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CHAPTER 6

ENVIRONMENTAL ASSESSMENT



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TABLE OF CONTENT

ABBREVIATIONS AND ACRONYMS.....	6-3
6 ENVIRONMENTAL ASSESSMENT AND FUTURE MANAGEMENT OF THE PROTECTED AREA.....	6-4
6.1 Environmental Impacts of the Future Tourism Sector.....	6-4
6.1.1 Sustainable Tourism.....	6-4
6.1.2 The role of location – attractiveness vs. environmental sensitivity.....	6-5
6.1.3 Impact significance.....	6-6
6.1.4 Critical Comments on the Conceptual Tourism Master Plan.....	6-6
6.1.5 Environmental Impacts from Tourism Facilities and Activities.....	6-9
6.1.6 Environmental Protective Measures During Construction Phase.....	6-11
6.2 Future Environmental Management of the Protected Areas.....	6-12
6.2.1 The Concept of an Open Landscape.....	6-12
6.2.2 The Karakachan Sheep.....	6-13
6.2.3 Institutional and Organizational Settings.....	6-16
6.2.4 Future Management Planning Process.....	6-16
6.2.5 Management of the Protection Zones.....	6-19
6.2.6 Monitoring.....	6-23
ANNEXES.....	6-25

LIST OF TABLES

Table 6.1: Overview of (potential) environmental degradation from tourism facilities as proposed in the Tourism Master Plan.....	6-10
Table 6.2: Overview of (potential) environmental degradation from tourism activities.....	6-11
Table 6.3: Proposed Basic Monitoring Activities at Vlasina Lake.....	6-24

LIST OF FIGURES

Figure 6.1: Factors influencing long-term sustainability ('sustainable welfare').....	6-5
Figure 6.2: Consideration of plans and projects (PP) affecting NATURA 2000 sites.....	6-8
Figure 6.3: Grazing Karakachan sheep.....	6-14
Figure 6.4: Stakeholder participation in the management planning process.....	6-17
Figure 6.5: Map of the Vlasina area protection zones.....	6-20



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ABBREVIATIONS AND ACRONYMS

EIA	Environmental Impact Assessment
EU	European Union
MP	Master Plan
NGO	Non-Governmental Organisation
PIU	Project Implementation Unit
SEA	Strategic Impact Assessment
TO	Tourist Organisation



6 ENVIRONMENTAL ASSESSMENT AND FUTURE MANAGEMENT OF THE PROTECTED AREA

6.1 Environmental Impacts of the Future Tourism Sector

In the first part of this chapter environmental impacts both positive and negative ones associated with the Conceptual Tourism Master Plan (2007) and the Tourism Development Strategy (MISP 2009) proposed for Lake Vlasina area shall be discussed. Realizing the fact that the project at the given status is representing mostly a conceptual document, this chapter is reflecting the future situation in a broader view (regional level), followed by addressing local impacts and their mitigation (during the construction phase).

The second part of this chapter is addressing the future development in view of the fact that Vlasina area

- a) already has an protection status what is setting limits but also is offering chances, and
- b) is a man-made traditional cultural landscape whose partly re-establishment should be embedded into the sustainable tourism strategy.

All over Europe, today man-made landscapes dominating the picture. Their permanent cultivation over centuries has formed traditions, local cultures and habitats for flora and fauna. Lake Vlasina was an open landscape whose today's appearance and habitat diversity is the result of an adapted agriculture based on sheep grazing. Having widely abandoned this cultivation type years ago, the process of habitat degradation is evident. The partly re-establishment (in selected areas) of this cultivation pattern could integrate nature conservation, generate income and attract tourists.

