
	Landscapes and amenity for holiday homes	?
	Annual forest fire protection plan	?

Source: ISSP, 2011.

2.4. Choosing the valuation techniques

When we choose the values that will be evaluated, we need to identify which techniques are the most appropriate and feasible to conduct valuation. The selected methods will be determined by availability but first by economic/development significance. This should also indicate the kinds of data that will need to be collected to apply the selected valuation techniques, and what kind of methods will be used to obtain this information.

Table 16: Valuation technique for PA Biogradska gora

Identifying the values of Biogradska gora		Valuation technique
Direct Values	Recreational uses (skiing, jeep safari, visiting, caving, hiking, biking, mountaineering, holiday homes, fishing, boat rental)	For recreational users: Simplified travel cost For government: revenues earned
	Commercial tourist enterprises (hotels, mountain eco-villages, restaurants)	For businesses and operators: Income generated (change in production), including employment and wages to employees For government: revenues earned
	Commercial resource uses (timber harvesting, agriculture, fishing, hunting, water springs, stone, medicinal plants collection)	For businesses and operators: Income generated (change in production) For government: revenues earned
Indirect values	Habitat for rare and endangered fauna and flora	Reflected in recreational and use values
	Fish breeding and nursery	Reflected in fisheries values
	Landscape and amenity for holiday homes	Simplified hedonic valuation

Source: ISSP, 2011.

Tourism as the main economic sector of Montenegro also in this region is a strategic activity. Winter tourism has great importance due to heavy snowfall and winter seasons that can last for 4-5 months. But appropriate accommodation capacities to support the development of this sector are only in Kolasin. Other cities have problems with this issue. Natural beauties, diverse plant and animal world are not sufficient to attract guests. Additional tourist services and hotel facilities are required to exploit the potential that exists in this area. Activities that currently have the greatest significance in the park are hiking, biking, bird watching, studying the flora and fauna. However these activities directly don't bring great benefit to the park.

Bjelasica is rich in water so that water potential is a value that is important for this region. Several factories for the production of spring water which now exist represent only the beginning of utilization of these resources, which in future will bring much greater contribution to the development of the region.

Habitats of rare flora and fauna are also frequent but it's difficult to measure their value because they do not bring direct benefit to the park. The benefits are achieved through other activities and expenditures by tourists and visitors experience while staying at the park.

In the Biogradsko lake there is fish hatchery, which the National Park set in order to preserve animal species. This is a significant item for the preservation of ecosystems, and is also an opportunity for the farming eco-friendly organic food that could be sold on the market, under the hallmark of the national park.

2.5. Specifying the data needs for valuation

When the selection process of valuation techniques is completed, the next step is to decide carefully about what kind of information needs to be collected, and from where it can be accessed. Also it is important to think about the availability of information, because some data are not available or does not exist.

Table 17: Data required for valuation of PA Biogradska gora

Specifying data needs for valuation of Biogradska gora	
	Recreational use
	<ul style="list-style-type: none"> • Number of visitors of NP Biogradska gora in past 5 years and any projected future increase in tourists and tourist developments • Price and number of overnight stays in past 5 years • Number of bikers in past 5 years • Number of hikers in past 5 years • Number of kayakers in past 5 years • Number of fishing permits issued • Number of climbers in Biogradska gora PA each year • Number of speleologists in Biogradska gora PA each year • Income from boat rental • Amount of investments in protected area in past 5 years • Amount of planed investments in protected area • Profile of investors
	Commercial tourist enterprises
	<ul style="list-style-type: none"> • Number of tourists enterprises and any projected future increase in tourist enterprises

	<ul style="list-style-type: none"> • Annual increase of tourist companies and any projected future increases in companies • Income to PA authorities from concession fees, rental charges and other payments made by tourist enterprises (including taxes paid to the national/local authorities) • Turnover of those companies in the past 5 years • Number of local employees, and wages paid to them • Volume and increase/decrease of overnights • Number of tourist in past 5 years
	Commercial uses
	<ul style="list-style-type: none"> • Number of people collecting other resources (firewood, minerals, medicinal herbs, berries, etc.) and types of resources collected. If possible estimates of how much resource has been collected. Any projected future increase in number of people collecting resources • Number of companies collecting other resources (firewood, minerals, medicinal herbs, berries, etc.) and types of resources collected. If possible estimates of how much resource has been collected. Any projected future increase in number of companies collecting resources • Buyers of the collected plants • Type of the final products • Numbers of workers for production of the final products • Total area of Biogradska gora forestry management area and area located within PA boundaries • Area of deforestation • Price of concession • Number of concessionaires and any projected future increases in concessionaires • Number of workers
	Cultural and spiritual sites
	<ul style="list-style-type: none"> • Grants, projects and own budget used by government, NGOs, international donors and delegated management authorities over the last 5 years, and future plans

Source: ISSP, 2011.

2.6. Economic valuation of protected area

Farming represents one of the important activities for local population. This activity is probably the most important in the municipality of Bijelo Polje. Primary reason is the size of municipality and potential buy-out having in mind potential of their meat processing industry. Nevertheless, Berane municipality is also solid ground for such activities. In the remaining municipalities there is such activity although its volume is related to the size of municipality but also to the existence of other profitable activities. Respective activity is more oriented to the individual usage and partial direct sale.

However, there are some attempts of organized buy-out for the meat processing industry. The following table give more detailed information about livestock volume per municipalities.

Table 18: Number of livestock by municipalities

Municipality	Bovine	Sheep	Goats	Pigs	Poultry	HDM ⁴³
Andrijevisa	1.759	4.901	334	1.475	14.703	282
Berane	6.651	18.480	2.238	3.761	34.404	520
Bijelo Polje	13.666	32.061	1.948	4.850	41.060	619
Kolasin	2.129	8.416	1.110	669	12.050	184
Mojkovac	2.443	4.572	421	1.304	4.207	188

Source: Monstat

Within respective protected area, some of the municipalities are tourist destinations. Up to certain extent their touristic attractiveness is due to the beautiful landscapes, ski opportunities and closeness of national park and protected area. Among respective municipalities Kolasin and Mojkovac are leading destination. This is especially valid for Kolasin which is leading ski resort. Such activity creates significant value added as for entrepreneurs as for protected area (through contributions and donations from business sector). Potential long term sustainability of tourism in the respective area confirms volume of foreign arrivals and overnights. In 2010 foreign arrivals had share of 73.5% in total arrivals in Kolasin while foreign overnights had share of 70.1% out of total. Situation is quite similar in Mojkovac where foreign arrivals were 77.5% of the total and overnights were 80% of the total. If we observe first four months of 2011 situation was quite the same. In Kolasin in the respective period foreign arrivals were 62.6% of the total arrivals while overnights were 58.7%. In Mojkovac foreign arrivals were 70.1% while foreign overnights were 73.9%.

The following two tables are providing more detailed information about arrivals and overnights per origin in these two municipalities.

Table 19: Number of arrivals and overnight stays in Kolasin

Kolasin	Arrivals			Overnight stays		
2010	Total	Domestic	Foreign	Total	Domestic	Foreign
January	2.315	1.100	1.215	6.788	3.565	3.223
February	1.977	487	1.490	4.884	1.507	3.377
March	1.454	272	1.182	2.528	473	2.055
April	839	282	557	1.290	429	861
May	1.143	277	866	1.772	406	1.366
June	1.643	370	1.273	2.912	635	2.277

⁴³ HDM comprehends horses, donkeys and mules.

July	2.511	624	1.887	5.046	1.583	3.463
August	3.238	489	2.749	6.341	1.385	4.956
September	2.626	364	2.262	4.506	528	3.978
October	875	294	581	1.429	555	874
November	705	322	383	1.943	527	1.416
December	1.540	644	896	2.817	971	1.846
Total	20.866	5.525	15.341	42.256	12.564	29.692
2011	Total	Domestic	Foreign	Total	Domestic	Foreign
January	2.458	1.177	1.281	7.454	3.656	3.798
February	2.508	735	1.773	4.995	1.456	3.539
March	1.434	529	905	3.175	1.357	1.818
April	800	250	550	1.416	559	857
Total	7200	2691	4509	17040	7028	10012

Source: Monstat

Table 20: Number of arrivals and overnight stays in Mojkovac

Mojkovac	Arrivals			Overnight stays		
2010	Total	Domestic	Foreign	Total	Domestic	Foreign
January	106	28	78	149	42	107
February	93	39	54	126	43	83
March	74	38	36	146	73	73
April	137	39	98	235	72	163
May	323	82	241	393	111	282
June	498	55	443	671	63	608
July	383	109	274	463	120	343
August	925	175	750	2.053	282	1.771
September	403	48	355	479	58	421
October	139	44	95	161	52	109
November	101	54	47	156	84	72
December	206	50	156	235	51	184
Total	3.388	761	2.627	5.267	1.051	4.216
2011	Total	Domestic	Foreign	Total	Domestic	Foreign
January	157	63	94	311	77	234
February	99	22	77	169	24	145
March	84	33	51	92	37	55
April	226	48	178	285	86	199
Total	566	166	400	857	234	633

Source: Monstat

National park is quite interesting place for tourist visits due to its beauty. Within previous five years we have witnessed increase of tourist arrivals in the first two years

of the respective period. After that due to the crisis the number of tourists fell. However, 2009 shown good results comparing to both, 2008 but also 2006 while it was still worse than 2007. However, increasing trend was identified in 2010 and it is approaching to 2007 as the respective period's high peak.

Aforementioned data's have been shown in the following table.

Table 21: Number of visitors and income from entrance fees

National park Biogradska gora		
Year	Number of visitors	Entrance fee income
2006	21.989	€ 43.978,00
2007	31.490	€ 62.980,00
2008	28.120	€ 56.240,00
2009	28.860	€ 55.565,00
2010	30.900	€ 55.720,00

Source: NP Biogradska gora

The main activities that can be practiced around the lake are related to recreation and education, because system of strict protection in the NP prohibits conduction of any activities that may disturb the ecosystem. All visitors who come to Biogradsko Lake can use some of the services offered by the national park. Beside the lake there are bungalows that serve for rent to all interested visitors who want to spend more time in untouched nature around the lake. The bungalows are made of wood to fit in a forest environment in which they are located. Rental price is € 11.5 per person including tax. In 2010 in bungalows slept 1313 people, so that revenue from the bungalows has been € 15,099.50.

Beside the lake is also possible to sleep in tents with payment of certain fees. Thus price for a small tent is € 3.00, € 5.00 for a large tent, € 3.00 for a camping trailer, while each person needs to pay € 1.50 of tax. In 2010 camp services used 713 persons, and on that basis the income generated was € 4,363.00.

Boats can be rented at the lake and the rental price is 8.00 € per hour. On the basis of boats rental during the 2010 income was € 2,104.00.

Fishing season at the Biogradsko Lake begins on June 1st and ends on May 26th. Only in this period fishing is allowed with the payment of daily fishing permit, which costs €20. In 2010 number of fishing permits issued was 229, which earn income from fishing of € 4,580.00.

The whole territory of Montenegro is very rich in water but these water resources are not sufficiently uses. This is valid in particular when it is positioned relation to opportunities and economic benefits it can bring. Regarding this Bjelasica is also rich

and the utilization is higher than in any other region of Montenegro. Thus, in the Bjelasica there are currently four springs used for commercial purposes, while on the whole territory of Montenegro seven springs are in use. So, more than 50% of all springs that are currently in use are on the Bjelasica. Utilization will soon be even greater because it was issued 5 more concessions for the water bottling in Bjelasica region, which should begin to use in the near future. Limit which concessionaires can use is prescribed by the Directorate for Water and concessionaires may use amounts that are within these limits. The duration of the concession is determined mainly on 30 years with possibility of extension if there's interest of both sides. The concession paid by the concessionaires is determined annually by the Directorate for water, according to production of each individual user. The price is specified by the Law and amounts to 0.003 €/l. On the basis of annual reports of production which concessionaires every year delivering to the Directorate, this institution determines the amount that each concessionaire is obliged to pay. So, total amount that was paid by concessionaires last year was € 44.915,763.

Table 22: Annual production of water in 2010

Company (Water)	Municipality	Production (litres)		Duration of the concession (years)	Limit (l/s)
		Domestic market (DM)	Foreign market (FM)		
Aqua Monta	Kolasin	2.163.908	143.748	20	-
Suza	Kolasin	5.836.316	-	25	2
Gorska	Kolasin	1.891.630	348.198	30	5
Aqua Bianca	Kolasin	4.588.121	-	30	0,2 - 1
Total (DM+FM)		14.971.921			

Source: Directorate for water

As mentioned above, five new concessions were assigned for springs in this area. This in near future should contribute to creating new economic value and increase the wealth of all actors involved in this process. Considering the increasing needs for potable water of people in the world and less adequate and proper resources, in the long run this investment should return multiple and bring great benefit to users.

Table 23: Springs with issued concession

Spring	Municipality	Duration of the concession (years)	Limit (l/s)
Drijenak	Kolasin	30	5
Drijenak - Rajsko vrelo	Kolasin	30	4
Javor	Kolasin	30	5
Moracko Trebaljevo - Sjerogoste	Kolasin	30	10
Vrelo	Mojkovac	30	1

Source: Directorate for water

According to the National Park management plan in the next five years planned costs are estimated at € 1.712.000. Of this amount, on investment should be spent € 220.000 whereas the remaining amount was planned to cover other costs such as salaries. Amounts shown above are not so great, because national park have limited possibilities and cannot allocate more money to finance investment. So assistance of external investors or state is necessary, if the goal is achieving faster development and greater investment in this area.

Table 24: Estimated expenditures for 2011-2015

Elements	2011 - 2015
Human resources cost	896.000 €
Other costs	596.000 €
Program funding's	220.000 €
TOTAL	1.712.000 €

Source: National park Biogradska gora

Forest fruits and herbs are some of the natural resources located on Bjelasica. In recent years, the use of these resources has increased, but due to the natural potentials utilization could be even greater. According to available data for 2010 on the territory of protected area Biogradska gora is collected about 270 tons of various fruits and plants. Wild berries are the most collected, 170 tons. Forest fruits which are collected in this area are blueberries, strawberries, raspberries, blackberries. Prices of forest fruits varies from €1-5 per kilo, depending on the period in which the collection is done and quality of fruits. When calculating the value of the collected fruits we got number of € 510.000 which isn't small amount. After wild berries, about 70 tons of mushrooms were

collected. Price per kilo of mushrooms varies from €3.5 to 6.5 again depending on the quality and the period in which mushrooms collected. The value of mushrooms harvested in the observed area in 2010 was € 350,000. Amount of collected herbs is around 30 tons. Due to the small amounts that are picked, the price of herbs is higher. The total value of the herbs collected was € 240,000.

Table 25: Collected fruits and herbs in Biogradska gora protected area in 2010

Flora			
Product	Amount (t)	Average price (€/t)	Total (€)
Wild Berries	170	3000	510.000,00
Herbs	30	8000	240.000,00
Mushrooms	70	5000	350.000,00
Total			1.100.000,00

Source: ISSP estimates, 2011.

