Bosnia and Herzegovina

UNDP Project Document

UNDP-GEF Medium-Size Project (MSP)

Government of Bosnia and Herzegovina

United Nations Development Programme

PIMS 3306, MAINSTREAMING KARST PEATLANDS CONSERVATION INTO KEY ECONOMIC SECTORS

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Brief description

Karst fields (areas with geologic bedrock mainly consisting of carbonate rocks such as CaCO3 and MgCO3) are important production landscapes that are characteristic for the Mediterannian region. Approximately 35% of the European continent consists of carbonate bedrock, which is around 3 million km² and most of it is karstified. The barriers which hamper mainstreaming karst biodiversity conservation requirements into spatial planning at local level are: (i) Cantons and municipalities lack capacity for analysis of possible options of land use in karst areas. Studies have identified clear capacity gaps among municipalities (such as Grahovo and Livno) and Cantonal authorities to carry out a serious economic and environmental research of options for the short-term, mid-term, and long-term vision of areas such as karst fields, under different assumptions and scenarios; (ii) poor local enforcement capacity. The project aims to remove the above barriers by developing a model for imbedding karst biodiversity conservation concerns into policies and regulations governing spatial planning at the cantonal level, as well as into the said sectors. Specifically, the project will: (i) assist in preparation of biodiversity-minded policy instrument - a Cantonal spatial plan; further, through replication and co-financing the project will trigger biodiversity-friendly local spatial panning at all karst-lying cantons and municipalities in BiH; (ii) introduce municipal-level regulations for karst field biodiversity use by local population parallel to strengthening enforcement capacity of municipal and cantonal officers and inspectors; (iii) develop by-laws and methodological guidance on ecologically safe peat mining, and test it at 750 ha of karst peatlands; and (iv) promote an international (Croatia-BiH) formal agreement and plan for cross-border water management plan.

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ACRONYMS

APR	Annual Progress Report
BiH	Bosnia and Herzegovina
BD	Strategic Priority of Global Environment Facility in biodiversity
CBD	United Nations Convention on Biological Diversity
CAP	Common Agricultural Policy of the European Union
CO	Country Office
COP	Conference of Parties
EU	European Union
FBiH	Federation of Bosnia and Herzegovina
GEF	Global Environment Facility
GEFSEC	Secretariat of the Global Environment Facility (GEF)
Ha	hectares
IA	Implementing Agency
M&E	Monitoring and Evaluation
MSP	Medium-Size Project
NGO	Non-Government organization
NPARD	National Plan for Agriculture and Rural Development
OP	Operational Program
PD	Project Director
PDF	Project Development Facility of the Global Environment Facility
PB	Project Board
PM	Project Manager
RC	Regional Coordinator of UNDP/GEF
RCU	Regional Coordination Unit of UNDP/GEF
RS	Republika Srpska
SCM	Project board Meeting
SFA	State Fund Agriculture
TOR	Terms of Reference
UNDP	United Nations Development Programme

SECTION I – ELABORATION OF THE NARRATIVE

PART A – Situation analysis

A.1 Environmental context

1. Bosnia and Herzegovina (BiH) is a small country (51,129 km^2) in the mid-western Balkans. Most of the country is mountainous with at least 30% of the area in the karst regions of the Dinaric mountain range which is stretching in general direction NE-SE in the southern part of the country, mostly in Herzegovina. Especially limestone formations have peculiar hydrogeological features formed due to chemical reactions between water and CaCO3 resulting in formation of karst-specific features mainly surface depressions and underground cavities. Karstic depressions range from "vrtača" (small depression in order of tens of meters in diameter) to "karst fields" or "poljes" (easily exciding tens of square kilometers) and have no natural surface flow outlets. Therefore, surface water runoff coefficients are rather low in the karst, as long as immediate catchments are considered. Most of the water drains underground through network of cavities and caverns forming even big underground rivers. Water is disappearing from the surface in numerous sinkholes (sinks, swallow-holes, locally known as "ponori"). Some of them are clearly visible while others are more indistinct. Generally, capacity of those sinkholes is not sufficient to drain all the water in wet periods, therefore large water retentions are formed flooding significant parts of the fields. In Dinaric range, poljes most of the spring time appear on NE side and sinks are distributed along SW side of each polje. This phenomenon is being repeted and is cascading from altitudes of about 1200 m a.s.l. down to the sea level with average "step" height of about 200 m. As a result, rather complicated underground connections are found in BiH karst areas. Many creaks, small streams and even rivers (e.g., Trebišnjica) are disappearing in sinkholes and reappearing with another name in the springs on a lower altitude.

2. The rivers of BiH belong to either the Black Sea (the Danube River) catchment or the Adriatic Sea catchment. Most of the rivers in the karstic regions drain towards the Adriatic Sea. In the category of karstic catchments the Cetina (which has two-thirds of its catchment in BiH), the Neretva and the Trebišnjica are most important ones. These 3 catchments are almost entirely karstic and make up to 25% of the territory of BiH. Most of the karstic aquifers are internationally shared with Croatia, Serbia or Montenegro.

3. The key karst fields of BiH (Livanjsko Polje), measuring some 65 km by ca. 6 km (in average) is one of the largest karst fields (polje) in the world. It is situated at an altitude of about 700 m a.s.l. and has no surface water outflow. Therefore, all the water is draining through numerous sinks and a network of underground karst cavities towards the Cetina River in Croatia. The karst field is located completely in BiH, but represents a significant part of the Cetina River catchment area, influencing water availability in the neighboring Croatia, which makes all of its waters regarded as international. Livanjsko polje (41,000 ha) is one of the largest karst fields not just in BiH and the Dinaric Alps, but also in the world. Together with the surrounding mountains (Kamešnica and Dinara in the South, and Cincar, Staretina and Šator in the North and West) it forms a unique geomorphological and ecological entity. Livanjsko polje contains an impressive network of surface and subsurface water bodies, including rivers, springs, lakes, oxbowes. A unique phenomenon are estavelas, holes in the field's bottom that connect underground relief with the field's surface in hydrological and hydro-biological respects. Depending on undergound water level they act as springs in wet season or sinkholes during the dry season. Livanjsko polje is one of the rare fields in the Dinaric Alps where natural process of karstification is still ongoing. This is a unique natural phenomenon that is driven by carbonate particles, hard water, and in some cases microorganisms.

4. The BiH karst fields are hydrologically and ecologically closely related to the confluence of the Cetina river, which is an important karst watercourse in the region. Besides, Livanjsko polje is connected with five neighboring karst fields: Grahovsko in the Northwest , Glamočko in the North, Suičko and

Kupreško in Northeast and Duvanjsko polje in the Southeast. Another unique phenomenon - the development of a post-glacial lowland basophilous wetland – is ongoing in the depression of Livanjsko polje in its northwestern part which is known as Ždralovac. The soil that is being developed as as result of this process, known as planohistosol is a unique hydromorphous type, which is vital for the survival of wildlife: the swamp's plant species, birds and other organisms. The area that is covered by planohistosol in Ždralovac is the largest one in this region.

5. The karst fields of BiH have extremely rich biodiversity at all levels: genes, species, ecosystems[1]. It is especially rich in wetland species of vascular flora, including dozens of endemic and relict species. Livanjsko polje is an excellent example of a well preserved "Temperate Grassland", a biome which is underrepresented in the protected area systems world wide, according to the United Nations List of Protected Areas (Chape, et al, 2003). According to the EU Bird Directive, Livanjsko polje is an Important Bird Area, and it is of unique international value for the Corncrake, an internationaly important bird indicator species. For the Balkan Peninsula, the site is of great conservation interest as it has maintained unique peat-bearing bog, marsh, lowland oak forest and grassland habitats important for several breeding birds, such as Montague´s Harrier, Corncrake, Lesser-spotted Eagle, Redshank, Snipe and Great Bittern. Since karst fields have largely declined in the area, some of the species now only live exclusively in Livanjsko polje as they have become extinct everywhere else. Especially valuable are about 100 bird species of which many are virtually bound to the habitats of the karst fields. It is also important to emphasize the richness of ichtyofauna, as well as the invertebrates and mammals.