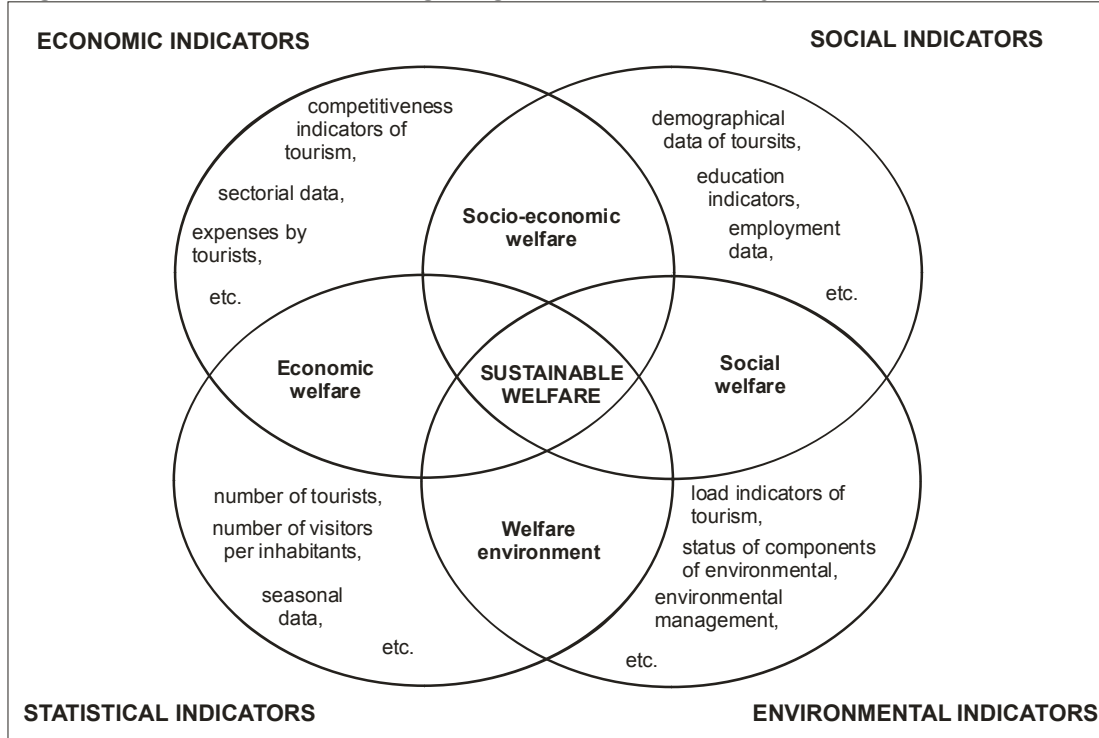
6.1.1 Sustainable Tourism

In the tourism sector, sustainability has become a focal point of interest especially in areas which, in the future, will become more susceptible or more popular destinations. However, the increasing number of visitors will result in serious environmental impacts, if not properly managed.

The goal of any kind of sustainable development tourism project is finding an optimal way of fulfilling all requirements of the development concept combining environmental, social and economical factors (for more detailed information refer to Chapter 4). In order to secure long-term sustainability, the accordance amongst these indicators is indispensable aiming at reaching 'sustainable welfare' as shown in Figure 6.1.



Figure 6.1: Factors influencing long-term sustainability ('sustainable welfare').



Source: Consultant

As indicated in Chapter 3.4, Lake Vlasina is a former peat bog that even when flooded today represents an area of outstanding environmental value. Even when formally protected by Serbian law (see chapter 3.1), bringing tourism development and environmental protection in line will be the major challenge for the future. Hereby, only the concept of well balanced eco-friendly tourism is seen to have the potential for sustainable development.

6.1.2 The role of location – attractiveness vs. environmental sensitivity

In general, the attractiveness of a given tourist destination implies the state of the physical environment, thus the variety of (touristic) activities. However, the most popular locations for (activity-based) tourism are usually the most susceptible ones, namely seashore and mountain areas.

Destinations like Lake Vlasina are connected to certain physical and environmental factors defining their 'attractiveness', therefore any changes in these may lead to a decrease in the popularity of and the demand for the given product. Maintaining the quality of the defining factors (natural resources = tourism product) is usually among the main goals of sustainable tourism (development), but may be a special challenge for the involved stakeholder.



More precisely, for outdoor tourism activities based on the attractions of the physical environment, the basis for the product itself (the system of physical environment) can be degraded and destructed to an extremely high degree.

6.1.3 Impact significance

Impact significance depends on the type and source of impact (diversity, intensity and duration of the activities), environmental sensitivity of the location, other cumulative pressures (eg. waste treatment systems), and the effectiveness of any management system that is in place.

Mountain environments like Lake Vlasina are more susceptible to disturbance due to steep slopes and thin soils and this is especially so in the high rainfall environments. Harboring also already degraded parts of a former highland peat bog – one of the most sensitive habitat types known, impacts tend to be more significant.

Negative impacts on environmental issues cannot be excluded, as the tourism development depends on additional physical infrastructure: a) to reach the area (part of cross-border transport corridor) and b) the physical infrastructure development in the area itself (water, wastewater, roads, buildings). This will lead to an increase in land take, fragmentation of habitats and additional impact through air and noise pollution in sensitive areas.

The enhanced exploitation of natural resources will cause physical changes (land-clearing, soil erosion, boat anchoring and groundings) as well as ecological impacts (habitat loss or degradation, reduced species populations, reduced and changed species diversity, chronic pollution inputs).

Consequently, natural resources, a diverse environment and physical attractiveness are the attributes which define the ‘tourism product’ Lake Vlasina. On the other hand it has clearly to be understood that only an adapted type of tourism is likely to avoid or limit a further environmental degradation of the area. Consequently, only an activity-based eco tourism and/or family-friendly holiday are considered to be practicable. Both tourism types are not seasonal limited and so could contribute to a sustainable development of the area.

6.1.4 Critical Comments on the Conceptual Tourism Master Plan

One of the main background documents that was analyzed during the preparation of this Feasibility Study was “Master plan with tourism development business plan in Vlasina” dated from August 2007, prepared by Horvath and Horvath Consulting and the Faculty of Economy, University of Belgrade. The Master Plan (MP) was prepared for the Ministry of Economy and Regional Development of Serbia which is in charge for tourism development.



Comprehensively introduced under Chapter 4 the potential realisation of the MP (by phases) has been discussed as '*optimistic*' scenario. Even when not having official character, here, the MP should be discussed again, however focussing strictly on the potential environmental impacts.