When we consider the value of all products that have been collected in the Bjelasica region we got amount of €1.1 million. Considering all information set out so far, it can be said that this amount is not small and resources such as medicinal herbs and wild berries are an important resource. But surely these are resources that could be used even more and thus bring more benefits to users.

2.7. In summary

Table 26: Summary of values and users per goods/services

	Economic values	Number of users
Tourism (around and inside protected zone)	Revenues (tickets, boat rental, accommodation, camping)	50 000 tourists 100 000 potential tourists 5 municipalities 5 hotels 10 restaurants 5 travel agencies
Water springs	Concessions	9 water spring concessioners (4 now +5 in future) 1 government directorate (budget of the state)
Nature	Revenues from recreational uses (fishing, skiing, hiking, biking, mountaineering, bird watching)	30 000 tourists (2010) 100 000 potential tourists 3 municipalities 5 travel agencies
Restaurants	Revenues	1 restaurant inside and 10 around protected zone
Wood	Revenues from production (timber, furniture)	4 wood concessioners and timber collectors

Agriculture	Revenues from production (milk products, meat, fruits & vegetables)	100 citizens
Herbs	Collection and sale (medicinal plants collection)	3 concessioners

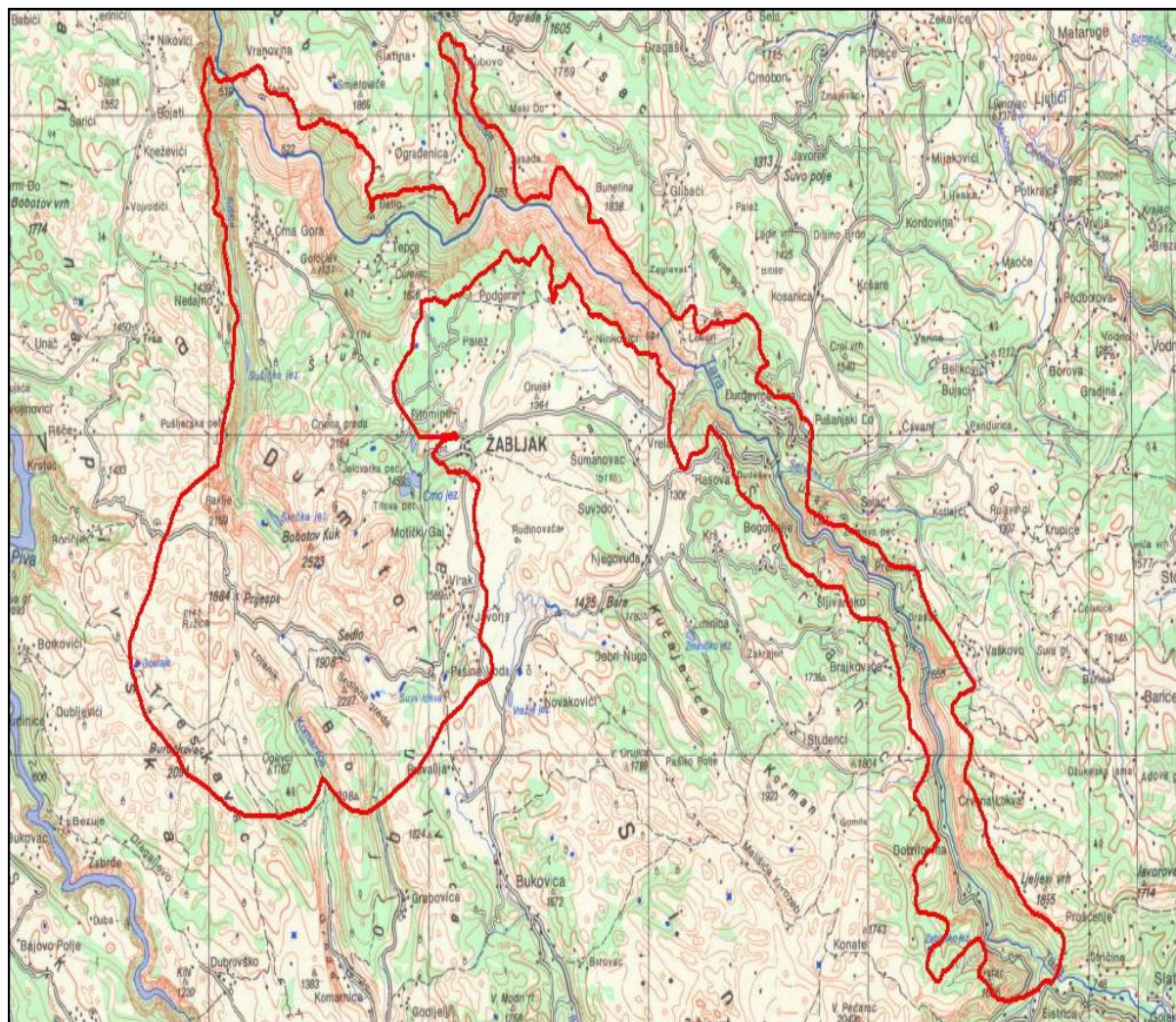
Source: ISSP, 2011.

Brief description

Natural resources within Biogradska gora are tremendous and still are far beyond from sustainably used. Because of the natural beauties potential for development of tourist facilities suitable for recreation is enormous. Skiing, climbing, hiking are just some of the activities that can be practiced on Bjelasica mountain but there are not enough agencies which could organize, in a good way, such activities. Additionally, the accommodation capacities are quite modest comparing to the natural resources that can be used for commercial purposes. Therefore, local administrations expecting large investments in tourist facilities, ski resorts and related recreational facilities in the following period. Agriculture is quite poorly represented, although there are excellent conditions for development of organic food. Lack of interest and lack of financial support is the most likely reason for lack of higher production. In the future, this potential could bring great benefits to individuals or companies that decide to invest in this economic activity. Therefore, it can be concluded that there are great potentials in all economic sectors (tourism, manufacturing). Greater utilization of resources requires significant investments which failed so far due to the crisis, more attractive options and non-favourable business environment. However, future development of this area is expected to be in accordance to environmental standards, nature conservation and sustainable exploitation of those resources.

III ECONOMIC VALUATION OF DURMITOR

Durmitor PA map



3.1. Introduction

The region of Durmitor was pronounced national park back in 1952 and represents one of the oldest protected areas in our country, given that back in 1907, during King Nikola's rule, in the Black Lake area, this area was pronounced royal ban.⁴⁴ Located at the north-west of Montenegro, the Park includes the massif of Durmitor, the canyons of Tara, Susica and Draga rivers and the higher part of the canyon plateau Komarnica, covering the area of 39.000 ha. The national park Durmitor cuts across territories of municipalities: Zabljak, Savnik, Pluzine, Mojkovac and Pljevlja.

The profusion of natural beauties, ambient and cultural values of Durmitor and Tara River prevailed to put the national park on the list of World Cultural and Natural Heritage, by decision of International Committee for World Cultural and Natural Heritage in 1980 in Paris, while Tara River and its canyon valley, by UNESCO's program *Human and Biosphere*, was included in world ecological reserves in 1977 (32,000ha).

The main feature of relief of Durmitor area is spacious plateau on 1.500m, cut by deep canyon valleys and from which striking mountain peaks raise, 48 of which go above 2000m. The highest among them is Bobotov Kuk with 2.525m. Special beauty to Durmitor massif give 18 lakes, called „Eyes of the Mountain” on height above 1.500m.

National park Durmitor is plentiful of cultural monuments from ancient to modern times. The most characteristic are the middle-age monuments: ruins of towns and fortresses, bridges and watchtowers, necropolis and monastery complexes in the valleys of the river Tara.

Box 1: Durmitor as ancient story

What one could say about ancient place of rest for Gods? Those Gods from Durmitor as well as those from Olympus were always aspiring to the skies and heights. When someone is looking aloft to the highest peaks of this mountain, it really seems as if Earth is touching the sky and that bluish colour of the sky is resting on mighty shoulders of Durmitor. The names of its stone and cugged peaks which people from Durmitor are calling “Soe nebeske or Soe bozije”

Source: www.durmitorcg.wordpress.com

Starting from the richness and specific values, within National Park Durmitor there are seven areas with special protection regime set in place: primeval forest of spruce and fir in the basin of Mlinski potok; complex of black pine in Crna pada in Tara canyon; Black

⁴⁴ Precisely, he was not king at the time as Kingdom was proclaimed in 1910. However, such title is being used in accordance to higher familiarity of that range comparing to the previous one.

Lake with its forest nearby; valley of Skrticka lakes and narrow area of the river Susica canyon; Barno lake with its surroundings; Zabojsko lake with its surroundings and narrow canyon valley of the Tara River.

The Tara River Canyon, also known as the Tara River Gorge, is the longest canyon in Montenegro and Europe and the second-longest in the world, after the Grand Canyon of Colorado. It is 150 kilometres long and is 1,300 meters at its deepest. The canyon is protected as a UNESCO World Heritage Site, and is a part of Durmitor national park. By its entire flow Tara gets significant amounts of water from numerous springs (Bajlovica sige) and several tributaries (Ljutica, Susica, Vaskovaska River, Draga). A special feature of Tara is its cascades. The most famous ones are Djavolje lazi, Sokolovina, Bijeli kamen, Upper and Lower tepacki buk etc. Due to its water quality and unique eco-system, Tara River and its canyon valley, by UNESCO's program *Human and Biosphere*, was included in world ecological reserve in 1977 and protected by internationally adopted convention.

River Tara is rich with numerous plant species, some of which originate back from ice age. Beside these species, the flora in canyon is characterized by different types of forests: oak, ash, beech, black ash and birch. A large part of the canyon is covered by conifer trees and special place among them takes black pine. The most known site of black pine is in place called Crna poda. Here the pines reach the height up to 50m and age beyond 400 years. As far as fauna is concerned, the most common animals are wild goats, deer and wild boar. Tara is also rich with fish. Its waters are home to trout, salmon, grayling, chub, carp and others.

NP Durmitor is rich in flora, fauna, cultural monuments, lakes and rivers, but also with good tourist offer. All of these could be benefits of the national park and something worth investing in. Each of these benefits will be presented individually in order to get a closer insight into assets the NP Durmitor really owns.

National park Durmitor employs 25 workers in total, 17 of which is engaged on jobs in area of ambient hygiene and infrastructure, 7 is employed as supervisors and only one worker in forestry area. Regarding the total territory of the park, as well as the configuration and lack of access to certain areas, the current number of employees is not enough to properly perform protection activities.

3.2. Identifying the values of the protected area

3.2.1. Use values

Direct values

For National Park Durmitor key direct values include sports and recreation, fishing, hiking, forests and collection and production of forest products, pastures and water exploitation. The sports and recreation include many things, first of all, white-water rafting, skiing and other winter sports, kayaking, rowing, and rally ride, visiting caves and historical sites and many others.

Based on respective direct values, PA can have certain financial benefits. According to the *Annual report* (for 2010) National park Durmitor has had revenues at the level of €392,259.00. That represents a decrease of 22.7% comparing to the 2009. The key source of funding was rafting based on which Park has earned €150,000 or 38.3% of the total revenues in 2010. The second most important source of revenues was entrance ticket. That revenue source amounted €82,199 or 21% of the total revenues. Different types of rent (in particular lease of the restaurant facilities) made €78,306. Sources such as fees, wood assortments, souvenirs sale and fishing tax represent the next important revenues group. Respectively they have contributed to the Park's financial health with €16,268; €14,097; €13,692 and €11,570. All other revenue sources are below 2.6% of the total revenues. These sources include camping, parking, revenues from the UNESCO and other revenues.

Indirect values

Indirect values of NP Durmitor reflect in park's fire protection, water quality control as well as protection of park from various human activities.

Option values

Optional values for NP Durmitor are the possibility of using herbs in medical purposes, using forest fruit in the park, larger exploitation of waters as well as the possibility of opening a spa resort.

3.2.2. Non-use values

Existence values

The existence values of NP Durmitor include the specificity of flora and fauna, a large number of speleological sites, historical monuments as well as canyons and lakes, which cover a large area of the park.

The main problems can be identified lack of available data. Another problem was has been in relation to the determination of National Park's boundaries. Borders of the National Park are now clearly defined and in accordance with the maps. Additional problem and confusion regarding jurisdiction over certain areas within the National Park has been eliminated and solved. According to that it is quite clear what and whose responsibilities are in the context of park's maintenance. Finally, another problem regarding to the disruption of regulation which are valid within the Park has been solved.

Values that were identified for National Park Durmitor are represented in the following table.

Table 27: Identifying the values of National park Durmitor

Identifying the values of National Park Durmitor	
Direct values	Recreational uses (<i>skiing, visiting, caving, hiking, biking, mountaineering, holiday homes, sport fishing, jeep safari, free climbing, mountain biking, orienteering, paragliding, snowboard...</i>)
	Commercial tourist enterprises (<i>hotels, mountain eco-villages, restaurants</i>)
	Commercial resource uses (<i>agriculture, fishing, hunting, water springs, stone, medicinal plants collection</i>)
Indirect values	Pollution
	Flood control
	Climate regulation
	Protection against storms and other natural disasters
	Protection against fires
	Habitat for rare and endangered fauna and flora
	Future possible uses of wild fauna and flora
Option values	Future tourism and recreational developments
	Future uses of water
	Agricultural applications
	Opening spa or thermal spa
	Historical or cultural monuments
Existence	Items of national heritage and bequest for future generations

value	National and global biodiversity significance
	National heritage

Source: ISSP, 2011.

Recreation belongs to excursion tourism, which is quite present in NP Durmitor. This national park has a large number of walking and recreation paths. Some of the most famous ones are: path around the Black Lake, tour around Snake Lake, climb to Medjed, etc. Attractiveness of the park makes many vantage points, including: Galev krs, Pirlitor, Mali and Veliki Stuoac, Savin Kuk, etc. The recreation implies camping and hiking, which are very popular here in the national park. The camping takes place on several sites and the most known are II Logor, Zugica luka, Radovan luka, Skrka, Susica and Dobri do. NP Durmitor is one of the best marked mountains in Europe and offers visitors the possibility of hiking with or without a guide. There is also a hiking map with all hiking tours drawn in.⁴⁵

The NP area is suitable for many sports and recreational activities. This includes rowing on the Black Lake, kayaking and white-water rafting on Tara River, rally and fishing. The sport fishing is very popular on river Tara, but also on the Black and Devil's Lake. One of the most attractive disciplines is white-water rafting on Tara. Rafting on wooden rafts or in rubber boats is organized by NP as well as by other tourist agencies-organizations. A circle rally tour around Durmitor called *Durmitor's Ring* is organized for motoring fans with terrain vehicles/jeeps in the length of 75 km. In addition to these activities, ski sports are indispensable to mention. The mountain Durmitor is famous for its ski runs suitable for all types of skiing and excellent terrain configuration allows different extreme sports such as free climbing, mountain biking, orienteering, paragliding, snowboard.

Durmitor abounds in large areas of pastures. Forests and forest ecosystems by their presence and significance are the most important natural resources in the National Park. Forests and forest land occupy an area of about 20,000 ha, out of which forests and canyons of the Tara and Susica cover 9637 ha. High forests cover only 8%, coppices 2% and scrub 13% of the park's total area. The park is rich with wild strawberries, raspberries and blackberries and is perfect for those who wish to get involved in this type of activity.