6. Karst fields, and especially the Livanjsko polje, have a unique vegetation composition, which combines plants characteristic of peat-bearing fen, hydro-thermophilous meadows, hygrophilous woods of common oak and birch. This combination constitutes the rarity and exclusivness of the area. In accordance with the EUNIS classification, there is a high habitat's diversity. Many forms of biodiversity found in BiH karst fields are globally endangered (according to the criteria of IUCN). Many species of vascular flora, mycophyta, birds, amphibians and fishes are allready on the Red List. A more detailed description of the biodiversity values of the BiH largest karst field is presented in Annex 3.

A.2 Administrative and social context

7. In 1995, the internationally brokered Dayton Peace Agreement ended the war and established Bosnia and Herzegovina as a State comprising two entities, Republika Srpska (RS) and the Federation of Bosnia and Herzegovina (FBiH), each with a high degree of autonomy. Brcko District was established as a separate, self-governing administrative unit. The FBiH is further split into Cantons, which in turn are divided into municipalities. Land can be owned by municipalities only, but Cantons can on their behalf negotiate and issue concessions for land use; develop, coordinate and approve spatial plans. RS does not have cantons, and is divided straight into municipalities. Municipalities of the presend day BiH are extremely understaffed and have weak capacity, but it is clear that they will remain the key grass-root administrative unit and much effort of the international community is focused on strengthening the municipalities' capacities.

8. BiH karst fields are situated in the Federation of BiH (FBiH) in Canton 10 (the Canton almost entirely corresponds with BiH-part of the Cetina river catchment). This Canton has 6 municipalities and polje is shared among three of them (Livno, Tomislavgrad and B. Grahovo). The largets karst fields (Livanjsko polje) have all together 67 villages of which 50 belong to Livno Municipality, 9 to Tomislavgrad and 8 to Bosansko Grahovo Municipality. Land ownership for the Polje is mainy municipal, with privately owned lands (mainly farm plots) along the periphery. The peatand area in the northern part of the Polje is mostly municipal – split between municipalities of B.Grahovo and Livno.

[1] e.g. Vermeulen & Whitten 1999

The northern part of the peatland is under a long-term concession to Finvest extraction company (30 years), and after extraction the land will be transferred back to the municipality. Cantons can, through their spatial planning process (coordinated with municipality and current land users and concessionees), decide on long-term land use, however, the practice of spatial plan development has been only emerging recently, and currently neither municipalities nor the Canton have spatial plans that could define the long-term vision for the karst fields.

9. The field has 15,000 inhabitants out of which 1,700 are people returned home after war, generally considered most socially vulnerable. All villages of Bos. Grahovo municipality were destroyed during the war, and were partially reconstructed afterwards and electrified. Some 20% of villages are still without electricity supply. Villages that belong to Livno Municipality are in a better position – 99% have electricity, while the rest will be electrified by the end of 2007 the latest. Villages are mainly inhabited by elderly population that survive from meagre state retirement allowances, and subsistence farming which as such from environmental perspective has a very marginal effect, if any, on the biodiversity unless it turns into threats such as logging and fires. The main types of subsistence farming are cattle (cow, goats) and sheep breeding, orchads, limited arable farming, hunting. Arable farming itself is not threatening meadows or peatlands but burning of vegetation presumable to increase soil fertility is causing huge peat fires, and this is one of the threats to biodiversity. This is especially true for the northern part of the karst field, where the peatland area is found. The southern part of the peatland area which is in Grahovo municipality, about 1,500 ha was drained back in 1970-80 for agriculture and was up to the 1991 used by an agricultural enterprise under a concession agreement. After the war, only 10% of the pre-war population returned back to the area by 2006; the agricultural enterprise was no longer there, the area was left abandoned and completely unused, the the Grahovo municipality does not have even a 4-year vision for this part of the peatland – a problem that could presumably be resolved through the Cantonal spatial planning process. In the meantime this drained area is extremely susceptible to fires, which is also true for the northern part of the peatland – the area under Finvest concession (land owned by Bosansko Grahovo Municipality). In addition to fires, much of the population which is returning after war to the area resort, driven by poverty, to overlogging of the natural oak and birch forests (breeding area of herons), and this presents an important threat to biodiversity.

10. There are several farmers in the area who, on top of subsistence farming, sell milk to processors, or produce cheese for sale (Livno cheese brand is quite well established in the local and regional markets). One of the problems faced by such farmers is inappropriate storage and processing hygienic conditions and temperatures. Nonetheless, the agricultural sector of the Government subsidizes purchases of milk from local farmers who have more than 5 cows, thus stimulating pastoralizm, which is good for grassland biodiversity at the karsts (it maintains the habitat of the Corncrake for example). Another incentive available from the Government is full compensation of the commercial interest on credit taken for agriculture purposes in the area. There is also a zero-credit opportunity available to local farmers. Thus, although small, the pastoral sector in this part of the country is projected at least to stabilize if not to grow, and this this has a positive bearing on the meadows of the karsts – a practice that is currently promoted by the Cantonal Ministry of Agriculture (through subsidies, see the baseline section), and needs to be further fixed through the Cantonal spatial plan development process.

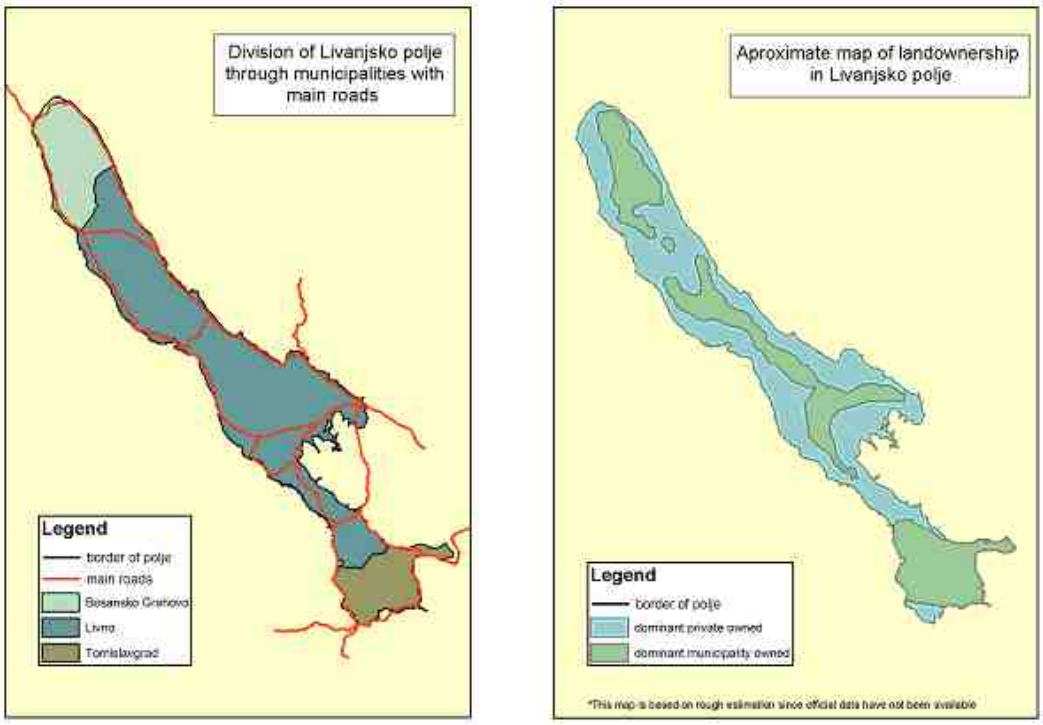


Fig 2 Administrative and land ownership map of the BiH largest karst peatlsnds (Livno Polje)