Analysing the tourism development concept proposed by the MP from environmental and nature conservation point of view, it can be concluded that it is not fully in compliance with development objectives of this area protected as a natural heritage. The following facts have been summarised:

- In general, the realisation of the MP, even in phases requires considerable investments from the private sector. Reflecting today's global conditions, the risk for such investments are evident. In consequence, subprojects are at risk to remain unfinished. This is must not necessarily have a direct impact on the environment, however indirectly by leaving unfinished buildings or areas the overall environmental value could be effected ('attractiveness').
- Solutions proposed by the MP are rather ambitious and free architectural ideas aiming at 'exploiting' the physical attractiveness of Vlasina area but not in accordance with sustainable development aims of an area which is already formally protected.
- Applied concepts are more typical for "high tourism" such as downhill skiing with construction of ski lifts, golf course, harbours or similar structures.
- The environmental effects resulting from operation and maintenance activities of tourism facilities are usually not as obvious as the impacts from construction activities. However, the impacts are generally ongoing, are felt over a much longer timeframe. Practically, these impacts have not been considered in the MP.
- The construction and operation of ski lifts would require massive forest clearing. This would increase the risk of erosion and frequent land sliding. The construction of physical barriers against snow gliding will cause an additional visual impact, especially in summer time.
- Golf courses are well known for enormous land consumption and high pollution of soils by permanent fertilisation.

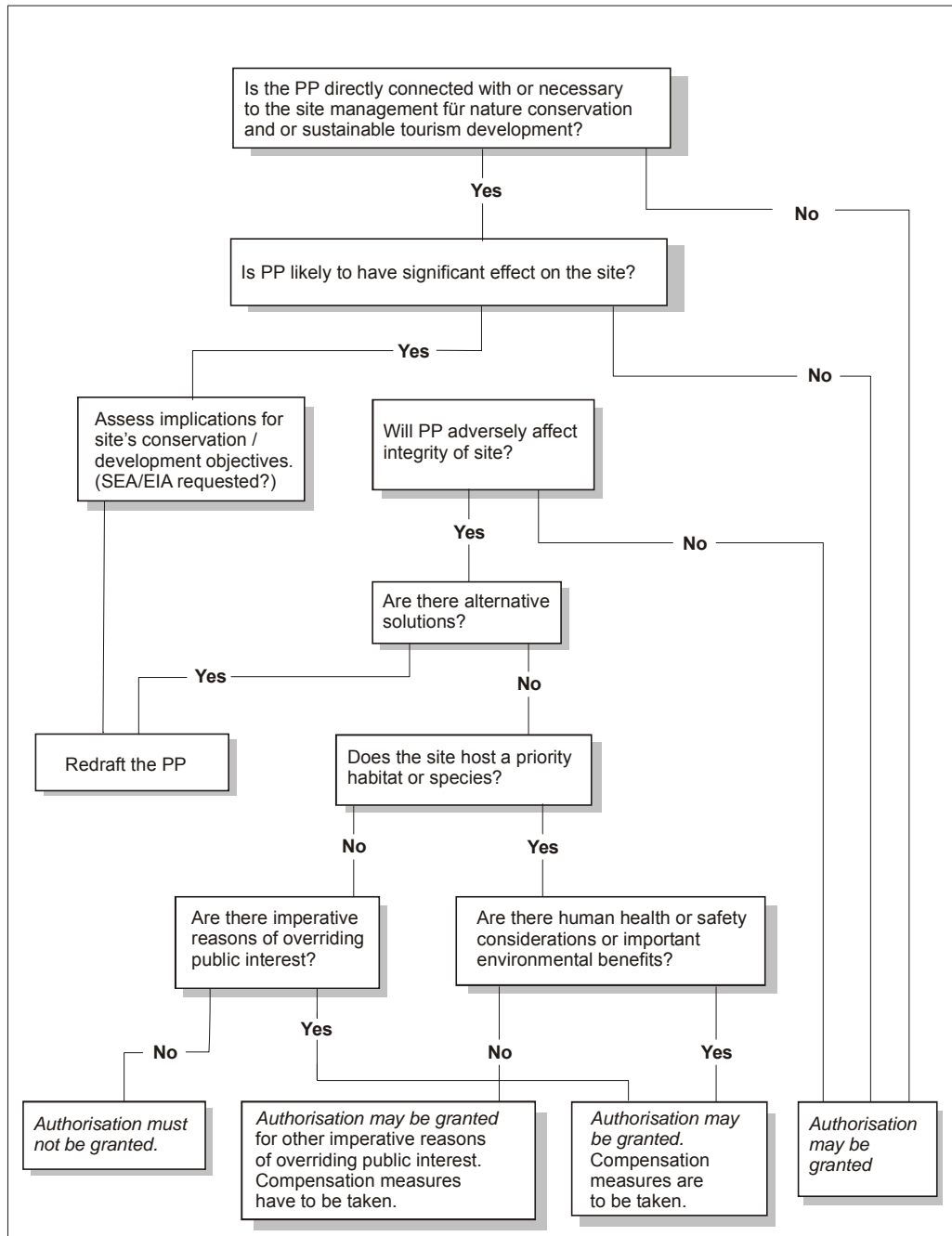
A complete matrix of potential environmental impacts resulting from various tourism activities are listed in the Table 6.2 (Chapter 6.1.5)

Realizing the widely non-compliance of the MP with environmental settings and future development goals a complete revision is recommended. This revision should follow the procedure as displayed in the next figure 6.2 which has been taken from the document *EC (2001): Assessment of plans and projects significantly affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* and slightly modified. Practically being compliant with EU standards, the procedure as indicated in the figure can serve as a general guideline for all future planning procedures.