The National Park Durmitor is also rich with water areas. In addition to mountain massif, rivers Komarnica, Susica, Draga and the largest among them belong to the National park as well. Besides these rivers, there are 18 glacier lakes. Hence, a large number of water areas are only another positive sign, since these areas can be used in

⁴⁵ <http://www.nparkovi.me/>

irrigation purposes. The Tara River Canyon is 150 kilometres long and is 1,300 meters at its deepest.

Inhabitants of national parks, owners and property right users, both legal and physical entities that perform their activities in the area of the national park, as well as its visitors, are obliged to follow the provisions of the Rulebook on Internal Order. The National park takes care of the protection and use of national parks based on the Law, Spatial Plan, Development and Protection Program and the Rulebook. In accordance with the Law on Environment Protection and the National Park Spatial Plan, all activities that might disturb natural processes are forbidden.

The National Park Durmitor is a home to many types of plants. A number of plants had curative (medicinal) features and can be used for medical purposes. Some of plants have endemic origin, which gives NP Durmitor advantage but also a commitment to preserve and spread these species. Besides medicinal plants, there are forest fruit such as strawberries, raspberries and blackberries, which can be used for juice, jam and other food production. It was mentioned that NP Durmitor is rich with water areas. A good part of water areas contains drinking water.

On the territory of Durmitor, including canyons of Tara and Piva, it was identified a total of 1325 species of plants that are classified into 484 genera and 129 families. Durmitor is one of the most important refuge centres of arctic-tertiary alpine flora. In relation to overall endemic flora of the Durmitor massif, even 77% goes on alpine endemics (above 1.500 m above sea level), or 122 endemic species grouped into 70 general and 30 families. In the National park Durmitor there are Balkan endemic, Montenegrin endemic, but also species protected by the Law on Environment Protection.

As examples of ethnological heritage, it is important to mention types of village houses, so called "savardak" and water mills spread across "katuns" and Durmitor's brooks.

The cultural heritage of NP Durmitor consist of many archaeological sites – tumuli and necropolis with tombstones, fortresses, Middle-Age monasteries, village churches, historical monuments as well as folk architecture-ethnographic fund.

The area of Durmitor massif has every right to be called speleological Eldorado. There are more than 300 speleological sites recorded, out of which a large number is actually explored. Three the longest and deepest sites in this area are: Pit in Vjetrena brda (the deepest pit (hole) in Montenegro and one of the deepest in the Balkans – 775 m deep), Pit in Lomni do (explored to the depth of 560 meters) and Pit system in Northern

Obrucina (464). The natural phenomenon is Durmitor's Ice Cave, on 2100m above sea level, which is a real ice "museum" of stalactites and stalagmites.⁴⁶

3.3. Selecting the goods and services to be valued

After identifying the value of National Park Durmitor, the next step is selecting the goods and services to be valued. Considering the fact that it is impossible to valorise each of the given value, it selected a few values that will be an economic valuation.

Table 28: Selected goods and services for valuation within the National park Durmitor

Identifying the values of National Park Durmitor		
Direct values	Recreational uses (<i>skiing, visiting, caving, hiking, biking, mountaineering, holiday homes, sport fishing, jeep safari, free climbing, mountain biking, orienteering, paragliding, snowboard...</i>)	√
	Commercial tourist enterprises (<i>hotels, mountain eco-villages, restaurants</i>)	√
	Commercial resource uses (<i>agriculture, fishing, hunting, water springs, stone, medicinal plants collection</i>)	√
Indirect values	Pollution	x
	Erosion control	x
	Flood control	x
	Climate regulation	x
	Protection against storms and other natural disasters	x
	Protection against fires	√
	Habitat for rare and endangered fauna and flora	x

Source: ISSP, 2011.

Forests and forest ecosystems by their presence and significance are the most important natural resources in the National Park. Forests and forest land occupy an area of about 20,000 ha, out of which forests and canyons of the Tara and Susica cover 9637 ha. High forests cover only 8%, coppices 2% and scrub 13% of the park's total area. The park is rich with wild strawberries, raspberries and blackberries and is perfect for those who wish to get involved in this type of activity.⁴⁷

The forest protection program is regularly performed in this national park. Thus in 2010, 525.66m³ of wood was cut and stocked. All wood mass that was cut down was sold and it provided heat fuel for 103 households.

⁴⁶ <http://www.nparkovi.me/>

⁴⁷ Annual report for 2010, Public company for National Parks of Montenegro

Besides cutting of trees, afforestation takes place regularly as well and about 2000 seedlings of spruce and fir was planted. Afforestation took place in Tara River canyon with 2000 seedlings of fir, spruce and black pine.

During 2010 activities on landscape arrangements were undertaken in the NP Durmitor. The benches were set (about 20 of them) and 10 feeders supplied with hay during the winter. In addition to this, fish restocking of Devil's and Fish Lake with 3200 pieces of fish was carried out as well.

One of the most important tourism programs is white-water rafting on the Tara. Number of guest who went on rafting as well as the revenues achieved was above expected (during 2010, 8737 people went on rafting and revenue achieved on this basis was €150 074).⁴⁸

The Visitors' Centre is a place where educational-promotion campaigns take place in NP Durmitor during the entire season. As a support to this activity, 7000 postcards with motives of Park were printed as well as 5000 prospects.

3.4. Choosing the valuation techniques

The next step in the study is choosing the valuation technique. Each of the values that will be the valorised should be done with a certain valuation technique, and at this stage it will be selected the techniques that will work. The choice of method will be influenced both by technical considerations and by more practical concerns such as the availability of the required data, expertise and funds to carry them out.

Table 29: Valuation technique for National park Durmitor

	Identifying the values of National Park Durmitor	Valuation technique
Direct values	Recreational uses (<i>visiting, caving, hiking, biking, mountaineering, holiday homes, skiing, sport fishing, jeep safari, free climbing, mountain biking, orienteering, paragliding, snowboard</i>)	Simplified travel cost
	Commercial tourist enterprises (<i>hotels, mountain eco-villages, restaurants</i>)	Income generated (change in production)
	Commercial resource uses (<i>agriculture, fishing, hunting, water springs, stone, medicinal plants collection</i>)	Income generated (change in production)
Indirect	Protection against fires	Reflected in recreational

⁴⁸ Ibid.

values		and use values
	Habitat for rare and endangered fauna and flora	Reflected in recreational
		and use values

Source: ISSP, 2011.

3.5. Specifying the data needs for valuation

The following table presents the required information for economic valuation. One of the key problems during research was lack of data which can define potential value and which can help to value respective protected area.

Table 30: Data required for valuation of National park Durmitor

Specifying data needs for valuation of National park Durmitor	
	<ul style="list-style-type: none"> • Number of tourists in past 5 years • Volume of overnight stays in past 5 years • Income from overnight stays in past 5 years • Number of bikers in past 5 years • Number of skiers in past 5 years • Number of jeep safari participants in past 5 years • Number of kayakers in past 5 years • Number of recreational in past 5 years • Out of hotel/accommodation revenues incomes • Number and area of caves in National park • Number of inhabitants in the Park itself • Number of licensed fishermen in past 5 years • Revenues from fishing taxes in past 5 years • Number of climbers in past 5 years • Number of speleologists visiting Durmitor in past 5 years • Number of people collecting other resources as well as types of collected resources. • Number of eco villages, hotels and restaurants in the area • Volume and identification of protected flora and fauna • Volume of farmers/area of farms that relies on water irrigation systems derived from the Park including main crops, production and price of crops • Number of campers • Revenues from camping • Number of active fires in past 5 years including the area and derived expenditures • Revenues from concessions (including type and duration)

Source: ISSP, 2011.

3.6. Economic valuation

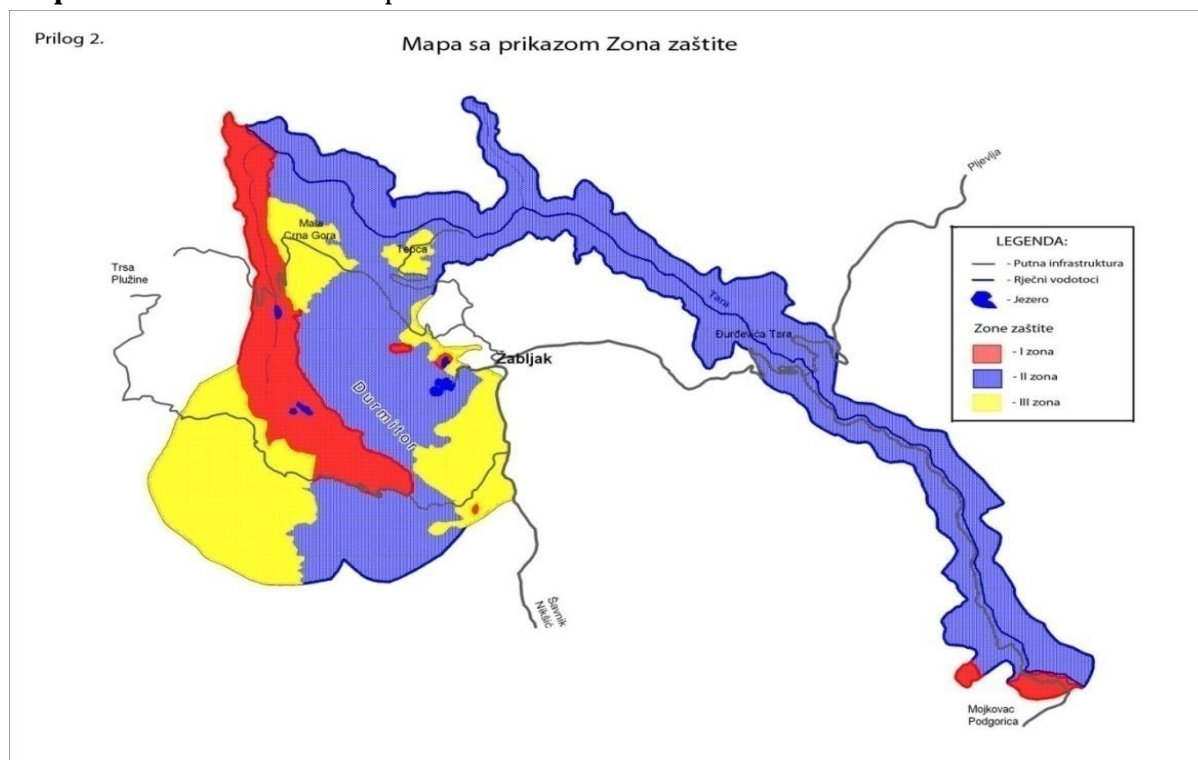
According to the character of the national park and its protection, in this park stand out three scenarios for future development:

1. Development focused on strict protection
2. Focused on tourism development in accordance with the highest ecological standards
3. The total development focused on sustainability.

Durmitor National Park is divided into three zones of protection.

The first zone is the zone of strict (absolute) protection and included landscapes with exceptional and universal significance of the natural condition and currently stored extraordinary ambient values and landscape design. Total area of the first zone is approximately 3,400 hectares and accounted for 10% of the park area. The main purpose of these regions is scientific-research and educational and the primary goal is maintaining the existing ecological processes in unchanged condition and maintenance of genetic diversity fund. Scientific-research and educational activities are performed with a special permit. In this part of the national park is prohibited by disorganized approach tourists, construction and destruction of any changes as well as exploitation of any natural resources.

Map 2: Protection zones in protected area Durmitor



Zone II covers 25,400 ha and accounts for 75% of the territory of the national park. This part of the national park is intended for scientific research and educational training activities, and serves to organize tourist visits picnickers, hikers and recreationists. So, is permitted a limited and strictly controlled use of natural beauty. Thus, in the Tara Canyon are allowed rafting, kayaking and sport fishing.

The third zone includes the remaining parts of the national park. Total area of this zone is 5.200 ha and covers about 15% of the Park. On these surfaces is present anthropogenic activity expressed through settlements and certain activities such as agriculture, forestry, tourism with recreation, transport and technical infrastructure. In these zone is allowing selective and limited use of resources with controlled activities in the area.

From the point of economy a national park must always be considered from two aspects. The first is principle of economic evaluation of area and the second is the principle of protection. Protection should exist but also must not be brake of development and evaluation of this area. Instead, the protection should be for development.

The previous tourism development was moving in the following directions:

1. Residential tourism through new construction and reconstruction of existing accommodations.
2. Sports and recreational tourism with a huge potential for development (construction of ski resorts, sports and recreational and other facilities), and other parts for sport fishing, sports and eco camps.
3. Skiing and hiking is developed to a certain extent but insufficient capacity is brake for development of skiing facilities.
4. Rafting on the Tara River is an exclusive tourist offer and that mast to be exploited. However, care should be taken from mass tourism, because although this would contribute to development of economic and tourism functions, ecological function would have suffered big damage.

Tourism development needs to move in the following directions:

1. Rural tourism in the villages that gravitate to the area of Durmitor, which means that it must to work more on communal and tourist equip villages as well as the development of specific programs catering, services and manufacturing.
2. Transit tourism is growing, and it contributes to new roads Risan – Zabljak.
3. Children's and young tourism can be developed in the entire national park if it is to provide separate accommodation capacities
4. Cultural manifestation program could be make a longer tourist season and has not developed enough
5. Excursion tourism is something that is great possibility for development

6. Eco-tourism can be developed on the territory of the entire national park
7. Cycling is slightly developed, but should work on increasing bicycle

Agricultural activity is an important activity not only by engagement of the population but also for the space that taken up and engage. Elevation and composition of land determines the type of agricultural activity.

Thus, most of the land used is for livestock traditional type.

Because of the short growing season it reduced the possibility of growing certain crops.

Problems and limitations of development

One of the major problems identified in the area of Durmitor is the intense process of migrating population. The population left the area of environment protection zone and a viability analysis shows that certain areas are threatened shutdown. The demographic erosion of rural areas is very strong. This area is for the last 10 years, left 1/3 of the population or about 950 inhabitants. The average number of households has been steadily declining, and in certain areas and is on simple reproduction.

The level of development of this area is very low. Municipalities that are around the park are underdeveloped or are at a level which cannot produce positive economic implications impulse to the park.

The potentials and conditions of development:

- Biodiversity space of National park and protection zone and wider area
- Multitude of hydrographical objects (rivers, lakes, ponds)
- Forests and forest habitats as the most significant natural potential of the park
- Richness of flora with many endemic species
- Wide variety of animals is the most attractive part of the living world park.
- Involvement of the park in international programs funding scientific research and protection of valuable and vulnerable areas
- Protection of ambient and valorisation of cultural and historical values of the area
- Plantation cultivation of rare and protected species and the organization of nursery production

Durmitor protected area covers the territory of the five municipalities; Zabljak, Pljevlja, Mojkovac, Savnik and Pluzine. The largest area of protected areas located in the municipality Zabljak and occupies 51% of the territory and the lives of 800 people. Municipality Pluzine occupies 14% of the territory and is uninhabited on that region, Pljevlja Municipality 16% of the territory and about 500 inhabitants, the Municipality

Savnik 13% and about 20 residents and the Municipality Mojkovac 6% of the territory and about 50 inhabitants.