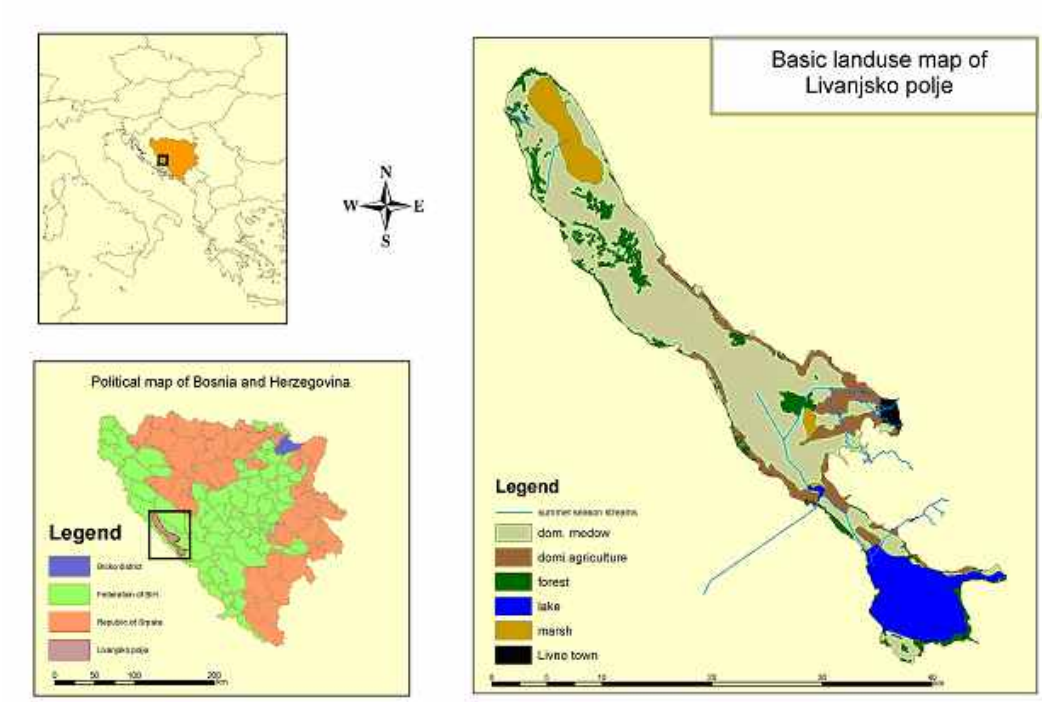


Fig.3 Basic land use map of Livno Polje

A.3 Eonomic context

11. At karst fields, coal and lignite mining has been a major industry before the war and is still playing an important role in imployment and revenue generation, although on a much lower scale than before the war. There is a common belief among ecologists that the existing coal and lignite mines are not significantly damaging biodiversity (although more precise data is unavaiable and is impossible to collect), so the only potential threat might be coming from new plans for Tuscnica to mine coal for syntetic oil production. This has not materialized yet, and is unlikely to materialize before the Canton adopts its spatial plan. Nonetheless, the mining company assures the public at large that it is "in all cases going to adhere to all EU directives and standards that are related to environmental protection.

12. Peat extraction, driven by Finvest company in the so-called Zdralovac area, is another important sector at Livanjsko polje. The total size of the peatland is around 4000 ha, and about 1700 ha is under the concessesion by Finvest Copmany. There is an old network of drainage ditches built in the 1960-70s, but no new large drainage networks are planned (temporary ditches may be constructed[2] without digging up to the underlying clay layer). Neither does the extraction company resort to water pumping to extend the excavation season. All in all, the peat is being extracted in a relatively safe way, yet not fully sufficient to allow the peatland to use its natural renaturalizatiton capacities. In the absence of botanic and hydrologic studies to accompany the peat excavation works it is difficult to prevent the spread of aggressive non-wetland vegetation. Further information on the peat extraction as a threat is described in the Threats and root-causes section. The microeconomics of peat extraction is given in Annex 3.

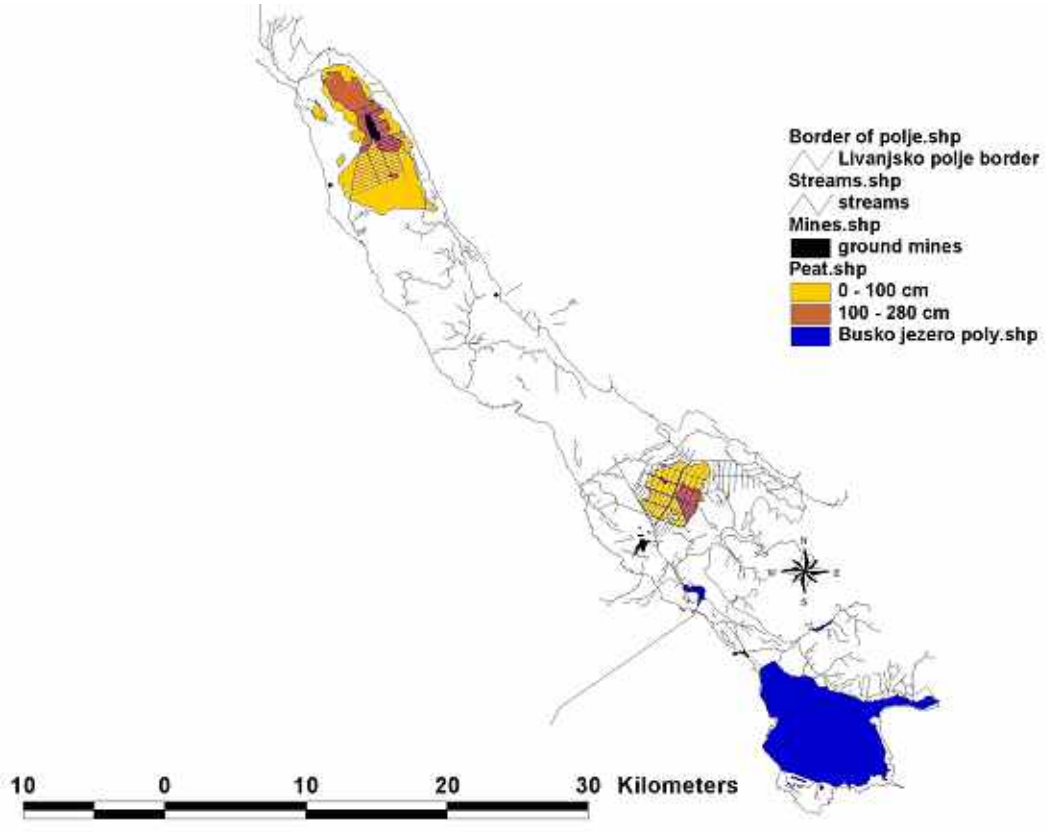


Fig.4 The Zdralovac peatland and peat excavation areas and ditch network

[2] Information from the Finvest company

13. Water management is one of the controversial issues in this part of the country. Water from the karst field is naturally gravitating towards Croatia by sinking from the filed's surface through sink-holes. When the Orlovac Phase I Hydropower Station was constructed before the war, a system of the canals was built touching upon the central and South-Eastern Part of Livanjsko Polje, to collect and control water flow, especially during floods. The natural result of this was emergence of reeds and shrubs as a result of groundwater table drop in the central part of Livno karst area. A socio-economic problem of this was reduction of water in some of the springs at the Croationa territory depriving many villages there of potable water. The plan made in 70s in brief is similar to Phase I, but is this time proposed for the North-Western part of the Polje, again accompanied by plans for construction of a number of new canals and a retention basin Caprazlije. This would reduce flooding periods in the NW of the field brining new negative vegetation succession processes, and increase power generation in Croatia, but would obviously have adverse effects on water supply in Croatia.

14. A more detailed description of the key economic sectors is presented in Annex 3.

A.4 Institutional context

15. Currently in the RS, environmental protection is the responsibility of the Entity, and in FBiH, it is divided between the Entity and Cantons. The ten Cantons have their own ministries in charge of the environment. In the RS there are no Cantons. Therefore, in RS municipalities comprise the next tier of government having environmental management responsibilities. Presently, there is recognition of the need to transmit certain environmental competencies from Entity to the State level, as well as to provide co-ordination of environmental protection activities on inter-entity level, but this is a long process which may have only a slight bearing on the project. Entity and state level can pass laws, issue regulations, but implementing capacities are at the cantonal level. Canton can also issue their own regulation in accordance with its Constitutional competencies and aligned with relevant regulations passed by higher instances of government.

16. The state-level Ministry of Foreign Trade and Economic Relations has primarily a coordinating role with regard to environmental and energy issues, including serving as GEF Operational Focal Point. The ministry has limited implementing capacities, but coordinates its activities through Entities. Also, the Ministry represents the country on international level with regard to environment. However, no new competencies with regard to environmental protection are to be transferred from entities to the state level in the next few years. In the long-term, however, this administrative reorganisation should have more efficient and capable state level ministry capable of taking competencies from entities mainly, and not only having a coordination role as it is the case now.