Moreover, a SEA (see Chapter 3.1) is recommended as well which would be likely to verify the MP in view of their compliance and integrity with a) specific requirements set by NATURA 2000/ EMERALD provisions and b) the development of sustainable tourism in the Vlasina area.

Figure 6.2: Consideration of plans and projects (PP) affecting NATURA 2000 sites



Source: Natura 2000, EU Guideline



6.1.5 Environmental Impacts from Tourism Facilities and Activities

The following chapter is giving an overview about potential impacts caused by (sustainable) tourism sector. Impacts have been divided into impacts resulting from facilities (and their operation) and a number of activities more or less characteristic for sustainable tourism. Impacts resulting from the **construction of facilities and infrastructure** measures (solid waste, water supply, wastewater disposal) are addressed specifically in Chapter 6.1.6. As far as possible, regard is taken to specific sites (protected zones) or localities.

According to the Chapter 4, tourism sector development will be concentrated in general around the Lake site and more specifically at the western site. There, the tourism 'hotspots' of Vlasina Okruglica and Vlasina Rid will be developed. In contrast, the (north)-eastern lake site will face a moderate development which starts later (Klisura + Božica, Vlasina Stojkovicewa) and more focused on individual tourism forms.

Because of their local positioning, the lake area including the islands of Dugi del and Stratorija (1st level protection status) and the 2nd level protected areas of 'Dugi del peninsula' and 'Blato-Delnice-Bratanov del' are expected to be exposed to a higher impact risk. Ecologically, belonging to the wetland habitats their impact potential is evident.

More remote areas, predominantly alpine and sub-alpine forests, grassland inland habitats, or agri-ecosystems, as far as imposed protection measures will be respected are less endangered.

Okruglica, being designated the location where most tourists reach the lake area faces the problem that the lake shore area is a level 2 protected zone (Blato-Delnice-Bratanov). Here, accessing the lake is combined with respecting imposed restrictions. In this context, applying the restrictions strictly the Ribarski Kamp has to be re-located.

Two tables (6.1 and 6.2) are prepared related to environmental degradation. It can be concluded that the impacts arising from the proposed structures (Tourism MP) like golf courses and/or ski lifting are unacceptable in contrast to more adapted activities. In any case, the proposed structures have to be addressed to an EIA procedure.



Table 6.1: Overview of (potential) environmental degradation from tourism facilities as proposed in the Tourism Master Plan

Treatment group	n	Mean (SD) age (years)
Control	10	10.1 (0.5)
Low-dose	10	10.2 (0.6)
High-dose	10	10.3 (0.7)
Total	30	10.2 (0.6)
Mean (SD) age (years)	10.2 (0.6)	
Mean (SD) weight (kg)	28.5 (4.2)	
Mean (SD) height (cm)	158.2 (6.8)	
Mean (SD) BMI (kg/m ²)	22.8 (3.5)	
Mean (SD) waist circumference (cm)	95.5 (12.5)	
Mean (SD) hip circumference (cm)	105.2 (10.5)	
Mean (SD) waist:hip ratio	0.90 (0.05)	
Mean (SD) waist:height ratio	0.60 (0.04)	
Mean (SD) waist:hip:height ratio	0.008 (0.001)	
Mean (SD) waist:hip:height ratio	0.008 (0.001)	
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Table 6.2: Overview of (potential) environmental degradation from tourism activities

6.1.6 Environmental Protective Measures During Construction Phase

The construction phase of tourism facility development is undoubtedly the phase that creates the most dramatic and visible impact on landscapes and ecosystems. Construction activities include landfills, sewage systems, dredging, mining of sand or other aggregates, clearing sites completely of vegetative cover, and changing the drainage patterns of upland and nearshore areas. Such disturbances range from a few square meters to hectares. Sites most targeted for major changes are bays and wetlands. The cases where site development conforms to the physical and ecological imperatives of the site are few in number.

Increasingly, the linkages between the environment and tourism are being articulated, and also Serbia subjecting new developments to environmental screening, usually in the form of an EIA process.



Improvement in the use of assessment and forecasting tools, such as EIA, risk assessment, and other forms or site suitability analyses allow addressing potential impacts caused during the construction phase.

Just being at conceptual level, the measures that should be taken to eliminate, mitigate or reduce adverse impacts are non- specifically described. They have been summarised in tabular form and saved as Annex 6.1. Measures described are those that should be implemented during construction and those that should be incorporated into the future stages of the project design including those to re-establishing nature during the operational phase.