The number of tourists who visited the Durmitor National Park in the last five years was presented in the following table.

Table 31: Number of tourists

Year	Number of tourists
2005	4125
2006	18637
2007	19183
2008	39852
2009	37242
2010	47582

Source: NP Durmitor, 2011.

Water system in Zabljak draws water from three lakes located in the protected area of Durmitor. These are the Crno Lake, Zmijnje Lake and Modro Lake. First two lakes give water for the city part of Zabljak. Crno Lake is supplied with 1/3 and Zmijnje with 2/3. This water supply is connected to a total of 1600 households and it takes into account city Water system. Households spend an average of 7-12 m³ of water and the price per cubic meter is 0.38 euro. Villages in the municipality of Zabljak (Virak, Moticki gaj, Poscenski kraj, Javorje, Kovcica, and Novakovici) are supplied with the Modro Lake. Until recently no one has managed the water supply in that area and therefore no one paid anything. Since the Water system over by the local community Komarski and Poscenski kraj and that introduced a rule that lump sum is paid €10 per household while not introduce water meters to be paid according to consumption. This Water system supplies about 450 households.

It is important to note that water supply systems used water from the lakes located in a protected area and do not pay compensation even where the National Park in which located at the lake. If the National Park had any revenues from the using water their financial situation would be very better.

Zabljak is the administrative centre of the municipality, the centre of education, health care and trade. When we talk about the development of tourism and catering industry, then we conclude that Zabljak today has three major hotels: "Jezera", "Planinka" and

"Zabljak", a few smaller hotels, resorts, and mountain huts, with tourist offer of about 1400 beds.

Zabljak is developing into an important tourist centre, and as a centre of NP "Durmitor", in the summer months, Zabljak establish itself as a nature school, a hiking school, rafting on Tara, recreational and health centre. All the above presupposes good cooperation NP "Durmitor" with local government, cooperation on the principles of eco-business and sustainable development, in order to leave posterity a large development potential, the world recognized the value.

Table 32: Arrivals and overnights in PA

Zabljak	Arrivals			Overnights		
Month	Total	Domestic	Foreign	Total	Domestic	Foreign
January 2010	1193	910	283	4734	3795	939
February	1193	910	283	4 734	3795	939
March	422	308	114	1049	836	213
April	839	403	436	1621	895	726
May	1623	812	811	2670	1570	1100
June	2829	610	2219	6747	1760	4987
July	2858	1185	1673	9524	5030	4494
August	4582	1480	3102	12274	6258	6016
September	4015	2010	2005	8527	4681	3846
October	682	538	144	1454	1171	283
November	68	38	30	740	314	426
December	451	378	73	623	500	123
TOTAL ARRIVALS: 20755				TOTAL OVERNIGHTS: 54697		
January 2011	1076	852	224	3163	2506	657
February	606	478	128	1237	926	311
March	803	642	161	2206	1872	334
April	299	114	185	472	191	281
TOTAL ARRIVALS: 2784				TOTAL OVERNIGHTS: 7078		

Source: MONSTAT, 2011.

This table shows the arrivals and overnight stays in hotels and other accommodation units in Zabljak. What is very important to note in the table can be seen that the number of nights is much higher in summer than in winter. This is very strange considering that the Zabljak is mountain town, which is very convenient for accommodation upon arrival in-country skiing. However, this situation shows that the winter season is very poorly organized and can be said that the winter infrastructure is very bad.

Revenues from hotels and restaurants in Zabljak

Consumption of tourists is quite important indicator of destination's value. Having in mind that respective hospitality facilities are within protected area it is justified to assume connection between the area and revenues of the sector.

The following tables are showing revenues in hotels and restaurants in Zabljak per month in 2009 and 2010.

If we observe the total turnover in Zabljak in hotels and restaurants, it may be seen in 2009 there was tremendous turnover during winter season i.e. December and January. Nevertheless, summer season was also quite important due to the significant turnover in August. It is interesting that 2010 failed in winter season but was good and in some months even better during summer than 2009. This means that Zabljak is maybe even more attractive summer holiday destination exactly because of landscapes and beauty but also preserved nature. In addition, this lead to a conclusion that infrastructure must be improved in order to achieve more significant turnover and afterwards to contribute to the protected area.

Table 33: Total turnover of hotels and restaurants per month for 2009 and 2010

Month	2009	2010
January	346,235	290,505
February	99,996	118,725
March	84,830	58,514
April	51,258	56,312
May	119,856	126,402
June	160,383	159,704
July	166,163	217,530
August	275,575	275,158
September	118,292	206,419
October	157,070	66,523
November	85,111	26,950
December	259,004	39,647
TOTAL	1,923,773	1,642,389

Source: Monstat, 2011.

The next tables show turnover in groups of services or turnover from accommodation, food and drinks, drinks and other. The period to which they apply these data are also 2009 and 2010 years.

The following table shows overnights per quarters in 2009 and 2010. It is interesting that in 2009 the most significant volume of overnights has been in the fourth quarter. However, in 2010 third quarter was the most important one but it was closely followed by second quarter. This is in positive correlation with the total hospitality sector turnover in the respective years. Finally, it means that due attention must be paid to the overall year as a potential touristic season.

Table 34: Total turnover by group of services (overnights) for the quarters in 2009 and 2010

	Overnights 2009	Overnights 2010
I quarter	237860	134532
II quarter	96245	223460
III quarter	158048	264313
IV quarter	217537	65818
Total	709690	688123

Source: Monstat

When it comes to sale of food and soft drinks⁴⁹ in the respective period they are in positive correlation with the volume of overnights per quarters when 2010 is being observed. However, in 2009 things were a bit different having the highest consumption of food and soft drinks in the third quarter. This might be due to the weather conditions of the summer season. That should be a sign for hospitality businesses to increase such supply. The second highest consumption is in the second quarter probably due to the winter season.

Table 35: Total turnover by group of services (food and soft drinks) for the quarters in 2009 and 2010

	Food and soft drinks 2009	Food and soft drinks 2010
I quarter	92926	78127
II quarter	116911	120582
III quarter	242187	282345

⁴⁹ Soft drinks are non alcohol drinks.

IV quarter	159539	38044
Total	611563	519098

Source: Monstat

When drinks⁵⁰ are observed there is positive correlation with 2010 only in the third quarter in the context of overnights. In 2009 there is no positive correlation with overnights.

Table 36: Total turnover by group of services (drinks) for the quarters in 2009 and 2010

	Drinks 2009	Drinks 2010
I quarter	112591	121495
II quarter	86286	79417
III quarter	157705	148269
IV quarter	116033	26878
Total	472615	376059

Source: Monstat

Other⁵¹ services had the highest turnover in first quarter of 2009 while in 2010 it was in the second quarter. It would be interesting to observe subdivision of these services because potential answer for 2009 scenario might be number of tourists for winter holidays and that is in positive correlation with the overnights. In addition, for 2010 there is no positive correlation with the overnights but if subdivision would show significant volume of congress or sport tourists than this could be explained in accordance to that.

Table 37: Total turnover by group of services (other) for the quarters in 2009 and 2010

	Other 2009	Other 2010
I quarter	87684	7887
II quarter	32055	44662
III quarter	2090	4180
IV quarter	8076	2380
Total	129905	59109

Source: Monstat

⁵⁰ Drinks refer to alcohol beverages.

⁵¹ Wellness, conference room rent and etc.

The main activity of NP "Durmitor" is valorisation of resources through the tourist office. Park's largest revenue is from rafting on the river Tara. The second largest significant revenue in the NP "Durmitor" are revenues from the lease of the restaurant "Crno jezero"⁵², motel on Radovan Luka and motel in the canyon of Susica. Ticket sales from visitors is also a significant economic benefit, and the activity of the Centre for visitors of National Park, selling souvenirs in the souvenir shops at the visitors centre on Black Lake, and sale of promotional and educational materials. Durmitor National Park realized yearly fee of using resources from the ski-run.

NP Durmitor earning are also increasing from the benefits of fuel, which serves the local population, revenue from fishing licenses issued (Black Lake, Vrazje Lake and Tara), revenue from mountain lodge "Skrk", issued boat on the Black lake, camping (Skrk, and Dobri do and Lokvice) and revenues from recording, commercials and video materials that are used for commercial purposes.

Fire problems in PA Durmitor

During the summer months in 2010 in the PA Durmitor were noted fewer fires. Total damage from the burned area is 12 982.20 euro such as tables below shows.

Table 38: Damage from burned forest in 2010 in PA Durmitor

Forest type	Burned forest (ha)	Burned volume (m ³)	Price on the stump (€)	Total damage (€)
Hardwoods	5,17	346,65	20	6 933,00
Softwoods	3,62	302,46	20	6 049,20
TOTAL				12 982,20

Source: Report of fires, National Parks of Montenegro

Activities aimed at restoration of areas affected by fire and improving an existing one, it is necessary to undertake the following:

1. The cartographic record of the affected area by fire (ArcGIS, MapInfo, AutoCad);
2. Repairs to the space clearing of burnt material (cutting and pulling out the burnt material);
3. Reforestation of indigenous species habitats of existing species;
4. Permanent monitoring of fires and logging conditions in order to timely detect the occurrence and spread of infectious diseases, harmful insects or other biotic and abiotic factors.

⁵² Because of the fire that occurred in a restaurant last year, the lease contract has been terminated.

The following table shows the estimate cost of repairs and improvement of the situation on the burnt localities.

Table 39: Estimate cost of repairs and improvement of situation on the fired exposed localities in PA Durmitor in 2010

Activities	Action	Quantity (kom-m ³)	Prices (€/m ³ , €/ha)	Total (€)
Cartographic records	mapping data			1 000,00
Repairs	Logging, hauling	649,11 m ³	18	11 683,98
Reforestation	Seedlings of broadleaves and black pine	Hardwoods 5,17 ha Black pine 3,62 ha TOTAL: 8,79 ha	1 100	9 669,00
TOTAL				22 352,98

Source: Report on fires, National Parks of Montenegro, 2011.

3.7. In summary

Table 40: Summary of values and users per goods/services

	Economic values	Number of users
Tourism (inside and around PA)	Revenues (tickets, boat rental, accommodation, camping)	47 000 tourist 80 000 potential tourist 10 restaurants 9 hotels 2 camp 4 travel agencies timber and non-timber collectors 5 municipalities 1 400 habitants inside PA 55 000 citizens around PA
Nature	Revenues from recreational uses (skiing, visiting, caving, hiking, biking, mountaineering, sport fishing, jeep safari, free climbing, mountain biking, orienteering, paragliding, snowboard...)	47 000 tourist 80 000 potential tourist 5 municipalities 4 travel agencies
Rafting on Tara river	Revenues	9 000 tourists
Ski centre "Savin kuk"	Revenues	7 000 – 9 000 tourists
Restaurants	Revenues	10 restaurants (around PA)

Hotels	Revenues	9 hotels (around PA) 2 camp (inside PA)
Agriculture	Revenues from production (milk products, meat, fruits & vegetables)	400 citizen in PA
Herbs	Collection and sale (medicinal plants collection)	Tourists, habitants inside and around PA

Source: ISSP, 2011.

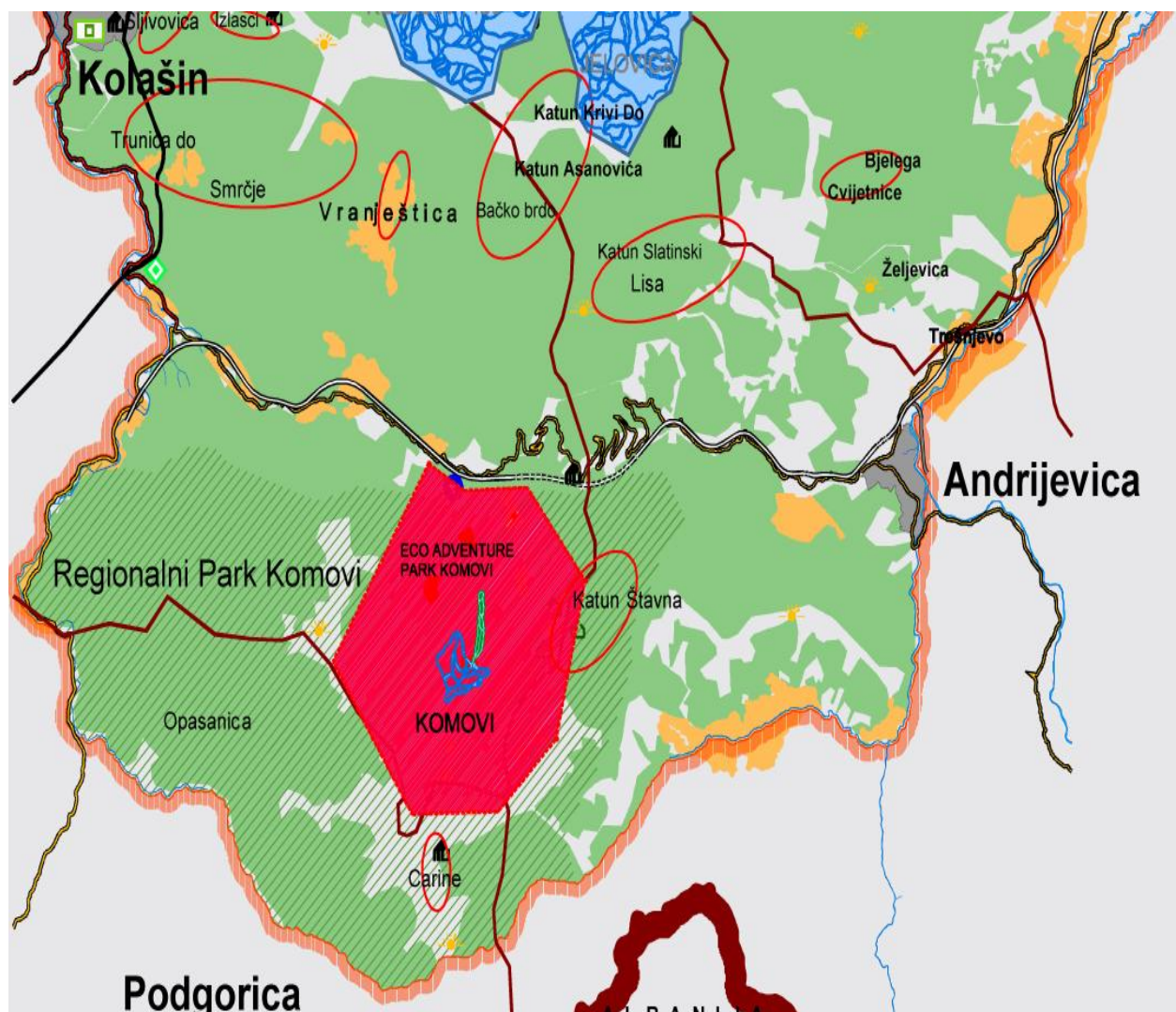
Brief description

In addition to all the values that PA Durmitor owns, there are values that should be developed in the future. These values certainly contribute to the development of PA Durmitor and all municipalities in which it is located. Some of the potential for future development are:

- Many hydro-graphic objects as it is noted above PA Durmitor has great potential for hydropower development.
- Forests and forest habitats are one of the most important natural resources of PA. The area owns significant areas covered with forests and pastures that allow the development of specific types of agricultural production (presentation of healthy food)
- Inclusion of PA Durmitor in international programs funding research and protection of valuable and vulnerable areas
- Inclusion of PA Durmitor in the international system of development and ecological monitoring
- PA Durmitor area has natural conditions for the development of high tourism and favourable position in relation to the main tourist flows which in the long term can very affect at the development and potential of the park.
- Cultivation of plantations of rare and protected species and organization of nursery production
- Small business with small factories based on processing agricultural and other goods.