17. The State level focal point for implementation of the Convention on Bioloical Diversity is the the FBiH Ministry of Environment and Physical Planning. As CBD focal point, the Ministry is responsible for communication with international bodies, the initiation of activities required by the Convention and coordination with other relevant authorities and concerned stakeholders.

18. In FBiH the recently established Federal Ministry for Environmental Protection and Tourism is competent for environment issues. The Federal Ministry for Energy, Mining and Industry has a competency in coordination and implementation of projects related to energy and mining that of interest for the Federation, i.e. cross-cantonal projects. The ministry is competent for creating policy related to energy and geological explorations, including development and approval of by-laws, inspection of electro-energy objects and machinery as well as inspection of exploration and exploitation of mineral resources. Geology Institute that is under authority of the Federal Ministry conducts explorations of basic and regional geological sites that are in the interest of Federation; They also collect, analyse and provide information related to energy, mining, water supply, etc.

19. In both Federation of BiH and RS, the agency with primary responsibility for the water sector is within their respective entity Ministries of Agriculture, Water Management and Forestry (MoAWF). Within MoAWF, each entity has a Department of Water Management responsible for the water strategy and policy, the issuing of agreements and permits, setting of standards and regulations; ensuring compliance with laws and regulations through licensing and inspections; and overall control of Public Companies for Watershed Areas.

20. Under the Law on Water (1998), the Federation of BiH delegates the main responsibility of preparation of strategic decisions and planning regarding water issues to water authorities managing watershed areas. With the recent amendment of the Law, Livanjsko Polje is falling under the Tomislavgrad water authority. The work of water authority is guided by a mandate typical for water basin directorates mandated by the EU Water Framework Directive, and the newly established Tomislavgrad water authority will in the next years get more capacity.

21. The Cantonal Government that is comprised of 8 ministers, chaired by the Cantonal President is the most important institution for the project. Cantonal Ministry for Economy, which is competent for mining regulations, and concessions and Cantonal Ministry for Construction, Environment and Spatial Planning, competent for environment issues – their works are closely defined by instructions taken by the Government of Canton 10. Entity level of government has a primarily monitoring capacity through its inspectorate. Cantonal Government has showed great interest in joint implementation of this project, however, they lack capacity and experience with regard to these issues. The Cantonal Ministry has 10 people, but only 2 specialists who are involved in environmental conservation among other things – an Asistant Minister for Environment, and a Nature Conservation Specialist. Cantons have implementing capacities in area of spatial planning, mining and water management regulation, which stems from constitutional competencies of cantons.

22. The current discussion related to constitutional reform in Bosnia and Herzegovina has been introduced by those who aim at strengthening of state institutions and rationalising the overall administrative apparatus. The constitutional reform will be addressed as a top priority after the 2006 elections. It is impossible at the moment to give any predictions in which way these discussion might evolve, but to be successful would require a broader support. However, it is almost certain that cantonal competencies related to police and internal affairs and higher education will be transferred to the state level in some years to come. If and when financing of police forces is transferred to the state level, this will have a positive impact on cantonal budgets provided no changes are introduced to the current pattern of allocation of public revenues. (Currently in Livno Canton, 30 % of revenue is allocated for financing of police forces).

A.5 Policy and legislation context (including spatial planning)

23. Since the end of the war, Bosnia and Herzegovina has made considerable progress, particularly in maintaining the peace, creating new institutions and establishing a legal structure. It is now moving beyond peace implementation to applying the standards of the European Community. Each entity has its own Constitution, Government and bicameral Parliament, had its own army until recently, still has its own judiciary (including supreme and constitutional courts) and the legal system as well as its education and tax system. Furthermore, each canton has its own constitution, government and cantonal assembly and exclusive competencies in education, internal affairs, management of public services, management and use of construction land, management of natural resources and mining activities, social policy and protection, establishment and implementation of tourist policy and development of tourist resources.

24. The new Law on Allocation of Public Revenues that was passed this year and already in implementation has been beneficial for Canton 10, since it considers criteria of territorial space. All level of government have seen the increase of revenues with the introduction of VAT this year and with the

introduction of new revenue allocation system the cantonal revenue for this year has been higher than planned, but it is expected to stabilise at USD 27,000,000 in the future (before the introduction of this new law the real cantonal budget was approximately USD 20,000,000).

25. All water-resources related matters between Croatia and BiH are regulated by the **Treaty** between two governments about **regulation of water resources relations**, signed in Dubrovnik on 11 July 1996 (Official Gazette 12/96, in power from 31 Jan. 1997) and based on Helsinki Convention from March 1992. In Article 7, there is a list of specific agreements upon various catchments. Unfortunately, there is no mention of the Cetina river catchment, which leaves reasonable assumption that the issues regarding this area will follow the principles of the Convention and other principles widely accepted by European Community. This is implied by Article 4 which reads as follows: "Parties carrying water resources activities in the areas covered by the Treaty will try to use water in rational and just way, environmentally appropriate and will take necessary measures and actions in order to limit sources of pollution and will in time mutually inform each other about cases of excess and unusual pollutions". Nonetheless, potential tention about water uses in this catchement does not cease to exist.

26. Cantonal *Law on Mining and Geological Resources (2001)* and *Law on Concessions* requires concessionees to carry out "land recultivation" before passing the land over to its owner. The recultivation plan has to be drawn before concession is issued, i.e. it has to be presented and agreed alongside the main package of documentation presented with the request for concession. However, in some cases in the past exceptions were made, whereby concession seekers "committed to"development of the recultivation plan at a later stage closer to concession conclusion. Such is the case of the Finvest peat extraction company. Recultivation is not strictly defined and is assumed to mean a condition of land ensuring general environmental integrity and further profitable use. This means, for example, that a former peatland may by recultivated to become a forest if afforestation is selected and approved in the recultivation plan. Recultivation of particular areas should in principle be coordinated with the Cantonal or municipal spatial plans, but since the latter are largely absent in BiH, recultivation scenario is a pretty much left for the discretion of the concessionee and the Cantonal authority approving the concession.

27. In the Federation of Bosnia and Herzegovina, Cantons are responsible for the preparation, adoption and implementation of Cantonal Spatial Plans. Once the Cantonal Government passes an official Decision on Plan Development, a Plan Council is established with a role to give suggestions and directions for the plan as well as to monitor development of the plan. The Council consists of Cantonal ministry representatives, municipality officials, experts, academia[3]. The Council also has to ensure proper public participation in the plan development, approval and implementation process, but this is not frequently applied in practice. A cantonal spatial plan should contain long-term development objectives, land use guidelines, settlement and population distribution, industries and services distribution, infrastructure positioning and area connections, environmental protection measures, as well as directions for development of municipal spatial plans. Plans are approved and adopted by the Cantonal Parliament and prior to this, Federal Ministry for Spatial Planning and municipal councils give their consent. Before going into the adoption procedure, the draft plan should normally be subject to public hearings. It is clear from above, that in an environmentally fragile area such as as Livanjsko Polje, cantonal spatial planning is an important process, as it largely defines the future set up of industries, and prevents damaging behaviours. At the same time it can stimulate activities (such as ecological tourism) which may bring additional value to biodiversity.

28. Policies that limit illegal or unstastainable use of nature by local people are not enforced well despite the fact that they may be stated at the Cantonal or Entity level. The reason being very limited control and patrol capacities of the environmental authorities at the local level. In the case of Livno Polje, the prohibition for burning of vegetation is not at all enforced, brining about almost annual peat, coal and

[3] Cantonal Spatial Plan Council for the Canton 10 has 10 members.

wood fires and undermining the canton's very economy – the wood industry (as he fires spread first from local people's agricultural plots on to open peatlands and, driven by the wind, on to the mountain forests).

A.6 Threats, their root-causes and biological impacts at karst poljes and peatlands

29. There are 3 major threats to karst fields and peatlands, stemming either from productive activities, or from unsustainable use of karst fields by local people. The 3 threats, and their corresponding biological impacts are:

Threat (i) Unsustainable water use resulting in disturbances in the karst field water balance important for flood and dry meadows biodiversity (the threat is not actual, but highly probable)

30. Karst fields are very sensitive to ground-water fluctuations. E.g. Livanjsko polje, as most of karst fields, is annually flooded (up to 16,000 – and even 22,000 ha – out of about 41,000 ha in 3 major areas) when its natural sinks get full and water splashes out to the surface. This mostly takes place in the spring and lasts from 15 days to over 6 months depending on the hydrological year. This makes an attractive environment for various meadow bird-species and habitats to other forms of biota (especially karst-bound species).