6.2 Future Environmental Management of the Protected Areas

6.2.1 The Concept of an Open Landscape

The area around Lake Vlasina is an old cultural landscape characterized by wide open areas embedded in the surrounding mountains. Sheep grazing based on the indigenous KARAKACHAN sheep has been practiced over centuries to keep the landscape open. Along with the sheep grazing favorable conditions for many valuable habitats have been formed being part of today's natural heritage. On the other hand, sheep grazing was the only form of agricultural practice that allowed generating a small income for most farmers. Today this practice has been abandoned which results in an advanced degradation process and the loss of habitats.

Here, the idea (rather as a concept) of partly re-establishing as part of a wider tourism development strategy shall be introduced. The concept shall encourage stakeholder to realize that even of imposed restrictions a tourism strategy development can actively be implemented.

There are many model regions throughout Europe having created successfully a concept that supports nature conservation, generates income and attracts tourists. One of the most successful is the superregional Rhön National Park in Germany covering areas of Bavaria, Hessian and Thuringia (www.brrhoen.de).

Introductory, the existing situation around the lake shall be described. Having visited Lake Vlasina in May 2009, the following notes are based on a fact finding mission with support by Mr Dragan Micic, responsible manager for Environmental Protection at Surdulica Municipality.

Current Situation

‘Open landscape’ activities: Currently, to keep the landscape open sheep are used spontaneously. Their use is without coordination and is not respecting requirements of other stakeholder (i.e. respecting bird breeding periods). The number of sheep owned by individual farmer is estimated to be only 300 (in the past about 6.000).



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Simpo farm owns about 4.000 sheep which are grazing wide areas, however uncontrolled. Because of its regional importance, Simpo is described later in more detail (see the 'Role of Simpo').

Organisation of farmer: individual farmers are un-organized; they are not directly connected with Surdulica TO. Farmers are selling their products (meat, milk and cheese) at the local markets. Offered products themselves are without or less processing steps, there is no production of selected high-class products (local specialties) allowing for higher prices when offered to day-to-day tourists. There are no contracts established with local restaurants.

Some farmers have started to test alternative income generation by cultivating fruits respecting ecological standards (raspberry, bilberry). So far, fruits are offered at local markets, but have the potential to be processed to be offered to tourists (jam, alcoholic liquor).

In contrast, apiculture (beekeepers) have organized in an association allowing them for better marketing.

Nature conservation status: at the moment, respecting the limited resources only the conservation of the status quo is possible.

Open 'man-made' landscapes acquire a permanent management regime; abandoning it the status can be kept for short periods, later on the degradation starts quickly. In this respect a strong invasion of shrubs and trees (birch, salix) for example at Blato area is observable. In many places un-cut grass from the last year is covering the surface hindering other plants to grow up.

In conclusion, there are already indications that some habitats will get lost quickly, some of them irretrievable. Poor resources do not allow for an active development in the sense of the development goal (open landscape).

Intensive agriculture at Dugi del peninsula: wide areas (several hectares) are under intensive agricultural cultivation for Simpo sheep farm along the Lake shore which is a level 2 protected area. Cultivation of fodder mainly (grass, corn) is practiced; even potatoes have been grown in 2008 for winter fodder. Intense fertilization by solid manure has been observed. This practice is a clear breach of the law and completely unacceptable because of visible disturbance, habitat loss and lake eutrophication effects.

6.2.2 The Karakachan Sheep

Karakachan is a small, old ethnic group that lived in the mountain areas of Bulgaria, Macedonia and Greece. Today, there is only of about few thousand people left.



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The Karakachan sheep is accepted as the most typical and most primitive, coarse wool sheep type "tzakel" in Bulgaria. This was proven by the craniometrical research of in 1967.

According to the same authors this sheep is closest to the European mouflon (*Ovis musimon*).

The Karakachan sheep is small (about 57 cm at withers), the short and thin tail is a characteristic feature. Its wool is coarse and long (up to 26cm). The coloration is grey-black and brown-black, but very seldom white. The sheep is a very vital and energetic animal, highly robust against (foot) illness (peat bog conditions!). It accepts open grazing conditions as well as to be in a flock during winter time. Being genetically very close to the mouflon, the meat is wild-like and very delicious.

More information are provided at:

<http://www.save-foundation.net/semperviva/sheep.htm>.

It is reported that only five of them are living at Cemernik mountain area.

Figure 6.3: Grazing Karakachan sheep



Source: www.save-foundation.net

The Role of “Simpo”

“Simpo” is a company of regional importance (as employer, stakeholder etc.). Currently having about 4.000 sheep, “Simpo” farm is practicing an intensive agricultural production that includes also the grazing of wide areas.



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In future, the company could become integrative part of the tourism strategy based on an extensive agriculture concept to keep the landscape open. The concept has to be changed from simple agri-farming to an actively participating environmental 'service provider'.

In terms that the identification of the genetic potential of the Karakachan sheep is successful, Simpo would be likely to save the genetic potential and later on actively breed this race.

Recommendations

In terms of a potential implementation, it has to be pointed out that only a comprehensive strategy has the ability to succeed. Besides all professional and management efforts, the first requirement of all is the expression of political will. Nevertheless, some introductory measures should be realized to save the today's conservation status.