IV ECONOMIC VALUATION OF KOMOVI

Komovi PA map



4.1. Introduction

Mountain Komovi occupies the southern-eastern part of Montenegro between mountains Bjelasica and Prokletije, between the rivers Lim and Tara. Komovi unite three mountains: Kom Vasojevicki, Kom Kucki and Kom Ljevorecki. Komovi are high 2500 meters and are based on Varde, Stavne and Ljubana from Vasojevic part and Carina and the second part of Rogama, with Kuc part. This huge mountain is basically more than 30 kilometres. Komovi belongs to municipalities Andrijevica, Podgorica and Kolasin.



Box 2: Komovi and municipalities

Andrijevica municipalities located in the northeastern part of Montenegro, surrounded by mountains Komovi, Bjelasica and Prokletije. The city center has about 1,000 inhabitants, while the rest of the population lives in rural areas. Economic growth of municipalities is based on services, trade and craft services.

Municipality of **Kolasin** is situated between two rivers: Moraca and Tara. Kolasin represents one of the most important touristic centres for Montenegro. Almost half of citizens live in centre of town. In past few years Kolasin has had main role in developing winter tourism in Montenegro. After reopening of previous and establishing of the new ski centers and hotels, Kolasin become recognize like elite ski center in Europe.

Municipality of **Podgorica** is *capital city* of Montenegro. It is situated in the central region and represents economic, cultural, educational centre of country. Podgorica connected with foreign countries with plane, train and bus. Also, there are very good roads that connect Podgorica with southern region so it has exit to the seaside. Almost one third of total Montenegro's population resides in Podgorica.

The relief of Komovi massif is shaped valleys, characterized by Alpine peaks, valleys with pasture and forest areas. Space is characterized mainly with mountainous relief which is intertwined rivers, streams and glacial Bukumirsko Lake. Komovi's lower parts are covered with very dense forest, and rises above the bare limestone mass.

Numerous small rivers that flow from this mountain are quite clearly allocated this mountainous area. The relief of these mountains is deeply intersected by mountain rivers canyon with steep banks, high, wooded valleys and alpine character. There are Vrmoska River, Mojanska River, and Desna River. Verusa River and Opasanica River at Hana Garancica place make Tara, the cleanest and most beautiful European river.

Temperature range in the mountains Komovi is relatively mild in comparison with colder, continental mountain resorts. Even in the mountains, the average low

temperature never falls below -10 ° C, making it relatively comfortable and safe for skiing and snowboarding.

Like the entire North region of Montenegro, Komovi also faces with exaggerated depopulation of rural areas and land reclamation and intensive migration in municipal centres and suburbs. The following table presents volume of population in three municipalities to which Komovi belongs.

Table 41: Population trends in thousand in the municipalities from 1991 to 2003⁵³

Municipalities	1991	2003
Andrijevisa	6 561	5 785
Podgorica	146 121	169 132
Kolasin	11 046	9 949

Source: MONSTAT, 2003.

Only in Podgorica number of population increased because we have migration from north to centre and south of country.

Tourist infrastructure in Komovi is currently down to a hotel in Andrijevisa, ethno pasture on Stavina, hotels and weekend cottage in Kolasin and Podgorica. However, accommodation facilities in Kolasin and Podgorica are not too important because essential accommodation is at the mountain. Government planned big investments in this area and that could be an opportunity.

Institute for Nature Protection of Montenegro is composing the study by which Komovi will be declared as protected area. There is no strict boundary of protected areas, for now it is only an optional border - research area.

In addition, Komovi have been proposed as potential Regional Park of Nature Komovi (about 21,000 ha). Regional Park of Nature Komovi comprehends proposed protected area that will include Zijovo massif, massif Komovi, Plateau wells and valley Verusa. Komovi proposed for protection because of significant and well preserved natural resources of forest and high mountain ecosystems.⁵⁴

Importance of Komovi as a national treasure of Montenegro was recognized by the state as well as nongovernmental institutions. Government of Montenegro makes Special Purpose Spatial Plan "Bjelasica and Komovi" (SPSPBK). The main purpose of SPSPBK is to provide a clear vision for the future character of this space as a tourist destination.

⁵³ Last Public census was from the 1st to 15th of April 2011. Expected results will be at middle of May 2011.

⁵⁴ *Special Purpose Spatial Plan "Bjelasica and Komovi" (SPSPBK)*, Ministry of Economic Development of Montenegro and Republic Institute for Urban and designing



Thus, SPSPBK will ensure the preservation and strengthening of the unique character of space and attracting investments from local and international financiers and promoters in structured and controlled within the planning framework.⁵⁵

One of the leading nongovernmental institutions is Regional Tourism Organization (RTO) Bjelasica & Komovi

which is s funded by annual financial contributions of five municipalities (Andrijevisa, Berane, Bijelo Polje, Kolasin and Mojkovac) and Austrian-Montenegrin Partnership in way of support the RTO by capacity building, marketing activities and in purchasing of sports goods for renting.

RTO has main goal to promote a logotype of the RTO Bjelasica & Komovi as well as tourism offers in hiking, biking, kayaking, snow shoe walking and Nordic skiing. They are made publication of visitor information material such as: hiking, biking, and kayaking.



Komovi with Durmitor and Bjelasica makes most impressive mountain range in the Dinaric mountain system. Diverse and unique flora and fauna, numerous mountain springs and rivers, many cultural monuments, churches and monasteries, as well as the culture of the people who live under Komovi are one of greatest resource of Komovi.



⁵⁵ Ibid.

4.2. Identifying the values of the protected area and selecting the goods and services to be valued

4.2.1. Use values

Direct values

Direct values imply values which result in direct products/services. Identified direct values for Komovi comprehend tourism (summer, winter, eco-tourism, hiking and biking, kayaking, recreation); commercial resource uses (medicinal plants collection, deforestation).

Tourism is one of the most important industries of Montenegro. Magnificent landscapes and preserved nature can be new driving forces of Montenegrin tourism. Moreover, in order to increase economy's dependence of tourism and to create attractive product for distinguished international quests.

Komovi represent one of the future potentials for Montenegrin tourism. Accommodation facilities at Komovi comprehend 880 beds. Komovi experiences a significant increase of arrivals and overnight stays. The average length of stay is still very short (only two days), and most tourists are foreigners (59%).⁵⁶

Economic values of tourism are severely important for Komovi. The key reason is related to the fact that tourism is the only industry that really works in respective area. Tremendous share of the local population directly depend on tourism. Therefore, economic values are significant and justified. Availability of data is partially questionable because it could be possible to find data about number of tourists, amount of incomes or similar but none organization is in charge for Komovi in the context of data availability. All data could be obtained from Ministry of Finance, Forest Administration and owners of accommodation facilities/eco villages.

Even at this particular moment some of the data shows that this area has tourism potential. The key element of touristic product belongs to the aforementioned and so called *eco villages*. Reasons are quite simple. These villages are designed in the past decor, are eco friendly and are designed for specific group of tourists. Besides its specific conditions it has another advantage comparing to the hotels (Hotel Andrijević in particular) – price. Eco village's rent at Stavna is at the level of €25 per day accommodating 5 persons i.e €5 per person. Comparing to the hotel's €25 per person price, it is evident that their price is higher for 80%. Respective eco village has capacities of 90 beds and work five to six months per year due to the weather conditions. If additional data's such are the average annual visit of tourists and average stay at the

⁵⁶ MONSTAT, 2010

Komovi are added, clearer picture can be imagined. According to the Monstat data's 2000 tourists in average visited Komovi during the season while their average stay is about two to three days. Remarkably modest calculation of tourists' visits, average stay and average price lead to the conclusion that current direct financial contribution of these eco villages is approximately €20-30,000 per year. Even in the case that total income is steered to the preservation of the protected area, it is not sufficient. Therefore, new ways of funding the protected area must be found.

Organic food, collecting medical plants, deforestation is also a big part of direct values of Komovi. There is good basis for future business.

Commercial resource uses are directed products of area Komovi. Organic food, fishing, medical plants collection are good basic for future industries. Even now, they represent large part of income of local citizens. Availability of data is very small because all data could be given by local population. Forest Administration should have information about collecting medical plants but it is now on low level.

Indirect values

Komovi are situated in the northern region. Due to the weather and nature conditions it is being expected to identify protection against storms and other natural disasters as indirect values of the area. The tremendous problem could be identified as fire. This is in particularly important as there is no system for fire protection. In addition, floods are another usual possibility. Therefore, investments in protection are investments in saving protected area but also in enabling its prosperity. However, currently none institution deals and operates solely with the Komovi. That enables lack of responsibility but also lack of existing data.

Habitat for rare and endangered fauna and flora is one of grates values of Komovi. Each rarity is itself valuable but also vulnerable. National legislation provided protection of plant species. In particular the following are protected: bellflower, silver grass, spotted gentian, gentian, links traffic, yew, poplar and many others. Also, there are *emerald* species identified on Komovi: *Aquila chrysaetos*, *Bubo bubo*, *Circaetus gallicus*, *Dendrocopos medius*, *Dryocopus Martius*, *Falco peregrinus*, *Ficedula albicollis*, and *Ficedula parva* etc. Data are not available. Finalization of protection process of rare species will probably provide certain data in respective context.

Option values

This area is rich with natural resources but also large number of endemic plant species exists which can be used in medicine, or for production of herbs.

Komovi have a great opportunity in the so called *green industry* because there is no pollution and nature is not



contaminated. Also there is large water potential for formation of small and large scale hydro plants. Potential of nature of Komovi is reflected in growing Regional park of Nature Komovi in common protected area with Bjelasica. All data could be found in official government documents.

4.2.2. Non-use values

Existence value

Komovi have great historical and cultural history. Significant heritage identified as monasteries, churches and monuments testifies to the priceless treasure of Komovi. This is potential for religious and/or historical tourism. It could be find only indirect data through tourist visits Komovi.

The following table presents respective values for Komovi protected area.

Table 42: Identified values of Komovi

Identifying values of Komovi	
Direct values	Tourism (summer and winter, eco-tourism, recreation, hiking, biking)
	Commercial resource uses (medicinal plants collection, deforestation)
Indirect values	Protection against storms and other natural disasters
	Habitat for rare fauna and flora
Option values	Future tourism and recreational development
	New industrial
	Future possible uses of nature potential
Existence value	Historical and cultural sites
	Spiritual places
	Items of national heritage and bequest for future generations

Source: ISSP, 2011.

Each research undertaking causes certain problems. In this respective case, problems comprehended:

- Undefined borders of Komovi protected area. After finalization of project that is defining borders of the protected area this problem will be solved. Therefore, there is a possibility that the border of protected area will change during the research. Change of borders may influence change of information validity and context.
- Absence of information for activities in the Komovi.
- Detail information exists only for the municipalities that Komovi belong, not only for potential protected area.
- Absence of an institution that directly deals with the Komovi area issues. Jurisdiction over Komovi is being subdivided into a number of institutions.
- The legal framework for the selected area is not clearly defined.

Research has shown that only direct and indirect values can be estimated and valued. That has been judged according to the economic value and availability of the data. This has been shown in the following table.

Table 43: Selected goods and services to be valued

Identifying values of Komovi		
Direct values	Tourism (summer and winter, eco-tourism, recreation, hiking, biking)	√
	Commercial resource uses (medicinal plants collection, deforestation)	√
Indirect values	Protection against storms and other natural disasters	x
	Habitat for rare fauna and flora	x

Source: ISSP, 2011.

4.3. Choosing the valuation techniques

Considering that valuation of protected area need specific information, chosen techniques are adapted to this fact. We need information which will give us real picture about economic values of protected area. Using these techniques it will be possible to monitoring changes in chosen values and make good decisions for protected area.

Table 44: Selected goods and services to be valued and selected valuation technique

	Identifying the values of National Park Durmitor	Valuation technique
Direct values	Tourism (summer and winter, eco-tourism, recreation, hiking, biking)	Simplified travel cost
	Commercial resource uses (medicinal plants collection, deforestation)	Income generated (change in production)

Source: ISSP, 2011.

4.4. Specifying the data needs for valuation

Komovi presents one of the areas with partial availability of the data but also with partial values to be evaluated. The following table presents the required information for economic valuation of the protected area.

Table 45: Data required for valuation of Komovi

Specifying data needs for valuation Komovi	
	<i>Tourism</i>
	<ul style="list-style-type: none"> • Amount of planed investments in protected area • Amount of investments in protected are in past 5 years • Number of tourist in past 5 years • Number of overnight stays in past 5 years • Income from overnight stays in past 5 years • Number of bikers in past 5 years • Number of tourist who came in summer in past 5 years • State and NGO plans for protection
	<i>Commercial resource: Medicinal plants collection</i>
	<ul style="list-style-type: none"> • Number of plants collectors • Income from collected plants sale • Buyers of collected plants
	<i>Commercial resource: Deforestation</i>
	<ul style="list-style-type: none"> • Area of deforestation • Price of concession • Number of concessionaires • Number of workers • Wages

Source: ISSP, 2011.

4.5. Economic valuation

In the context of the economic evaluation of the Komovi PA, tourism is being considered as direct value and therefore is a selected value. Within the Komovi PA there is no tourism accommodation present. However, there is an eco village Stavna with ten cottages, each with five beds. In total this makes 50 available beds in the same moment. In addition to that there is a café on Tresnjevnik which has two rooms with two beds. Combined total accommodation capacities are 54 beds and price of the bed is €5 (in both cases). Both of these facilities work five to six months per year due to the weather conditions.

According to the MONSTAT, 2500 tourists have visited Komovi PA and stayed one to two nights. Approximately, 2000 tourists or 80% of the total visitors stayed two nights at Komovi. In addition, both of the tourism facilities do offer full and half board options. This was important information for projections of actual economic outputs of tourism activities at Komovi. Average price for full board (breakfast, lunch and dinner) is €16 while half board (breakfast and dinner) is €8. According to field survey approximately 35% of the total visitors take full board.⁵⁷ Respective prices are the very same at the both facilities. Therefore, ISSP made estimates about revenues in this area derived from the tourism activities. They have been shown on the following table.

Table 46: Revenues from tourism

	Number of tourists	Price	Total
One night	500	€5	€2500
Two nights	2000	€10	€20 000
Full board	875	€16	€14 000
Half board	1625	€8	€13 000
Total			€49 500

Source: ISSP, 2011.