31. In the late 1960s and early 70s a complex water resources project dramatically changed natural conditions of about 50% of the area (in its south-eastern part). In order to prevent frequent flooding and to improve agricultural production a network of drainage/irrigation canals was constructed. All the water from this part of Polje was conveyed towards Busko blato which has been turned into Bosnian most area-spacious (cca 6000 ha) and second largest artificial lake - storage reservoir (800·106 m3) for Orlovac Hydropower plant in Croatia4. Area of Busko blato has been scarified in order to cultivate the rest of the land (the aim that can hardly be considered as successfully reached), but it seriously impacted natural life.

32. Those large hydrotechnical projects in the past account for a substantial drop in the water table in the south-eastern part of the field. The drop of the water table brought about negative vegetation succession, already observed at approximately 20% of the area, evidenced by replacement of meadow communities with reeds, and willow shrubs. The impact of the past hydrotechnical works continues to be felt up through now, as no conservation studies or measures have been undertaken to prevent it. As aresult, annually, about 10% of internationally important plant communities disappear because of the succession. Species, dependent on the short-grass meadow communicities (such as Corncrake) under the current trend run the risk of 15% annual population decline. It is also important to state that at least 7 bird species, which are according to IUCN categorization vulnerable and rare (in addition to Crex crex including Gallinago gallinago, and Grus grus), could permanently disappear from the area in the same period of time. There is a prediction that large mammals such as jackal Canis aureus can be affected by negative vegetation succession too.

Root-cause: A multitude of uncoordinated interests vested in water use

33. At the same time, in addition to the persisting negative effect dated to the past, the same threat continues to have a potential for a much higher biological impact in the future, the root-case cause being the **unresolved water use conflicts.** Firstly, there is a strong lobby for new hydrodam constructions, driven by HEP, dating back to pre-war discussions with local municipalities. At the same time, plans for hydropower conflict with water supply from the point of view of Croatia. In the south-east, diverting of water from Livanjsko polje as a result of Phase I resulted in disturbance of springs along the Cetina river in Croatia. By drying-out sink areas, keeping water in retention and conveying it through impervious canals and tunnel to a concentrated spot on a lower level (Sinjsko polje in Croatia), all the dispersed

[4] Please refer to Annex 7 for a more detailed description.

springs North-West off the powerhouse in Croatia would suffer severe water quantity loss and some might dry-out completely. It is clear that if the hydropower scheme is fully developed (to the benefit of Croatian Electro-utility (HEP) than water supply in Croatia might suffer water loss and deterioration of its quality. There is also an environmental lobby represented by local NGOs and the Cantonal Ministry of Environment, which calls for preservation of the karst field in its current state, but it is weak and especially the NGO sector is put aside of the discussions on hydropower/water use. In the current immature local governance context in BiH, which is still being under construction since the end of the war, it has been extremely difficult in the past years to put the representatives of the three forces at one table, and the progress in reaching a comprehensive agreement and prevent the threat from materializing once and for all, has been close to none.

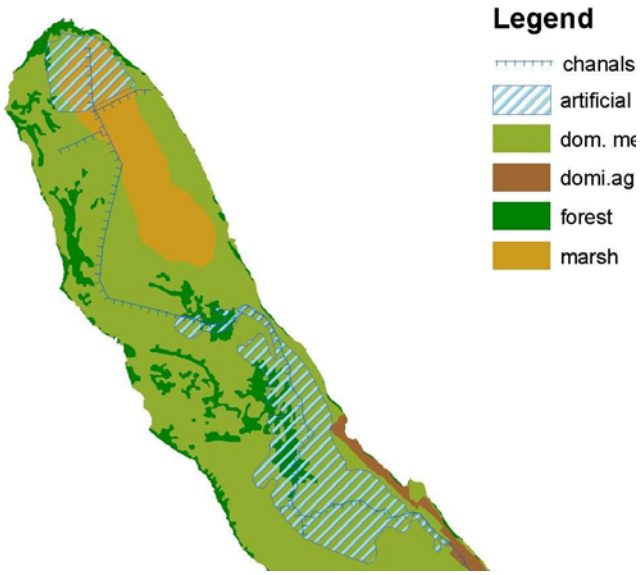


Fig.5 Draft view of the proposed Phase II Orlovac hydropower plant.

Threat (ii) Peat extraction

34. Annually, in the months of July – September, about 80,000 cubic meters of peat are excavated at Zdralovac. The peat generation processes is driven by water rising up from ponors in October, and staying on the soil level or higher all the time up through July, whereby no peat-extraction works are undertaken. In July the water goes down through natural underground sinks (ponors) and the peat extraction starts while the peatland is dry, up through late September when the water returns back to soil level through ponors. There is an old network of drainage ditches built in the 60-70s, but no new large drainage networks are planned (temporary ditches may be constructed5 without digging up to the underlying clay layer). Neither does the extraction company resort to water pumping to extend the excavation season. Such excavation practices leave quite a bit of time for the peatland to regenerate naturally, and therefore the regeneraton capacity of the karst peatlands is high. All in all, the peat is being extracted in a relatively safe way, yet not fully sufficient to allow the peatland to use its natural renaturalizatiton capacities, and leaveing the peatland highly susceptible to erosion and fires. Peat erosion/oxidization and its destruction by fires disrupts the peat-soil formation process. Cessation of peat formation turns peatlands gradually into either shrubs or sandy areas and triggers complete change of the vegetation structure. This causes disappearance of raised and blanket bog communities (*Oxyccoco-Sphagnetea* and *Scheuchzerio-Caricetea fusci*) and species that are closely associated with them such as rare carnivorous plant Drosera rotundifolia, and presents a threat of disappearance to a number of birds such as Corncrake.

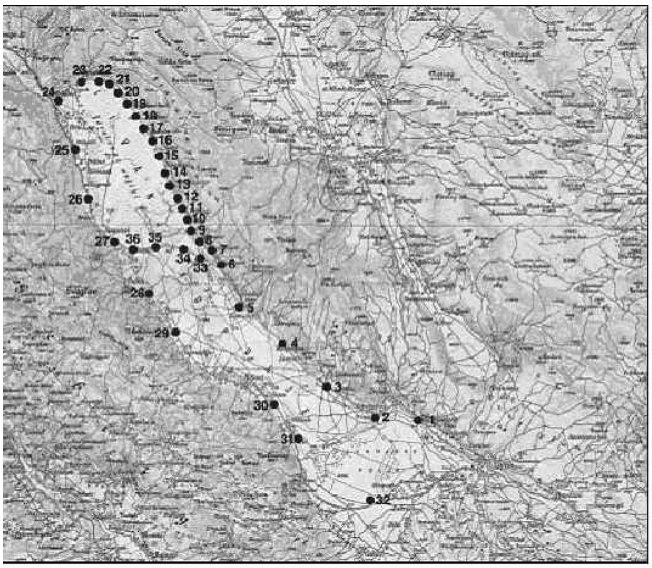
[5] Information from the Finvest company

Root-cause: Unscientific post-excavation regeneration approach by the peat mining company

35. On the positive side, the size of annual depth of extraction is not high (0.8 m), and the peat extraction company is leaving at least 0.4 of peat for regeneration. On the other side, extraction is not followed up by regeneration works leaving it all for nature to "make up", i.e. drainage ditches are not closed – albeit they are not being cleaned (which is good for the habitat), which leads them to gradual natural overgrowth; and no *Carex* reseeding is performed. Overall, the peat mining industry does not have a clear single solidified approach to post-excavation peatland regeneration. The result is that despite the surprisingly high natural regeneration capacity of the peatland, this capacity if unassisted in any way is fragile and highly susceptible to fires and dropped groundewater table. Therefore the formerly extracted sites present a very mixed picture - those tracts which were 'lucky' not to be set on fire and maintain a favorable groundwater table seem to be returing back to *Carex* domination already in the 2nd year (!) after extraction. But next to them are areas which were burnt in year 2 after excavation – these are complete reedbeds with dense patches of willows and birches, and it is a question whether and when they will be capble to return back to Carex dominated peatlands. Still other areas, where extraction was long since completed would benefit (for their fire safety and natural regeneration capacity increase) from closing up of some of the drainage ditches.