Lake Vlasina area is a man-made cultural landscape, formed by pasture-based agriculture (open landscape); relevant development goal(s) have to be formulated;

- the existing genetic potential of the Karakachan sheep in the area has to be identified;
- the willingness of farmer to organize has to be verified; if not changed, clumsy and ineffective negotiations would be necessary to link up with each individual farmer;
- a complete assessment of flora, fauna and habitat inventory is urgently required to identify the most valuable areas and species (responsible: Institute for Nature conservation); based on the results a preliminary concept for the sheep grazing has to be developed and monitored; the last inventory dates back to the year 2005;
- the practice of intensive agriculture at Dugi del peninsula, a level 2 protected area has to be abandoned immediately;
- the willingness of Simpo to enter in a process to be transposed into a environmental service company has to be verified;
- Coca-Cola company based in Topli Do has offered their support for environmental projects; it is recommended to contact them for initial actions.

The proposed concept definitely not offers a final solution. However, it can be seen as income and labor generating strategy that combines nature conservation – the conservation of traditional methods – economy – tourism. With its concept it goes far beyond the potential of a conventional tourism strategy. Model regions in Europe, like the National Park 'Röhn' in Germany have proven their success. It also has successfully shown that sustainable tourism in NATURA 2000 / EMERALD areas is realistic.



6.2.3 Institutional and Organizational Settings

Local capacities for the future development and management of the sustainable tourism have been analyzed. In general, the Local Tourism Organization (TO) funded in 2001 and the Project Implementation Unit (PIU, to be established) will be responsible for elaboration the future management planning. Proposals to strengthen the potential are elaborated and summarized in Chapter 9.5. 'Recommended Arrangement for Project Implementation and Management'.

6.2.4 Future Management Planning Process

Integrating sustainable tourism in protected natural areas requires a proper management planning process. Regarding the future development of NATURA 2000/ EMERALD areas the question arises, how the requirements of sensitive species and habitats and the maintenance of tourism usage can be accommodated in this area simultaneously. The provisions of Article 6 of the Habitats Directive (92/43 EEC) reflect the general orientation expressed in the recitals of the directive. This involves the need to promote biodiversity by maintaining or restoring certain habitats and species at 'favourable conservation status' within the context of Natura 2000/EMERALD sites, while taking into account economic, social, cultural and regional requirements, as a means to achieve sustainable development.

However, it clearly has to be understood that establishing sustainable tourism is a time and resources consuming procedure as it is based on reaching a consensus amongst various stakeholders.

Within the EU a comprehensive documentation on the management planning (principles, guidelines, strategies, policies etc.) including also best practice experience have been published. Being compiled for easy application they should not be repeated here. Reference is made to the following documents:

- EC (2001): Sustainable tourism and Natura 2000 - Guidelines, initiatives and good practices in Europe.
- Pröbstl, Kovac, Knoll, Ruffini, Schneider, Martin (Eds.), (2007): Tourism in NATURA 2000 sites - guidelines and recommendations for the management planning in the alpine space.
- EC (2001): Assessment of plans and projects significantly affecting Natura 2000 sites. - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

As indicated in previous chapter, Vlasina area is characterised by an outstanding diversity of habitat types. Therefore the management planning process should be based on the following key management issues:



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- a) active conservation and preservation of the wet meadows, wetlands, remaining parts of the former peat bog, water and forest ecosystems;
- b) connecting nature with education, recreation, culture and science; and the
- c) re-establishing a cultivation pattern to keep the landscape open based on (indigenous) sheep grazing.

Lake Vlasina area could become a model area in “living nature” implementation, active nature management and public participation.

Stakeholder Participation

Stakeholder activity in the management planning process is of elementary importance. However, once having identified relevant stakeholders, their involvement during the initial phase of the planning process has carefully balanced. So far the formulation of a **Management Vision** should define the involvement. At the initial stage, the private sector should have less importance as indicated in the figure 6.4.

Figure 6.4: Stakeholder participation in the management planning process.

Stakeholder group				
	hi ←		→ nil	
Central Government				
Scientists				
Private landowners				
Green NGOs				
Private sector				
Private individuals				
Foresters				
Farmers				
Hunters				
Recreational groups				

Source: Consultant

Management Plans – Yes or No?

Specific and appropriate management plans are often applied in EU member countries for proper site management. They are **not mandatory**, but it is stressed that the management plans could constitute an effective means to fulfil the obligations provided for by the ‘Habitats’ directive.

The following extract sets out a number of considerations which may be helpful in view of the preparation of management plans:



a) Methodology

- Is a management plan for the site really needed?
In practice, it could become relevant to have (temporary) more than one management plan, for example:
 - management plan for land consolidation, supported through agri-environment measures (mowing, grazing);
 - management plans for numerous small wetland sites (bogs, ponds, small river-areas), (and implementing procedure in close contact with the affected landowners and users);
 - management plans and emergency actions aimed at protecting species; etc.
- Who will initiate the plan? Who will be responsible for the plan? (Surdulica Municipality and/or the Institute for Nature Conservation)
- What is important about the site (both natural value and socio-economic context)?
- What are its main threats?
- What do we want to achieve?
- How do we want to achieve it, according to what precise time schedule?
- How much will it cost? Will it optimise the benefits for nature conservation and sustainable development)?

b) Objectives

The objectives of the management plan for the site have to correspond to the ecological requirements of the natural habitats and species significantly present on it in order to ensure their favourable conservation status. They must be as clear as possible, realistic, quantified and manageable. Use clear language with concrete formulation, to be understandable by everybody.