According to ISSP estimates, total revenues from tourism in 2010 were €49,000. There is a strong belief that respective revenues can be much higher due to extension of touristic season. The most appropriate way of season extension and therefore increase of revenues are investments as in infrastructure as in tourism facilities and offer. Higher volume of tourism facilities (eco villages, hotels, camps and etc) can attract higher volume of tourists with higher payment capabilities. Another even more important issue

⁵⁷ Information about eco village Stavna and cafe Tresnjevnik as well as their volume of tourists' has been received directly from the owners – through direct interviews method.

but also precondition for increase of revenues is a common electricity supply network.⁵⁸ Moreover, some of the season's extension ideas comprehend sky lift, biking and mountain trails (in particular their increase as they do exist currently). This is quite important if we have in mind that majority of current Komovi visitors do come because of the biking and mountain trails.

One of the ideas is also to increase activities of the Komovi surrounding based travel agencies. In that case it is believed that majority of the revenues would be borne by residents of the area. However, this is something that cannot be undertaken administratively and it is part of individual decision making and risk taking.

Opportunity of small scale price level tickets sale is also considered as potential revenues increase mechanism. However, it is not easy to determine such price due to the size, structure, offer and guard of the areas.

Natural souvenirs designed and produces by residents is another opportunity. This can be fully comprehensive only after increase of tourists' volume and in cooperation with municipalities and tourism facilities.

Increase of visitors may help to another widespread activity in the area – collection of the berries and herbs. The competitive advantage for this activity is non contaminated nature and therefore, high natural products quality. For the exact valuation of this activity it is crucial to have information about number of involved individuals and/or households but also about resources of these items in terms of quality and quantity.⁵⁹ However, direct interviews with the local residents and actors in respective activity indicate that such activity has positive financial effect on Komovi area residents. Further enhancing of such activity and its proper utilization and organization may represent significant revenues driver.

Government plans

According to *Special Purpose Spatial Plan "Bjelasica and Komovi" (SPSPBK)* as well as its part *Detailed elaboration of the site Komovi*, Government of Montenegro is planning ambitious investments in the area. It comprehends construction of brand new touristic complex Komovi i.e. adventure parks, new ski slopes, increasing number of touristic accommodation, new biking and mountain trails, roads, hydro and electricity installations.

Overall investment in the area is projected on €7,600,000 with 20 years realization period. The following table is showing plan for increase of accommodation capacities and planned revenues. Currently, Government is promoting respective plan to the potential investors.

⁵⁸ It is true that some of the tourists would like fully preserved nature but electricity is making many things easier.

⁵⁹ ISSP has contacted respective institutions in Montenegro but still did not receive any kind of response.

Table 47: Future accommodation

		HOTEL / KONDOTEL	TOURIST APARTMENT BUNGALOW	HOUSES SEQUENCE	CHALET	HOSTELS	ECO VILLAGES
Structure of nights by sales channel (%):	Individuals	60%	40%	80%	100%	50%	50%
	Groups	10%	40%	20%	-	50%	50%
	Allotment	30%	20%	-	-	-	-
Structure of nights per Country of Origin (%):	Montenegro	50%	40%	60%	50%	50%	60%
	SE Europe	35%	30%	30%	30%	40%	30%
	West Europe	15%	30%	10%	20%	10%	10%
Annual occupancy accommodation units (%)		35%	45% - 48%	35%	43%	55%	48%
The average realized price per units (EUR)		80	85 - 110	100	160	35	120
The share of income accommodation total revenue (%)		70%	95	98	98	80	68
F & B plan ⁶⁰		BB	B	B	B	BB	BB
Annual operating income unit depending on the stages of development (EUR thousands)		15 – 20	15 – 20	10 – 20	20 - 35	7 - 12	20 - 25
The share of gross operating profit (GOP) in total revenue (%)		48%	70%	70%	80%	45%	50%

Source: Detailed elaboration of the site Komovi, Government of Montenegro, 2011.

ISSP Recommendations

The key problem of the potential Komovi PA is management or more precisely lack of management authority. Komovi belongs to the three municipalities – Andrijevica,

⁶⁰ Legend for the table: B – bed (overnight); BB – bed and breakfast.

Kolasin and Podgorica. Currently, none institution is operating as management authority for this area.

Due to the solution of the problem, we may recommend establishment of new management authority made of and operated by three municipalities and Institute for Nature Protection. The number of staff and operational structure can be determined ex post with remark that it should not be another “employment driven” public agency. Combination of the respective institutions enables strong decision making power and funding opportunities with strong scientific base and orientation towards protection. In addition, we assume that all potential stakeholders are interested in protection but also economic valorisation of the area. At this very moment, there is an initiative for joint cooperation between respective municipalities. Moreover, they have projected operating annual budget at the level €70,000. Having this in mind we may conclude that such budget is not non-achievable and cannot be obstacle for creation of the management authority. Further capital investments would be undertaken throughout international and domestic donations. Such manner would enable management authority to operate and would enhance existence of the Komovi PA.⁶¹

4.6. In summary

Table 48: Summary of values and users per goods/services

	Economic values	Number of users
Tourism	Revenues (accommodation, food, biking, skiing, mountaineering)	2000 tourists 4000 potential tourists 12business entities (no. of restaurants, hotels, wood concessionaires, biking tour agencies, hiking tour agencies, travel agencies, timber and non-timber collectors, ...) 7 municipality/ government 10 000 citizens (population – respective municipalities)

Source: ISSP, 2011.

Brief description

Komovi are rich in potential values that have not yet been used or are not fully exploited. Some of them are deforestation, picking herbs, recreational tourism, and religious tourism. Here will be singled out deforestation and harvesting herbs, two values that are already in use but are not sufficiently exploited.

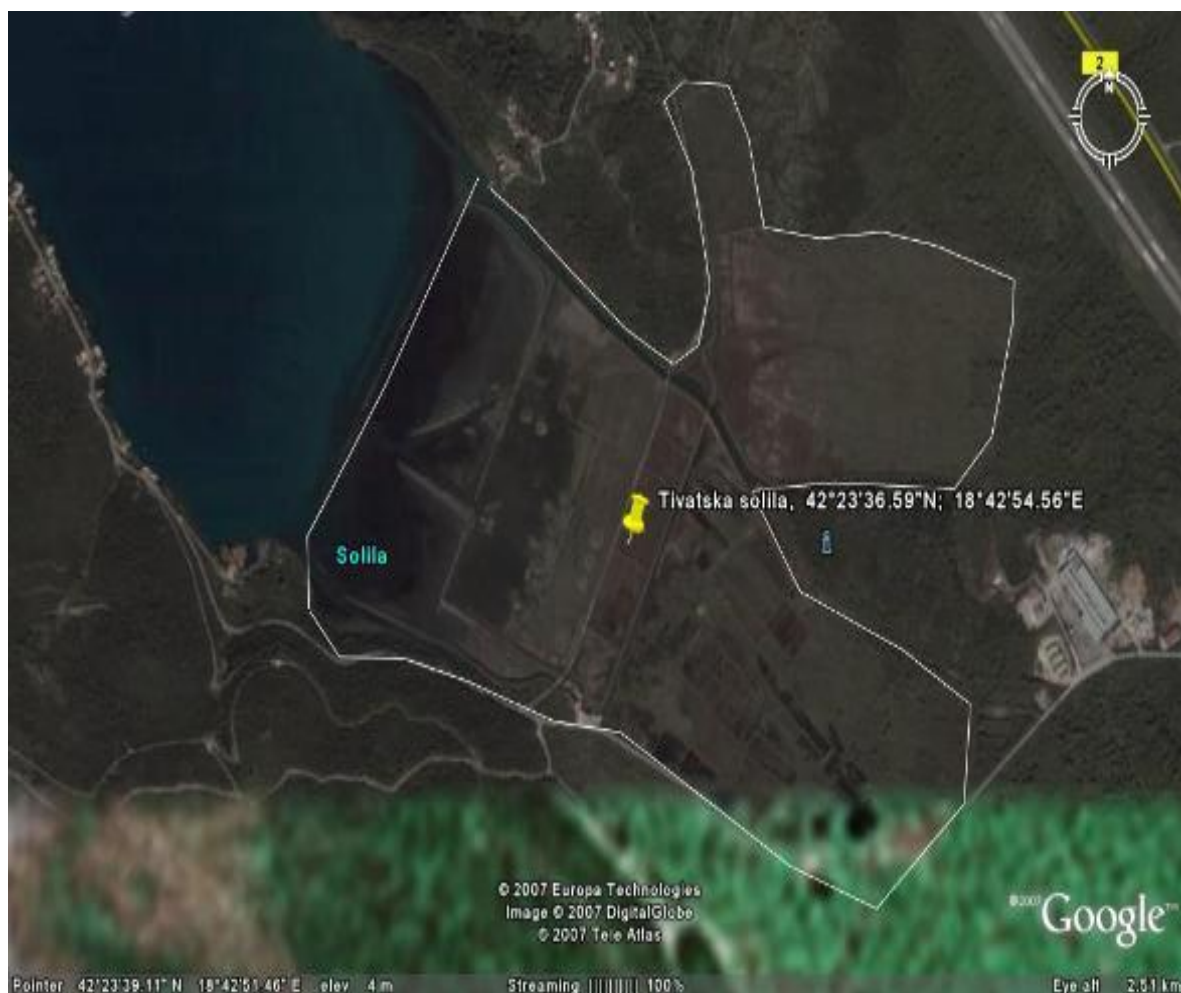
⁶¹ Municipality of Andrijevisa has made road to the PA by its own funds. Value of the investment was €250 000.

Deforestation is part of the population income in Komovi area. Cut up wood is mostly used for heating. One part of the wood household used for personal use, a second part is for the sale. There is information about concession for forest as well as the price at which it is sold, but it is not possible to obtain accurate and complete data. But, from direct interview with citizens of Komovi area it is obtained information about significance of deforestation.

Second important value is non-wood forest products such as picking herbs, blueberry, raspberry and mushrooms. At the territory of Montenegro at 2010 year is picked 1755 tons of blueberry, 30 tons of raspberry, 842 tons of mushrooms and about 300 tons medicinal plants.⁶² Collecting on Komovi makes 2% of the total number. But, there is again problem with data: there no institution who is charge to count number of collectors. It is difficult to assess part of non-woods product for special purposes, and how much is sold on the market.

⁶² Agency for Environmental Protection

V ECONOMIC VALUATION OF TIVAT SALTPAN



5.1. Introduction

The area of saltpan marsh area is located in the hinterland of the Bay of Tivat, and includes the area old saltpan called "Slanice" and maritime zone which extends to Cape Bradiste. Space is limited by the pool and the local road to Radovic. To saltpan also belongs the unused part of the underwater area called "Janko water" in the area Grbalj. In the previous period, about 50 years ago, this area has been provided for activation of the pans,



with built crystallization basins, inlet systems - sewers and communication dikes. However, factory did not start. Saltpan is fragmented and each pool is about 3 hectares (150x200m). Total area of the lagoon is about 150 ha. In addition to dams, there are 4 channels, a stone fenced with a gate discharge depth of 3 meters, which were later partially covered with mud and covered with wetland vegetation.

The basin of saltpan comprehends two rivers: Siroka and Kolozun from which saltpan receive water. The river Siroka comes from the slopes and mountain Vrmac and Kolozun collects water from the slopes of the Upper Grbalj. Both are loaded with ballast industrial water in Grbalj industrial zones and new landfills construction gravel and stone near the factory Racic. The factory is no longer in operation. The sea water located in Tivat bay is of good quality and beach called Kalardovo (located near saltpan) holds eco-certificate for the quality of sea water identified as the "blue flag". Clear water in front of the salt is indicated as potential area for the development of different types of marine cultures.

Along the Montenegrin coast the air is very clean. However, in the area of Tivat some fluctuations were observed. It is accompanied by certain limit overdraft of smoke, ground-level ozone concentrations and other sediment materials. It could be expected that the air in saltpan is pure with minimal and temporary deviations accompanied by the occasional concentration of individual pollutants. Furthermore, the quality of the soil at this location has not been measured. However, the quantities of certain pollutants in the area of Tivat and Tivat airport, where in the period 2002-2005 was recorded an increase in concentration of heavy metals such are: chromium, nickel, cadmium and lead, can be linked with a vicinity of airport which is located in the contact zone of the saltpan area. It has great frequency; especially during the summer season when in one day the airport handle more than 60 landings and takeoffs, with the tendency of transport growth and possible opening for night traffic.

Short history

The Tivat saltpan represents the area where salt has been produced in the middle Ages. As stated in the contract from 1425th, in this area were located 109 saltpans, of which: 24 were owned by the Metropolitan of Zeta, 27 belonged to the inhabitants of Lustica, 10 were owned by Djurasevic family, 16 belonged to four nobilities of Kotor and 32 saltpans were owned by Municipality of Kotor. During the period of Turkish occupation, back in 1683's, the saltpans were recognized as a very significant area in which was located Salt factory which accounted for 81% of total revenues of the local population.

Natural resources

On the territory of former saltpans, different kinds of vegetation were developed. Among those it can be noted that most of salt vegetation belonged to the families "Salicornietea" and "Limonitela", followed by marine vegetation screens from the "Juncetalia maritime" vegetation and "brackish swamps" from the "Phragmitetalia", "Scirpetum" and maritime. The best way to preserve the complexity of this area is to invest in Tivat saltpan brand. The activity that should be undertaken about the protection of this area in recent future is, which is at the same time and one of the main tasks, to measure disposal of most important natural resources. In the saltpan area, especially Igalo and Topolica, at the salty-clay surface there is vegetation, which is almost exterminated. Considering all these facts, the preservation of salt is necessary since it represents the habitat of halophyte vegetation. On the surrounding terrain the preserved vegetation of maquis shrubs is mixed with strong coastal shrub and woody forms. The water basin is very shallow and fulfilled with mud from which richly diverse organisms attract water birds and thus provide greater value of the entire scenery.

In the area of Tivat saltpan very rare bird species are present. Those species are characteristic for this part of Europe and endangered on the world level. This is very important fact and also sufficient reason for dissolved protected area status. Higher values of Salina contributions and archaeological sites pottery fragments Hellenistic-Roman who encouraged the sixth century BC. For the most part these are the remains of amphora and Corinthian antique.

According to official data from 2007, settlements have not been formed and there is no population in this area. Unofficially, this situation remains unchanged. However, there is a facility with temporary work permit for stonework services. Closing of the facility is expected due to the expiration of the licence and existing negative externalities to the ecosystem (wastewater is being disposed in the respective process).

By the existing regulation, in the area of saltpan, the usage of any kind of chemicals, biological agents, agents that can detrimentally affect at all, both existing and potential

resources of saltpan, is forbidden. Also, construction is prohibited, exploitation and devastation of the area in any manner. In order to improve the current condition of this area, in accordance with the Program of protection and development, it is necessary to implement certain measures, do a presentation of the natural wealth and resources of this area.

Data about physical characteristics of Tivat saltpan

In the area of saltpan, as a counterpart of the temperature and its value, takes the temperature of the Municipality of Tivat. According to statistics, the minimum temperature are evident in the coldest months (January and February) and it ranges from 12 to 13°C, while the maximum temperature is marked in the hottest months (July and August) and it's about 30°C. Average annual precipitation is 1429.2 l/m² in the area of the Municipality of Tivat. Increasing cloudiness is characteristic to a winter season, while the number of sunny days, expressed in hours, is about 2455 hours, of which 931 happen during summer time. Round the area of saltpan the wind is differing in accordance to divergent locations.