36. The bottom line is that, in the absence of botanic and hydrologic studies to accompany the peat excavation works it is difficult to predict the pH and hydrothermic balance that is going to be established after excavation, and therefore it is not possible to scientifically prevent the imminent spread of more aggressive non-wetland vegetation (shrubs, willows, reeds). It is important to topple up the natural regeneration capacity of the peatland with a number of activities botanic and hydrotechnical activities, currently not carried out – for which such peatland-dependent species as Great Bittern Botaurus stellaris, Snipe Gallinago gallinago, Redshank Tringa totanus, Marsh Harrier Circus aeruginosus and Montagu's Harrier Circus pygargus are being gradually forced out of the peatland. Fig.4 shows the avifauna observation points against the outline of the peat extraction site [the research on links between important bird population and condition of the peatland was carried out in 200-2005].

Fig.6. Avifauna observation sites used by international scientists. Points 6-27, 33-36 circle the peat extracton area.[6].



[6] M. Schneider-Jacoby *et al.:* A preliminary assessment of the ornithological importance of Livanjsko Polje (Cetina River Basin, Bosnia and Herzegovina). Acrocephalus 27 (128-129): 45−57, 2006

Threat (iii) Unecological behavior patters among rural people

37. Annually, about 70 ha of karst peatlands are destroyed by fires set up by local people. Excavated peatlands, unless protected after excavation through careful monitoring of the water table and environmental patrol, become extremely succeptible to fires, as was discussed in the previous section. Furthermore, logging destroys unique patches of native woods, which in the case of LivanskoPolie is a home to a colony of herons. It is worth noting that this threat is not unique to Livanjsko Polje – all karst fields are mosaics of wetlands, grassands and woodland, and in most cases the woods are really unique, and suffer from local people behaving in an unecological way.

Root-cause Rural post-war poverty

38. Logging is clearly driven by rural poverty. The 50 ha plot of birch and oak woods is owned by several private people. Many of these are returnees, who earn additional income by selling gradually the forest they own to businesse or people, which ultimately is beling logged. The rural poverty issue is clearly an issue throughout the whole of BiH, and karst fields (including largest Livno Field) are normally associated with the poorest communities. In every karst field, where illegal logging pops up, the reason is to be traced to poverty combined with lack of environmental enforcement.

Root-cause Limited capacity of Cantonal ministry of enforce environmental policies

39. The capacity of the cantonal environmental authorites, not to mention municipal authorities is obviously limited. Currently logging and fires are not controlled by any environmental inspector, and although from 2007 the Canton will have one environmental inspector to inspect all environmental matters in the Canton, it is questionable whether the full working day of one inspector is sufficient to to understand and monitor the biodiversity of the Polje, to prevent threats by working with local people. Neither the municipality nor the canton have fines introduced for fires or illegal logging. Cantonan Government has not had capacity to reach out to the owners of the wood, as well as to people and companies who newly acquire parts of the forest, to discuss the ecological value of the wood and its prospective uses. Participatory discussions such as these are unlikely to happen before the Canonal spatial plan starts to be elaborated, and before there is a enforcement capacity set in place and capacitated to reach out to fragile areas such as Livno Polje.

Root-cause: Rooted cultural beliefs

40. There is a deeply rooted cultural tradition of the neighboring villages of weeding out old vegetation at farm plots with fire. In the past this process was very carefully controlled by people themselves, i.e. they would physically start, monitor, and put out the small fires here and there to destroy old grass in the belief that that would leave to higher productivity of the new grass stands. Although there are studies available showing that this belief is unjustified7, local environmental authorities have failed to explain to 60-70 year old people that this practice if uncontrolled is extreme destructive. They do not believe the "productivity language" rather they believe that what their grandfathers were doing is today still the right thing to do. Today, however, 60- and 70-year olds can not afford controlling every single fire, so they simply put the whole plot on fire, which very quickly spreads on to neighboring drained peatlands.

PART B – Strategy

B.1 Baseline Scenario

[7] See, for example, the peatland productivity studies by Belarusian scientists.

41. BiH is still recovering after the war. Its immediate priorities up to date were focused on normalization of economy, building a governance system, resolving the issues of refugees and returing people. Therefore baseline activities in the area of environment and in the biodiversity conservation sector are few compared to countries with no post-war experience. Similarly, industries impacting the condition of important landscapes, such as mining, water management, tourism, are still far from the pre-war performance. Nonetheless, the PDF A enabled collection of data relevant for the project baseline, and the summary of this research is presented below.

42. Under business-as-usual coal mining is going to continue contribugin largest share of revenues to Cantonal economy. Direct revenue for the government is made of fixed concession fee for exploitation of lignite in the amount of USD 1,200,000, charge for the exploited quantity of lignite, and a 5% sales tax from "Tusnica" coal mine. This should amount approx. 0,60 Euros per tonne or 204 000 Euros per year. This revenue is divided between the Canton and municipality: 60% for the Canton and 40% for municipality. In the next 30 years of operating under business-as-usual, the Tusnica mine is expected to general approximately USD 11,000,000 in gross profit.

43. Calculated on the basis of paid concession to the canton proceeds from peat extraction amount to 3% of gross revenue (which is further shared between the Canton and Bos. Grahovo Municipality on the basis 60 % and 40 % respectively). This amounts to about USD 700,000 annually approximately, but with the unpredictability of this business, planning can be done only for a 5-years perspective, which means that the 5-year cost of this baseline element is approximately USD 3,500,000 (in gross profit).

44. In terms of water governance, Linvanjsko Polje is falling under the Tomislavgrad Water Authority. Under the business-as-usual scenario, the Authority, whose annual budget is some USD 40,000, or USD 160,000 in four years, is unlikely to trigger and resolve the cross-boder water management issues with Croatia.

45. Tourism activities will continue to develop without engagement of local people. In 2007, the Canton will complete the investment in the new ski attraction. Annually, the tourism industry in Livno and Kupres will continue to earn approximately USD 190,000 (gross) from "classic" tourism, extrapolating from data presented in Annex 3 (or USD 760,000 in 4 years. Taken together with the 2006 investment, this amounts to USD 845,000).

46. The spatial planning process is new to the post-war BiH. It is better advocated at the entity level, and less known at the cantonal, not to mention municipal level. FBiH will in the next 2 years develop an all-entity general spatial plan. The level of detail in it, and the elaboration process (in terms of wide participatory principles) will not be sufficient to resolve the faith of critical natural landscapes used in productive sectors, such as Livanjsko Polje. Budget allocated for the FBiH general spatial plan elaboration is app. USD 3,000,000. Herzebosanski Canton, although one of the first in the state to show interest in developing a new spatial plan, has for the past year not been able so far to mobilize capacity and resources enough for a holistic, participatory and detailed spatial plan. Under the business-as-usual scenario, without the support of the project, the Canton is unlikely to start spatial plan elaboration.

47. The Local Territorial Management of Karst Poljes initiative, implemented jointly by WWF, Council of Europe, UNESO, UNDP, IUCN, and FAO is planning to invest at least USD 1,200,000, in 2007-2010, with the objective of "supporting the sustainable rural development of Livanjsko and Sinjsko Karst Poljes, based on an appropriate management of natural and cultural resources, including traditional agricultural products, under an integrated territorial approach". In order to achieve this goal, the project has three specific objectives: (i) Supporting the economic viability of traditional farming systems and products to contribute to the maintenance of landscape and biodiversity; (ii) fostering regional management of natural and cultural resources to ensure long-term conservation of biodiversity (through important natural karst systems) and to contribute to sustainable rural development; and (iii) Building a specific tourism product (brand) and implementing actions to create basic conditions and pilot initiatives for a sustainable development of tourism. The project covers BiH and Croatia, but it is yet to be finalized.

It is important to note, that the support to individual and associated farmers is one of the positive activities supported by the cantonal Government. As such, it is both a baseline – but also an associated activity for the present project which strives to provide environmentally MORE sustainable alternatives to livelihoods than illegal logging. The support of the cantonal Ministry of Agriculture to farmers (mainly subsidies) amounts to approximately USD 380,000.