- What is the favourable conservation status for each habitat type and species present on the site?
- How does it contribute to the integrity of the site?
- Is it assessed in a dynamic way according to the evolution of the conservation status of the habitats or species concerned?

c) Consultation and implementation

It is an essential part of the process to establish a management plan needing a multidisciplinary and professional approach.

- Have you identified all the local actors? (see Figure 6.4)
- Have you involved them according to a bottom-up (or alternative) approach?
- When do you involve them?

d) Monitoring and evaluation

These issues are one of the most important parts of the plan, especially for determining whether you have been successful with your plan. As with the objectives of the management plan, monitoring has to be clearly and accurately defined, including an analysis of financial matters.



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6.2.5 Management of the Protection Zones

Indeed, there are many restrictions imposed by law which have to be considered. However, before introducing them in detail hereafter, it should be highlighted that infrastructure measures concerning water supply, wastewater and solid waste disposal are widely allowed.

Regimes of protection of natural heritage are regulated by the *Law on environmental protection (Off. Journal of RS, No. 135/04), article 49*, and provided in Figure 6.5.



Figure 6.5: Map of the Vlasina area protection zones



Source: Institute for Nature Conservation of Serbia



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First level of protection: any usage of natural resources or any other activity in the area is prohibited except monitoring of natural conditions in the area, scientific research and controlled education.

The area under the first level of protection is 9.65 ha or 0.076% of total protected area. The following zones and localities are protected under this regime:

1. Dugi Del Island
2. Stratorija Island

Major part of flora and fauna on both islands is protected by the *Decree of natural rarities protection* (Off. Journal of RS, No. 50/93 and 93/93). Some islands species are proposed for registration in the Red Data Book of flora and fauna of Serbia while some species have been already included in the Red Data Book of Flora of Serbia (extinct and critically endangered taxa; see also Chapter 2.3).

Second level of protection: the usage of natural resources is strictly limited and controlled. Only activities aimed to improve the conditions of natural heritage and present its values with no risk of negative impacts to its primary values are allowed.

The area of Vlasina under the second level of protection regime comprises relatively isolated enclaves, with the surface of about 4.344 ha or 34.10% of total protected area. The following zones and localities are protected under this regime:

1. Vrton – Jelacki rid
2. Mali Cemernik
3. Veliki Cemernik
4. Stevanovski creek
5. Blato – Delnice – Bratanov del
6. Dugi Del peninsula
7. The Vlasina lake
8. Gorge of the River Vucja
9. Zlatna Bukva (Golden Beech)

Activities prohibited in localities under the second level of protected regime are the following:

- any building construction except construction of integral system for sanitary wastewater collection, maintenance works, reconstruction or refurbishment of the existing buildings, roads, telephone, water supplying, sewer system or electric network, cultural heritage, monuments, capped public springs and planned construction of tourism and recreational infrastructure;
- exploitation of mineral sources, construction of mining infrastructure except already commenced geological investigations, approved by legal authorities;
- works and activities that may have an impact on size or shape of drifting peat islands or may endanger the islands ecosystem;
- capping of water sources and diverting with purpose of water supplying;
- fishery except sport angling or fishery aimed to scientific research, monitoring of aquatic ecosystem and regulation of fish mass;



- unplanned fish introduction except limited and controlled introduction of allochthonous (indigenous) species aimed to improvement of fish mass in the lake;
- usage of boats or any other vessels without an adequate permission;
- hunting except activities aimed to wild life protection or scientific research;
- tree cutting aimed to changing of tree species; forestation of pastures, meadows or peat areas, except in case of protection from soil erosion;
- cutting or any other activity that may have an impact on “golden beech” trees;
- driving or parking of motor vehicles out of the roads except during the forest works, agricultural activities or any other officially approved activity; and
- firing in an open space, camping, collection of mushrooms, forest fruits, plants or animals by persons that are legal land users or as a part of an approved eco-tourist visit.

Third level of protection: the usage of natural resources is selective and limited. Commercial and residential activities are allowed only if related to the natural heritage functioning or if in accordance with traditional form of activities, including tourism development.