Having in mind value of the pollution substances such are SO₂, smoke and soot, which are part of the air, in the protected areas and whole Municipality of Tivat, we can conclude that the air does not belong to a pure air category. This situation is affected by the position of the protected oasis which has a good geographical position and consequently provides minimal air pollution.

Land in the whole area of Municipality of Tivat is under constant negative influence, with changes of its use (city-building land, building facilities) on one side and through pollution of land on the other side. Study of soil contamination in the area of saltpan is not conducted. On the basis of the monitoring that was conducted in the area around the airport of Tivat and Tivat's fields, in which we could note the presence of harmful substances, we can come to the conclusion about possible contamination and the presence of certain harmful substances such are chromium and nickel, and determined the increased concentration of cadmium, lead and boron. Other harmful substances and their level of concentration move within the allowed range.

5.2. Identifying the values of the protected area

As in previous PA's the values have been defined as direct, indirect, option and existence. The following table presents each separately.

Table 49: Identified values of PA Tivat Saltpan

Identifying the values of saltpan of Tivat	
Direct Values	Saltpan
	Fish
	Flora and fauna
Indirect values	The importance of preserving the importance of protected species those are vulnerable to global level and are located in the area of Tivat's saltpan.
Option values	Future tourism and recreational development
	Future possible uses of nature potential
	There is chance for opening the saltpan in future.
	There is chance for opening reservation for bird watching and endemic species.
	There is chance for building facilities for production of clean energy (wind-energy potential)
	There is possibility for construction of plantations for growing crabs
Existence value	The importance of historical value
	The importance of endemic species
	Beautiful scenery and landscapes
	Cultural and spiritual significance of churches and monasteries
	National and global biodiversity significance

Source: ISSP, 2011.

The borders of saltpan are clearly defined. It makes analysis of this area easier to conduct. The main problem which occurs during the economic evaluation of protected areas is also a major problem within implementation of this project. It relates to the legal framework, which excludes any kind of exploitation as well as other activities in this region that may generate economic benefits.

5.2.1. Use values

Direct values

Direct values comprehend all values which can be used in process of production, consumption and using. The saltpan has certain direct values, in particular: salt, fish, shells, plinths and animals. In addition, saltpan of Tivat is meant to be oriented to a recreation. Significant volume of preserved edam species, which has been extinct from

Mediterranean, makes Tivat saltpan more attractive and good place for recreation and birds watching.

The habitat and biocenosis of wetlands occur only on three locations in Montenegro: Tivat (saltpan), hinterland off the beach Buljarica and Ulcinj. Saltpan represents the remaining of the old salt factory. Also, for this saltpan, the change from land to water biogenesis is characteristic. Tivat saltpan, as such, is recognized as winter habitat for birds (ducks), and also habitat for some birds from family of marsh hen (*Rallus aquaticus*).

Indirect values

Saltpan area has tremendous contribution and significance because it represent a reservation for certain species that might been completely or partially extinct at some placed. From the point of ecology saltpan is very important because of the fact that it represent the habitat for birds nest and for other group of animals. Also, the significance is reflected in possibility of salt production because evaporation is always bigger when transpiration is used from plants (compared to simple evaporation). In lot of states it is used within fish meals and for making salads, of course, with no salt. Saltpan habitats are affected by drying, converting the saltpans in fish farm, or for some other purpose. Particular vulnerability could represent attempt of building and pollution in protected areas.

Important and infallible parts are represented by flora and vegetation that is present in the area of saltpan. The area of Tivat saltpan is being recognized as place with original vegetation.

By the spatial plans for special purpose for the coastal zone (PPMD) saltpans are predicted to be protected as floristic-fauna nature reserve. Within this plan, it was given a possibility of opening certain sport content (such are centre for bird watching, bicycle paths, etc.)

Optional values

Following the example of saltpans in the region, there is possible alternative use and exploitation of protected areas:

- Conversion of salt in the plantations for the cultivation of crabs which proved to be very profitable,
- Creation of the natural reserve for birds breeding,
- Construction of saltpans.
- Shells growing – currently there are growing shells and fish in floating parks for shells and/or cages for fish farming. This activity is represented in



embankment zone in front of salt pans. There is a huge potential for growing inside of salt pans if it is proven that there is no harmful effects on living world.

The salt pans are suggested to be a nature reservation, where it is possible to organize bird watching which represents one of the optional and possible ways for

usage of this area.

Salt pan has great potential. it represent an area with great forecast for development of health tourism within the "Sunny Valley Health, which apart from providing services in the health and rejuvenation, implies a comfort, ambience, easy activities, cultural offer for golf fans and golf courses. Also, there is a possibility for developing photo safari tourism and developing educational content.

5.2.2. Non use values

Existence values

Respective values of ecosystem (animal and plant species) represent its significant value. However, their values can only increase in the future due to the proper exploitation. In addition, historical significance of the salt pan for the area's development is also great and can also be increased in the future.

The existence of endemic species of flora and fauna also increase present value. Landscape of coast called "Blatna" represent specific landscape of sea coast that occurs on Montenegrin coast, at southeast of Tivat bay. There is also shallow and muddy area with diverse and abundantly represented vegetation, which this landscape makes unique. At the very salty and permanently flooded areas a special kind of plant, a kind of bushy, was developed. During summer and autumn, this sort gives a special esthetical aspect of their small community, very characteristic reddish colour. In the area of Tivat, waste water from factories and service facilities was discharged.

Because of the importance that salt pan has, especially for the survival of flora, also as a habitat of endangered species, reptiles, birds, at 2007 became a special floristic and faunal reserve, the first one of that kind at Montenegrin coast since 1968 when the salt pans became important habitat of the Berne Convention and the area of international importance for birds in Montenegro - IBA.

A recommendation for the region is to protect an area as floristic-fauna reservations (nature reserves under the Law on Environmental Protection).

This law suggests the absence of any construction in the area of reservations, the prohibition of hunting, the development of other opportunities in this area.

In accordance with the legal aspects of saltpan, which was adopted under the law on the nature protection; in the area of saltpan, activities that would generate any economic benefit and function are prohibited. A proposal for dealing with aquaculture and cultivation of the area is opposite to the Plan, which provided special protection as a criterion according to which are eliminated the possibilities for development of aquaculture.

The activities that are allowed in the area of Tivat saltpan are:

- Promoting measures for improvement of the condition and maintaining of the natural condition of this habitat area;
- presentations, setting up information and the other characteristics which are promoting Tivat saltpan resources;
- implementation of educational, cultural, promotional activities and development of eco-tourism in a controlled scale, which involves a controlled way and the requirements under which it was allowed to move in the protected area, tourists visits, as well as the usage of recreational and other areas.

In the accordance with the proposal for the things that should be taken into consideration, which are the "most significant" for this oasis on which will execute the economical evaluation are:

- *bird watching* – because saltpan is habitat of threatened bird species (at the global level)
- *medical tourism* - appropriate climate for medical tourism
- *eco-tourism*- tourists visiting
- *biking* - bicycle tourism development
- *construction of eco-education centres* - in accordance with the legal aspects of saltpan, in this area is allowed, the control, using of this area into educational and promotional purposes.

5.3. Selecting the goods and services to be valued

All values which are given in the table are linked. Their networking is necessary in order to value the protected area. However, decision regarding valuation of direct and indirect values has been made for all respective protected areas. Therefore, Tivat saltpan cannot

be an exemption. However, option and existence values have been presented here although they will not be subject of valuation at any stage of the project.

Table 50: Selected indirect values for valuation and presented the remaining values

Identifying the values of saltpan of Tivat		
Direct Values	Saltpan	x
	Fish	x
	Flora and fauna	x
Indirect values	Habitat for rare and endangered fauna and flora	√
	Fish breeding and nursery	√
Option values	Future tourism and recreational development	x
	Future possible uses of nature potential	x
	There is chance for opening the saltpan in future.	√
	There is chance for opening reservation for bird watching and endemic species.	x
	There is chance for building facilities for production of clean energy (wind-energy potential)	x
	There is possibility for construction of plantations for growing crabs	x
Existence value	The importance of historical value	x
	The importance of endemic species	√ / x ⁶³
	Beautiful scenery and landscapes	√ / x
	Cultural and spiritual significance of churches and monasteries	√ / x
	National and global biodiversity significance	√ / x

Source: ISSP, 2011.

5.4. Choosing the valuation techniques

At this stage, certain valuation techniques have been identified as eligible for this protected area. According to previous analysis and comments **only two techniques for valuation of only one value will be used.** The following table presents it fully.

⁶³ Values marked with √/x have significance and could be subject of valuation but it is not going to be proceeded that way.

Table 51: Valuation techniques for Tivat saltpan

Identifying the values of saltpan of Tivat		Valuation technique
Indirect values	Habitat for rare and endangered fauna and flora	Income generated (change in production)
	Fish breeding and nursery	Reflected in recreational and use values

Source: ISSP, 2011.

5.5. Economic valuation

There are no buildings and other facilities in the protected areas near Tivat saltpan that would have externalities either negative or positive because of its closeness to the saltpan. The borders of saltpan are clearly defined which makes easier to conduct analysis of this area. The main problem in the economic evaluation of protected area is at the same time a major problem of implementation this kind of project, is the legal framework, which excludes any kind of exploitation as well as activities in this region that may generate economic benefits.

The economic evaluation of the respective protected area is quite difficult rather impossible especially in the context of direct and indirect value. Valuation of this area is based on values, which at this stage we cannot fall into the categories of direct nor indirect value, but it should be optional, i.e. existing and future value. Mostly these are optional values that will be treated as a direct values in the future, based on which we will be possible to make a valid economic evaluation.

Current situation in the area of 150ha show devastation which endangered its stability and functionality with disposal of waste, garbage, and wastewater. It could be said that such situation will continue although the law defined saltpan as the special nature reservation (Reserve of flora and fauna). Such legal provisions exclude any activity that will generate economic benefits but authorities fail to prevent devastation.

Possible activities in the area comprehend education, promotion of protected area and sustainable enhancement of this area with prior approval of the competent Ministry (Ministry of Sustainable Development and Tourism).

Analysis has shown that many of the stakeholders believe that legal limitations are among key obstacles in the context of further usage of the saltpan. However, even higher problem relates to the lack of management authority that would govern the protected area including respective duties, power and obligations. Currently, this area is, by the law, under jurisdiction of the Municipality of Tivat. However, municipality cannot make any decisions, issue licence, define suitable exploitation, use resources and etc.

Confusion is even higher according to partial jurisdiction of Morsko dobro⁶⁴ but also jurisdiction of the Ministry.

During research period all respective institutions have been contacted and established a stronger cooperation between them. In addition, municipalities of Budva and Tivat and Morsko dobro made a non-official agreement to form governing body in charge for preservation of the values and protected area itself as well as to stop further devastation. Morsko dobro has also made a voluntary donation of €15,000 in 2010 (from own budget) dedicated to the needs of Tivat saltpan i.e. posting the fence around protected area and two gates. In addition, information boards and bird-watching platform have been also posted. Idea was, throughout such activities, to encourage recreation with this area by local residents. However, lack of management authority showed its importance due to the fact that fence had been destroyed just after a few days. Morsko dobro has assigned €50,000 from its 2011 budget for the needs of the area management.

Changes of the Law on protection of Tivat saltpan can be expected by the end of the year. Furthermore, duties and responsibilities of governing body should be defined. In this manner, Tivat saltpan will be protected adequately and also further use and activities that are allowed will be determined. The importance of this and some other issues is being shown by the act of Morsko dobro which opted €100,000 for redefinition of protected areas in the coastal region study. This study should re-define purpose of the areas, possibility of economic evaluations, possibility of building infrastructure in accordance with the natural and ecological sustainability, as well as possibilities for self-sustainability of the areas.

According to the present situation there are no direct values that can be economically valorised and according to that economic valuation made. Range of current values which saltpan possesses is limited by the regulations which is prohibiting their exploitation of any kind. The current estimate is based on a possible optional (future) values that will generate economic benefits. This conclusion is sustainable due to indications that the competent state bodies initiated changing of the respective which will be in line of achieving the ultimate goal - sustainability of area. Such sustainability will have wider economic, social, education and cultural impact on society.

At this moment, under existing law it is possible to have controlled education and implementation of promotional activities of this area. However, that could also be used for the purposes of education process as well as research institutions needs due to the high educational and research heritage of the saltpan.

In accordance with the initiative to change the legal limitations and the ability to use different potentials, possible direct value (if allowed) will be presented.

⁶⁴ Morsko dobro is public company that is in charge of the coastal line management.

They will certainly include:

- *Tourists visits* (in the field of resource use for biking, bird watching, medical tourism, hiking trails);
- *Fishing*;
- *Development of maritime cultures*, which is developed at the edge of protected areas but does not belong to the same surface and proved to be a very cost-effective.

Within the borders of protected areas construction of tourist medical complex is planned. Such an attempt may be also sustainable having in mind that the water and air are first class and have medical usage values. In addition, presence of the rare vegetation species and high salinity provides great potential for development of medical and recreational services.

On the other hand, next to the border of protected areas a new beach Racica is built up. That investor is interested in regulation of Tivat saltpan and building an observation tower for bird-watching tourists in order to enable another form of recreation and tourism. The idea is to charge such service for a certain fee.

In both cases, medical use and bird-watching facilities, can significantly contribute to the further enhancement of the Tivat saltpan. This can be done through defined annual contributions from the entrepreneurs to the budget of future management authorities. Such contributions should be based on percentage of annual profit and the reason of its existence is in relation to impact of saltpan to existence those businesses i.e. without natural features of saltpan there would be no such business ventures.

If certain projections of attendance within protected areas are made, based on the model of protected areas in Montenegro (which have a similar range of services, specifically referring to the National Park Skadar Lake) some information on the potential number of tourists and generated revenue may be obtained. National Park Skadar Lake has a surface area of about 40,000 ha and a visit of about 40,000 tourists in 2010. Such trend is being presented in the last three years. Additionally, it means that there was one tourist per 1 ha. If this is applied to the surface of the protected area of Tivat Saltpan which has an area of about 150h it may be concluded that undeveloped (excluding additional features) area of Tivat Saltpan in average year could be seen by about 200 people. If we charge the entrance to the protected area an average of €5, we arrive at the figure of €1000.

If the same model applies to the bird-watching feature it can be identified that maximum 50 tourists will come annually. This is based on Skadar Lake 100 visitors per year scenario. If respective number of tourists is multiplied with €20 for ticket and permits than total amount from this use is €1000 per year which is also insufficient.

Even according to this scenario and model it can be observed that Tivat saltpan is not sustainable financially and that it requires both, contributions from future business ventures based on its features but even more contributions from the state and large international donors.

5.6. In summary

In accordance with the legal limitations that exist in Saltpan of Tivat it is not fully possible to extract values and users of these values. This is impossible because these values do not exist in the area of Tivat Saltpan and their evaluation has not been achieved. Therefore, the following table will include the potential, future values as well as users of these values in the future.