48. Annex 3 contains additional details on activities in each of the economic sectors. To summarize, the business-as-usual scenario is unlikely, in the next 3 years, to trigger holistic spatial development at the Cantonal level that would harmonize biodiversity concerns with economic interests. Industries are going to continue to be guided by outdates pravilniks, damaging ecosystems, and no value will be attached to important natural resources such as peat. Capacity of local environmental authorities and NGOs will remain weak to advocate harmonizatin of biodiversity with economic uses, and people will remain largely unaware as to why some of their current practices (such as oak wood logging and burning of vegetation) are destructive for environment.

B.2 The GEF Alternative: goal, barriers to be removed, outcomes and outputs

49. The project's goal is to ensure long-term conservation of the internationally important natural karst systems in BiH and set an example of their conservation across the region. The project objective is to strengthen the policy and regulatory framework for mainstreaming the requirements for conservation of karst and peatland biodiversity into productive sectors (mining, water use) and spatial planning at Cantonal level.

50. The alternative is aimed at removing the following 3 main barriers to mainstreaming karst biodiversity interests in spatial and sector policies.

Barrier 1 Cantons and municipalities lack capacity for analysis of economic and environmental strengths, weakness, opportunities, and threats related to possible options of land use at karst areas

51. Mainstreaming of biodiversity happens when stakeholders are clear and in agreement about various resource use options. Doing this for karst fields in BiH is obviously a barrier to mainstreaming. The project studies identified clear capacity gaps among municipalities (such as Grahovo and Livno) and Cantonal authorities (namely Canton 10) to carry out a serious economic and environmental research of options for the short-term, mid-term, and long-term vision of areas such as karst fields, under different assumptions and scenarios. The slowly developing economy in BiH is revenue-thirsty and short-sighted, but the short term planning or even ad hoc decision making for fragile lands is obviously unsustainable. For example, the Canton understands that Phase II of the Hydropwer plant could bring certain income and/or boost of employment based on fair indemnities, water-fees and concession payments. However, there are numerous environmental weaknesses to the current hydrotechnical projects, which can not be ignored from international biodiversity obligations standpoint. Similarly, what are the environmentally and economically good options for extracted peat recultivation? Are there chances for organic farming or ecotourism? How do they look against gravel mining and arable farming on the degraded peatland? Would it be appropriate to create a protectetd area in the Polje, while allowing certain activities beneficial to environment? In parallel, alternative income and imployment opportunities (such as expansion of environmental tourism) have not been discussed and studied, and no incentives exist for alternative income and employment generation. But the capacity of the Canton and municipalities is far from sufficient to answer those questions and develop a balanced spatial plan. It requires analysis and comparison of the seemingly beneficial but short term economic benefits with those that may present a value in the long-term. The spatial planning practices have since long been out of knowledge in the BiH, and especially integration of internationally important biodiversity into spatial planning has been widely neglected. Dialog (both cross-border with Croatia, and within BiH) has been haphazard for political

reasons, lack of will, or unclarity about the values of different use options. This results in miscalculated water use, misbalanced allowances for exploitation of natural resources such as peat, coal, lignite, lack of focus for valuable natural areas where illegal practices should be outlawed.

Barrier 2 Priority of Government and International Community on national enforcement capacity building leaves local enforcement capacity building in disadvantage

52. It has been shown that one of the root-causes of the threats to biodiversity is linked to poor local enfocement capacity. At this stage of BiH governmance building, the country, as well as the international donors, are focused on the senior levels, and this clearly creats a problem for addressing capacity critical capacity gaps at the local level, especially in the under-represented areas of environmental conservation. Introduction of the institute of local environmental inspector has been slow, their TORs are still vague and it is not clear how much they would be able to afford to focus on biodiversity hot-spots, such as karst ecosystems. Neither the municipality nor the canton have introduced fines introduced for fires or illegal logging, although there has been some "talking" but never materializing. There is no practice in establishing a communication link between local environmental authorities and local people or companies to discuss, prevent and resolve potential resource use issues.

Barrier 3 Scientific knowledge is outdated, decoupled from practitioners, or altogether lacking for decision making

53. Mainstreaming for sectors, especially such as mining and water use, has to rely on good science. While preparing the MSP, the PDF A confirmed that due to limited spread of peatlands in BiH, there are practically no national experts with knowledge of peat and temperate grassland ecology in BiH. This makes it difficult to scientifically justify options/scenarios for example for peat recultivation or further support to extensive pastoralism on drier areas, and there is no driving force to promote quicker rehabilitation of degraded peatland and grassland parts of the karst field. Goging back to the peatland excavation issue: peat excavation and recultivation plans do not contain annexes about biodiversity and peat ecology simply because this knowledge is rare in BiH. Peat excavation methods have not been analyzed for their impact on the ecosystetm, which leaves it for the mining companies to decide on the mining methods.

54. There has been no monitoring of the peatland and Livno karst peat geology ever since 1963 (!) and decisions about granting concessions (for example for peat extractin) are still based on that data. There is no scientific study to prove to the local people the truth about productivity of the karst fields with fires as opposed to fields without fires. The result is obvious: the level of understanding of the benefits and ecosystem values among scientists, NGOs, authorities and especially the rural population is extremely low. It has been discussed in other GEF projects (Belarus Polesie) that burning of vegetation does not improve soil qualities, however it is always a problem to translate the results of such studies into practical messages for rural people to change their behavior. In BiH as of yet this knowledge is unavailable to local NGOs and authorities, and the spread of the message is non-existent.

55. The project aims to achieve its objective through of the following **2 outcomes**:

Outcome 1 Karst and peatland needs integrated in the BiH cantonal spatial planning policies and procedures

Output 1.1 Spatial plans for cantons integrate karst biodiversity concerns

56. The Project will work with Canton 10 Government and its constitutent municipalities on development of a new Cantonal spatial plan. The Project will start working with Canton 10 Government and its constituent municipalities on development of a new Cantonal spatial plan. Once this will be developed and approved by the Government, the replication work will target 18 municipalities in nine more cantons. It is expected that by the end of the project at least 3 municipalities will start preparation of environmentally friendly spatial plan at the end of the project

57. The Project will support a meticulous SWOT analysis (economic and environmental) for various options/scenarios of land use at Livanjsko Polje. Given the international significance of karst fieds and Livanjsko Polje in particular, the Project will facilitate the work of the spatial plan team towards such a plan that would ensure mid-term (10 years perspective) and long-term sustainability (over 15 years) of this biodiversity site. The preparation of the Cantonal spatial plan will include participatory and transparent discussion with municipalities (especially Grahovo and Livno), the peat mining, coal mining, and water management sector representateives on the one hand, and a group of qualified ecologists on the other. Plans for each industry to develop in the Canton in the next 10 years are going to be discussed and agreed. Where rehabilitation of degraded areas would be needed, the Project will facilitate additional research, and start of rehabilitation efforts (e.g. in the southern part of the peatland which was formerly drained for agriculture). Maps will be produced to delineate boundaries for each industry, ensure water protection zones and conservation activities for selected species. The natural wood and oak forest use will be discussed with owners and users and a model for long term forest use is going to be agreed. The spatial plan will then be discussed and agreed with all current concessionees and land users – and this will be one of the main mechanisms to ensure the sustainabilitity of the Project's effort.

58. As part of the elaboratiton of the the spatial plan, the project will work with the Cantonal Government to develop and launch a policy of incentives (e.g. a tax relief scheme supported by a micro-capital grant programme supported from cofinancing) to support pro-biodiversity businesses, including organic agriculture, sheep breeding, and agro-tourism. Such scheme can be based on the experience of the successful UNDP BiH Srebrenica and Sutra projects, and the project will not strive to create a completely new scheme from scratch.

Output 1.2 Municipal-level rules for karst field biodiversity use developed, and enforcement capacity of municipal and cantonal officers and inspectors created/strengthened.

59. In parallel to elaboration of the Cantonal spatial plan, the Project will work with the municipalities (primarily Grahovo and Livno) to develop and approve biodiversity rules-of-conduct – a municipal level policy that would stipulate allowed and prohibited uses of karst field resources, and introduce a system of disincentives (fines) for illegal activities such as fires and excessive logging. The development of these document will be participatory and reaching out to local population as much as possible (e.g. through workshops, publications, media messages) to inform of the process of this policy formulation, discuss illegal activities and the newly introduced sanctions. Putting these policies in action will be accompanied by a wide local public campaign and media reports.