Activities prohibited in localities under the third level of protected regime are the following:

- construction of industrial facilities, warehouses, large facilities for cattle and poultry breeding or any other facilities that may have a negative impact to air, water, soil, forests or by their appearance or noise generation may harm the natural values of the area, especially peat landscape and rare ecosystems;
- construction or reconstruction of residential, economic buildings or auxiliary agricultural facilities, cottages or any temporary buildings outside the zoning plans and legally approved construction land;
- extraction of mineral sources, construction of mining infrastructure except already commenced geological investigations approved by legal authorities, already planned borrowing sites of construction or decorative rock and clay exploitation only for local needs;
- extraction and usage of peat;
- destruction, collection or any other activity endangering the plants protected as natural rarities;
- damaging of bird nests, destruction of eggs and young birds, disturbing of birds or destruction of any wild animals protected as natural rarities;
- clearing of forests except planned and controlled activities (change of tree species, construction of forest infrastructure or buildings);
- cutting of representative forest trees or other protected or rare forest or shrub species;
- seeding or introduction of plant or animal species not typical for the South Serbia region except planned introduction of game, activities aimed to protection from soil erosion and recovery of degraded areas;
- ploughing of pastures and natural meadows or ploughing of arable land that may cause soil erosion or landscape change;



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- disposal of municipal, industry or construction waste, packaging, disused vehicles or any other machines or devices except agricultural or municipal waste generated in the areas under protection regime that can be disposed at defined and labelled sites;
- manipulation with chemicals or oil products in quantities that may cause water, soil and groundwater contamination or toxic effects to plant and animal species;
- non-regulated wastewater discharge from domestic, economic or other sources;
- non-regulated storage of manure;
- damaging or destruction of buildings which are considered significant due to their architectural properties, period of construction or purpose or if protected as cultural monuments; and
- desertion or mistreatment of agricultural land, roads, surface water, recreational areas, celebration areas or any other land surrounding the roads, surface waters, cultural monuments or capped water sources.

In areas under the third level of protection regime, measures of protection of water supply sources, cultural monuments and nature monument “Golden Beech” shall be implemented.

Education offers and required facilities

Along with these protective measures education offers and required facilities can be implemented for example:

- Bird watch towers
- Guided walking tours
- Information center
- Nature trails (thematically: peat, protected plants, history & traditions; seasonal offers etc.)
- Biking courses
- Hiking courses, etc.

Because of the non-existence of an actual plan identifying sensitive/non-sensitive habitats or species, at the moment no exact location can be determined and should be addressed to the future management plans to be developed.

6.2.6 Monitoring

There are several environmental authorities in charge for implementing environmental monitoring. The Table 6.3 indicates the basic monitoring activities that should be performed in the period after construction of the basic project infrastructure (water supplying system, waste water sewage system, roads, etc).



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Table 6.3: Proposed Basic Monitoring Activities at Vlasina Lake

Media to be monitored	Monitoring Standard/ Regime	Responsibility
Water quality at Vlasina lake accumulation	Decree on Classification of Waters (OG RS No. 5/1968) which divides surface water into four quality classes The quality of surface water monitored regularly, with a sampling frequency once per year at three spots and three depth interval at the lake.	Republic Hydro-meteorological Institute of Serbia is the environmental authority in charge of systematic monitoring and quality analysis of surface water. Monitoring is based on an annual program adopted by the Government through the existing network of the hydrological stations.
Hydrological regime of Vlasinska River downstream from Vlasina Lake accumulation	Monitoring of hydrological regime of the Vlasina River (including daily average flow) should be in order to ensure the minimum maintenance flow.	Regularly monitored by Electro distributive company and checked by the Republic Hydro-meteorological Institute of Serbia
Drinking water quality	Domestic drinking water standards are in compliance with the World Health Organization guidelines and the EU Drinking Water Directive. The control is conducted in compliance with the <i>Regulation on hygienic regularity of quality of drinking water</i> (OG FRY No. 42/1998).	Institute for Public Health from Vranje - responsibility for hygienic control of the drinking water quality in charge for the whole Pcinjski region.
Pollution control in the zones of sanitary protection	Based on <i>Regulation on implementation and maintenance of sanitary protection zones and belts for facilities for drinking water supply</i> (Official Journal of Socialist Republic of Serbia no 337/78). <ul style="list-style-type: none"> – Design the zones and belts of sanitary protection and implement it in the spatial planning documents – Establish polluter databases – Ensure full responsibility for water pollution – Enforce measures for the protection of sanitary protection zones at water intakes 	Surdilica Waterworks Company from jointly with Municipal urban planning and environmental authorities
Sanitary waste water quality , after treatment, before discharging to the surface flows.	Based on <i>Regulations on methods and minimal number of wastewater quality analysing</i> (Off. Jour. Of SRS No. 47/83), and <i>Regulation on dangerous matters in waters</i> (Off. Jour. of SRS No. 31/82) and <i>Decree on classification of waters on inter-republic running waters, international waters and coastal sea belt of Yugoslavia</i> (Off. Jour. of SFRY No. 6/78)	Institute for Public Health from Vranje - responsibility for waste water quality in charge for the whole Pcinjski region



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Media to be monitored	Monitoring Standard/ Regime	Responsibility
Complete assessment of flora, fauna and habitat inventory	<i>Good practice according to Natura 2000 concept;</i> Urgently required to identify the most valuable areas and species; based on the results a preliminary concept for the sheep grazing has to be developed and monitored; the last inventory dates back to the year 2005	Institute for Nature Conservation from Niš and Belgrade

ANNEXES

Annex 6.1 Environmental Impacts of Construction Works and Related Mitigation Measures