Table 52: Summary of values and users per goods/services

	Economic values	Number of users
Recreation: - bird watching - biking - hiking	Tickets	200 Tourists 500 Potential tourists 10 Business entities (Biking and hiking tour agencies, travel agencies)
Fishing and sport fishing	Fishing	Tourist Potential tourists Business entities (restaurants, hotels) Municipality Citizens
Medical tourism	Accommodation	Tourist Potential tourists Travel agencies Business entities (restaurants, hotels) Municipality Citizens

Source: ISSP, 2011.

Brief description

As already mentioned, the economic valuation of Tivat's saltpan is being based on the potential future values. This situation is exclusive in the case of Tivat Saltpan because it is any kind of exploitation of values and resources is prohibited.

Activities that are allowed (generating income activities are prohibited) in this area are related to the promotion of the area and education use within education and research system.

The major future value, which will certainly be possible to valorise, is bird watching. This resource could be used because of varieties of protected bird species.

In addition, there is tremendous potential for health tourism. A large concentration of salt, muddy bottom, clean water, a favourable environment and good climatic conditions are sufficient reasons for the development of health tourism within the borders of the protected area.

Development of marine cultures is additional future value due the convenience of the coast in the area for such activities.

VI CONCLUSIONS AND RECOMMENDATIONS

Introduction

Respective research and analysis have been a pilot and pioneer project when Montenegro is related. It identified important aspects of protected areas features and gave incentives and data for scaling up to the national level. Approach was to consider this research as a first phase of overall economic valuation of protected areas. In depth research and analysis require more significant amount of resources in order to identify all problems and values directly on the field. However, this research is being considered as valuable and there is sincere belief that it should be continued.

Conclusions and recommendation

Overall conclusion is that some of the protected areas are financially sustainable. First element of their financial sustainability is existence of management companies that have revenues from both, government budget and from some own resources (tickets, fees, concessions and etc). Second, some of them can become financially sustainable due to contribution from the business sector which base own operations on features of the protected area. On the other hand, some of the areas are not financially sustainable and it cannot be expected even in the long term. Therefore, the most appropriate scenario for them is to be under the auspices of government and international donors.

Skadar Lake is probably the most viable and most sustainable protected area in Montenegro. In addition, it is one of the richest protected areas when combined values (flora, fauna, tourism, cruising, archaeology, research, education and etc.) are considered. Having that in mind this area is perfect for sustainable country and ecological tourism. This is in particular important as it is known that Skadar Lake is remarkable spot for bird watching due to the richness of bird species.

First recommendation is related to the improvement of bird-watching infrastructure as well as monitoring of bird migration in order to provide significant timing for bird watchers.⁶⁵ Such monitoring alongside research of the scientists can give significant results as in increase of revenues based on bird-watching as in new scientific results. *Second recommendation* is related to even higher usage of Skadar Lake for educational and research needs. Certain research is being undertaken so far but it is believed that it is not sufficient due to the resources limitations. Therefore, research within international and especially European funds and projects schemes must be taken into account quite seriously.

⁶⁵ One of the complaints was that bird-watchers have been taken to the spots on inappropriate terms when there were no birds at all.

Skadar Lake is quite rich with the fish fund and currently fishery is significant activity. However, this activity is being undertaken without any control of sustainability of fish fund. Due to that there is an opportunity to endanger certain species in the Lake. Sustainable fishery presents significant source of entrepreneurial activities and therefore, better life quality of the area's inhabitants. Additionally, it represents new source of funding the PA's needs either through business contribution (in case of export) or through VAT share dedicated to the PA (in case of domestic sales). Issue of joint market positioning of all fishermen is quite important within this *third recommendation*.⁶⁶

Fourth recommendation is to define the way of payment for the water resource usage. Currently, Regional water-stream is using water from the Lake without any kind of payment. Recommendation is to define the share of Public Company Skadar Lake in the sale price. This means that water price should not increase but part of the profit margin should be oriented for the needs of National Park. Second option is to define concession fee for water usage.

Fifth recommendation deals with the lack of adequate hotel capacities. There were four hotel capacities at the Lake out of which three are currently working. In absolute figures this should be sufficient for the needs of the Lake visitors. However, the quality of the hotel capacities is not in line with the status of the PA. Renovation of existing but also creation of new sustainable hotel capacities should be undertaken within the area. Such capacities would be small scale but high quality. In addition, they should be created of natural materials and if possible energy efficient. Hotel capacities should be backed up with additional supply such are restaurants, souvenir and wine shops and beach facilities.

Sixth recommendation is in line with part of the fifth. Due to the volume of sunny days, wind and wave parts of the Lake especially border lines of the protected area can be used for renewable energy (mainly wind and sun). Having in mind status and core function of the PA these capacities should be small and at least should cover PA's needs for electricity.

Seventh recommendation is also in line with fifth. As there are plenty of restaurants there is no current need for establishment of new one.⁶⁷ However, there is a need for beach facilities due to the potential of the Lake. This recommendation does not assume making a Skadar Lake as dominant swimming destination but considers how to extend tourists visit to the Lake. In addition, management authorities should encourage production of souvenirs for sale in such shop. Number of shops should also be increased slightly. Finally, existence of more small wine and honey shops is way to make have broader supply and make more profit for entrepreneurs and PA. Currently, only Plantaze have

⁶⁶ Fishermen should organize themselves in order to achieve better negotiation position either on Montenegrin or foreign market.

⁶⁷ However, if business ventures decide to go into such business state should not be stop them from doing so. It is just assumed that restaurant market at the Lake is saturated.

their wine shop. It is strongly believed that association of wine and honey producers should establish own sale shop promoting production within the area.

Eight recommendation is related to the situation in cruising business. It is important to have precise information about the volume of this business as well as revenues made through it. Idea is not to charge them more but to define at least percentage of VAT from those activities that should be dedicated to the PA's needs. In addition, in the future option about sustainable sale throughout the Lake should be examined. This is one of the ways to prevent future expenditures for dealing with certain pollution problems.

Ninth recommendation is to prevent further exploitation of any kind (peat, gravel and etc) within PA or at the borders as it might have negative effect on water stream and flora and fauna.

Tenth recommendation is to promote opportunities of religious and cultural tourism due to existence of numerous monuments, monasteries and archaeological sites. Such tourism attracts specific profile of tourists exactly the kind needed to PA.

One of the most serious problems is related to almost constant flooding of the area. Floods create significant problems as through expenditures for occurred problems as through disabling the local population for sale of goods and services.⁶⁸ This problem can be solved with intervention in the Bojana River. However, for such action interstate agreement with Albania is necessary. Due to that *eleventh recommendation* is related to more serious dealing with this problem and signing the interstate agreement and contract that will disable future floods.

Biogradska gora is being identified also as quite viable and sustainable PA. It was done in compliance to its resources that can be used in quite sustainable manner. Richness of the flora and fauna, natural springs, the only European primeval forest, mountain slopes, herbs and plants, hotel accommodation, biking and hiking and etc. are among the reasons of potential sustainability. Having in mind overall potential, *first recommendation* is related in increase of usage of that wealth in education and research. This is especially important due to lack of full exploration of the area. Such research should be undertaken within international partners.

Second recommendation is oriented towards increase of higher quality hotels. Only Kolasin can be proud on its two, three and four star hotels offer while others do not have sufficient volume of good accommodation. Throughout the part of the PA there are great eco villages and that kind of tourism is quite encouraging. Importance of good capacities may be seen when richness of cultural and religious tourism is defined.

As in the case of Skadar Lake there is need for fish control (although it is a quite smaller fishery) but also sale shops for souvenirs, homemade products (meat, cheese, honey and etc). Therefore, those should be part of the second recommendation. Importance of having such shop is identified as organized manner of sale (VAT, hygiene, standards, etc.)

⁶⁸ After the last flood, there was no demand for agriculture products from the area. The key reason was flooding.

Biogradska gora do have paths for biking and hiking. However, they should be significantly expanded and during those paths there should be certain resting points on very spectacular spots. That would comprehend *third recommendation*.

Fourth recommendation relates to the water resources in the area. First of all, issue of water supply from the lakes for municipality of Zabljak must be solved. If that continue that water should be paid by the consumers. Another but more expensive option is creation of water supply system for those parts of municipality. Second, issue of water springs utilization is also important. Currently, none of five springs concessions is contributing to the needs of PA. It is important to define manner of contribution having in mind localities of the springs. That can be achieved either through part of concession fees or through part of VAT revenues. However, part of concession fee dedicated to the management company is being considered as more viable solution.

Fifth recommendation relates to necessity of internal organization of herbs and plants collectors. This is important because of higher market power and income control. In addition, local and state authorities should promote herbs and plants as an investment opportunity. Therefore, greenfield investment in herb-plants storage and processing factory on the PA's borders is highly recommended. Such factory would be key storage facility but also exporting hub for these products. That would enhance employment and interconnected businesses and create wealth for the region.

Sixth recommendation relates to farming and meat processing industries. Having in mind that farming is viable and eco friendly activity higher connection between farmers and meat processing industries is required. Respective meat processing industries can be either in respective municipalities (such is Franca for example) or beyond the region (Goranovic for example). Education of farmers, standards in dealing with stock and buy-out are preconditions for success of the initiative.

Durmitor is another PA that is quite rich with cultural, historic and archaeological sites but even more with breathtaking beauty of its landscapes, lakes and rivers. Its potential sustainability relies on usage of rivers for tourism and hydro energy, rural, ski and eco tourism, collection and processing of fruits and herbs and agriculture and farming. In long term this area can be financially sustainable especially if excellent management practices are implemented and executed.

Having in mind that Tara River famous by its beauty and slopes is in Durmitor *first recommendation* is related to it. Rafting represents significant business activity in the area. However, control of the business is very weak in the context of licences, volume of entrepreneurs and tax revenues. It is recommended to establish control and introduce 7% VAT rate for such activities as complementary to accommodation. Out of gathered VAT revenues certain percentage should be dedicated to the needs of management company in order to sustain areas' features.

Second recommendation relates to the increase promotion of hydro potential i.e. construction of small hydro powers that could fulfil electricity needs of households, villages and small town perhaps.

Third recommendation relates to fruit and herbs collection and promotion of potentials for storage and processing facilities on the borders of the area in respective municipalities. However, presenting of the opportunities of internal cooperation to the collectors as well as to educate them and provide certain information are quite important tasks.

Fourth recommendation relates to the higher promotion of speleological activities in the area. In addition, it is important to involve international education and research community. Research projects of that kind require financial and research resources in order to provide world class results.

Fifth recommendation relates to the tourism infrastructure i.e. hotels, ski paths, eco villages and etc. Current situation shows that hotel infrastructure is solid only in Zabljak with several hotels including two new and one in construction phase. However, eco villages as more sustainable and more attractive form of tourism should be more involved in touristic offer. This also states for necessary investments into ski infrastructure as cornerstone of winter tourism in the area (for both Kolasin and Mojkovac municipalities).

Sixth recommendation is about agriculture and farming i.e. joint operations of producers and farmers in order to achieve better market results. In addition, such activities such be promoted as investment opportunities to the regional investors.

On the significant problems is related to the fire protection in the area. Increase of staff and introduction of better coordination system, better early warning system and better fire stopping system are within *seventh recommendation* for this area. Having in mind required expenditures for such activity, it is recommended to submit such project to the European donors and partners⁶⁹.

Komovi currently represent PA with low sustainability profile. However, it is more than evident that this part is full of splendid river canyons, wooded valleys and mountain slopes. Proper usage of some of its features is a way for sustainability of the PA. However, it is expected to be dependent on government and international funded at least in midterm period.

First recommendation for this PA relates to necessity of increasing accommodation capacities. Due to its pure nature, recommendation relates mainly towards creation of eco villages with natural materials and if possible energy efficient objects. Current accommodation facilities are more than modest. Outcome of modest accommodation facilities as well as of modest activities is small stay duration (up to two days). In other case, duration of stay would probably be longer and therefore, revenues would be higher. Alongside to this issue are issues of increasing volume of biking and hiking paths and climbing options. Having in mind that majority of the tourists are foreigners than this recommendation has more significant value.

⁶⁹ Instrument for Pre-Accession Assistance (IPA) of the EU can be good example especially when Montenegro is eligible for all five categories that even include rural and regional development.

Second recommendation is almost the same as for some of the previous PA's. It relates establishment of buy-out facilities and/or storage and processing facilities for plants, herbs and fruits. This is especially important for plants with defined medical usage.

Third recommendation relates to increase of usage of PA's potentials and features for education and research due to its magnificent features. Recommendation comprehends issue of involvement of foreign research partners as well as research donors. Such usage would comprehend biology, history, archaeology and other related disciplines.

Fourth recommendation comprehends marking and promotion of cultural and historic values of the area. Having in mind rich past such kind of tourism can be quite important for the PA.

Fifth recommendation is related to establishment of *points of sale* for souvenirs and homemade food and products (cheese, meat, fruit sweets and etc). Branded⁷⁰ points of sale should be safest, the most convenient and the most reliable source of revenues for domicile population, future management company and also government through paid VAT.

Sixth recommendation is probably the most important one. Currently, there is no management authority for this area. This presents significant problem having in mind certain problems in the area (potential fires and flooding). It is strongly recommended to establish management company in very recent period. Although it will be a central budget recipient it is recommended to establish it as at least public private partnership (local communities, local municipalities, entrepreneurs from the area and etc). Such approach would enable viable and sustainable funding through own eco villages, own points of sale, own tourist agency (which would promote accommodation and activities of Komovi PA) and own organized activities for tourists.

Tivat Saltpan is definitely the least viable and sustainable PA of these five. Currently, according to the legal provisions this PA is fully banned from any kind of activities. Therefore, *first recommendation* relates to the changes of the laws and bylaws and enabling this area to have certain benefits from its features. Of course, only sustainable benefits are in mind.

This area is not under any kind of formal management regime. There is informal cooperation among public entities but there is no proper management authority. Therefore, *second recommendation* relates to the requirement of establishing the management company for this PA and to precise its duties, obligations and power.

Third recommendation is to develop maritime cultures especially crabs in the area. Such activity is not ecologically harmful but can provide significant revenues for the protection of the PA. This can be achieved either through activities of management company itself or through benefiting from the space lease for such activity and dedicated VAT share on those goods.

⁷⁰ It is supposed to be branded by the logo of National Touristic Organization, Public Company National Parks of Montenegro or to be established Komovi PA management authority.

Fourth recommendation relates to increased usage of the area for education and research. One of the ideas is to make an agreement with Ministry of Education and Sport to place this area in teaching plans and to enable visits of school population to it.

Fifth recommendation deals with potential usage of medical features of the area. Therefore, it should be considered to enable private or public private investments in medical facilities on the borders of the PA. However, it is important to pay due attention to preservation of all features and PA itself.

Sixth recommendation relates to more investments in bird-watching infrastructure and monitoring of the bird migrations in order to have more or less precise data on watching possibilities.

-The End of Report-

VII ANNEX – Project team list

GEF/UNDP PIMS 4279: Catalyzing Financial Sustainability of the PA System

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