60. In parallel to municipal policy making above, the project will create the so-called "communal environmental police". This practice has its historic roots in the rural culture of BiH and has been widely used to monitor and prevent all sorts of social misbehaviours and crimes. Specifically, the project will capacitate 4 people in the three municipalities (2 in Grahovo, 1 in Livno, and 1 in Tomislavgrad) to become environmental communal police. Their TORs will be linked to helping the Cantonal level environmental inspector specifically with issues of Livanjsko Polje biodiversity. The communal police main task will be to enforce the municipal rules-of-conduct policies developed above, and to try to reach out to as many people on the ground as possible. Equally, the communal policy will be linked to the local fire fighting teams and capacitated to take action against fire at early stages. The communal policy TOR will further include functions of site ecological monitoring, data collection and storage and transferring it to relevant scientific institutes and ministries with the idea to help improve the spatial plan of the Canton and develop recommendations for environmentally friendly livelihoods. [In addition to being rooted in the BiH culture, the project will rely on positive experience of the peatland project in Belarus which facilitated creation of the so-called site managers/inspectors and linking them to the local offices of the environmental ministry].

61. The project will also strengthen the capacity of the Canton's environmental ministry and inspector to ensure that during the spatial plan preparation and its implementation cantonal environmental

governments and inspectors are fully qualified to do their job. The project's activities will include (i) targeted trainings for cantonal public officers and specialists in the area of ecologically safe mining, water management, agrotourism, (iii) technical assistance to Cantonal ministry of environment and local inspectors to ensure environmental inspectors have on the ground equipment and mobility to react timely and efficiently to environmental violations.

Outcome 2 **Water use and mining policies in BiH reflect karst and peatland biodiversity conservation requirements**

Output 2.1 By-laws and methodological guidance on ecologically safe peat and coal mining developed, and options for post-extraction rehabilitation developed and validated.

62. The project is not changing the legislation, rather works on the level of secondary legislation – which are obligatory instruments for reference by mining companies and inspectors. As discussed in the root-causes and barriers section, a substantial share of ecological degradation stems from lack of knowledge and vagueness in the existing by-laws and processes regarding mining techniques and recultivation efforts. The project will carefully review the existing by-laws and mining proposal development processes, identify gaps, draw leading international expertise, and work jointly with the Federal Ministry of Mining and the corresponding environmental authorities to develop up-to-date guidelines and processes that would ensure that (1) mining proposal processes does not miss to take fully account of the biodiversity present in the area, (2) mining volumes, boundaries and techniques are environmentally safe, (3) rehabilitation periods and techniques are harmonized with habitat regeneration requirements. By-laws will be analyzed and adopted separately (or with separate chapters) for peat, coal, as well as sand, gravel). Once elaborated, those bylaws will be adopted by the Federal Government.

63. Acknowledging lack of in-house expertise in BiH the project will (1) bring in leading international experts on peat ecology, (2) build capacity of existing national specialists through targeted trainings and study tours, (3) constitute and support a working group on peatlands. The working group will include botanists, hydrologists, peat ecologies, ornithologists and will work in close contact and good cooperation with the Finvest company manager. The working group will be an integral part of the Cantonal Spatial planning project, and should be considered as a specialized body affiliated with the process of Cantonal spatial plan preparation, in view of the importance of the peatland area for the biodiversity. The working group will update the ecological condition of the peatland in the northern part (under Finvest concession) and the southern part (municipal land formerly drained for agriculture and currentlty abandoned). In close cooperation with Finvest, it will develop and test at selected sub-sites (totalling approximately 750 ha in both parts – that under concession in the north, and the abandoned municipal land in the south of the peatland) recommendations for improved peatland renaturalization, which may include [upon careful scientific studies and technical projects, and not limited to]: closing some of the old drainage ditches by creating and reinforcing ground-and-wooden mounds in order to optimal groundwater table for fire safety and correct vegetation regeneration; collection and spread of the native genetic material of local peatland plants (such as Carex) in oder to ensure quicker renaturalization8; participatiton jointly with the Finvest company in any other rehabilitation activities (such as returning of the upper humus layer back onto the excavated area soon after excavation and in parallel to plant reseeding); consideration of afforestation at selected sites; quarterly scientific monitoring. The whole idea of this output is to demonstrate a possibility of reconciliation of peat excavation and habitat regeneration, which has been demonstrated in other types of peatlands (e.g. fen and bog mires in Belarus) and this time will be demonstrated at karst peatlands, replicable to similar area across the karst fields in the region. Therefore, the activities under this output will be toppled by exhange of experience with other countries in the region where karst fields and/or

[8] This practice is widely used by Canadian peatland rehabilitation projects and has proved one of the most successful.

peatlands are found. This output will enjoy cofinancing9. At all stages the working group will work closely with the Finvest company. Actual renaturalization works (mainly closing of unoperation drainage ditches) will be carried out by a qualified subcontractor selected through UNDP bidding procedure. The future of the rehabilitated peatland ares will ultimately be defined in the Cantonal spatial plan (Output 1). The Finvest company will support the process through in-kind cofinanciung. During and after implementation of the rehabilitation, the project will support ecological monitoring to control the peat renaturalization process and prove that stabilization of grass communities and bird populations at the neighboring areas is in deed taking place.

Output 2.2 International (Croatia-BiH) agreement and plan for cross-border water management plan

64. Elaboration of the spatial plan (Output 1.1) will include water zoning. One of the sections of the SWOT analysis will deal with the water use options. Thereafter, the project will develop drafts of water use zones at BiH Livanjsko Polje and in Croatia. Further, the project will support a participatory cross-border consultation process, the key element of which will be a cross-border Strategic Environmental Assessmet to be subcontracted to a qualified company well established in the region. The outcome of that assessment will be put as a basis for a cross-border agreement between Croatia and BiH, and the project will support lawyers and professional specialists to finalize that agreement. The project will further support high level consultations between the two countries, once the studies are over and the draft agreement has been developed. Although, as discussed in the Risks section, concluding a cross-border water use and management agreement for the Cetina catchment may not happen during the life of the projet, this is still for the time being considered to be the ultimate aim of the project under this output. The project believes it is possible as the international water law demands a fair distribution of benefits among local communities.

Output 2.3 Lessons learned are shared on sectoral mainstreaming for karst and peatland biodiversity

65. The project will support a set of activities to exchange experience and lessons learned with European countries and the GEF. The activities under this output include: a regional UNDP/GEF workshop on karst productive systems and ways for their conservation, a number of technical reports published in peer-review journals, and a booklet on lessons learnt. The project puts a special emphasis on this output, as karst fields are closely associated with two threatened biomes – temperate grasslands and peatlands – and therefore lessons sharing across the GEF portfolio is key to development of impact-based vision for the GEF biodiversity focal area in the future.

66. A set of public outreach activities will be carried out by the project. They will serve an essential prerequisite for successful project implementation and will begin the process of activating and animating the public and government officials at all level towards better appreciation of the ecologidal values of karst systems. The project will conduct dedicated campaigns on: (i) opportunities for integration of biodiversity conservation in the Cantonal and municipal, as well as Federal spatial planning process; (ii) raising awareness on the conservation value of peatlands and opportunities for its sustainable use; and (iii) need for a balanced cross-border agreement between BiH and Croatia regarding water use.

B.3 Benefits and innovation

67. This project will generate global, national and local benefits. Global benefits will include securing of long-term protection for globally significant species (Corncrake, *Gallinago gallinago, Drosera rotundifolia*) and raised and blanket peatland communities (*Oxyccoco-Sphagnetea* and *Scheuchzerio-Caricetea fusci)* occurring at karst systems. Lessons learned through this project will contribute to the growing global knowledge on conservation of karst habitats and economic instruments to ensure

[9] This activity will be undertaken within the WWF-Euronature project on *Livanjsko polje that is about to be launched*. Objective C.2.1

conservation of important karst and peatland ecosystems. Peatland conservation and sustainable management will further be promoted, with a direct impact of helping to maintaine 780 ha of degraded karst peatlands. This is an important benefit both from biodiversity, carbon, and the sustainable land management perspective. By restoring 750 ha of degraded peatlands, the project contributes to the Climate Change focal area of the GEF, reducing, in a 30-year perspective, at least 25,000 tons of CO2 as a result. The waters of Livanjsko polje originate in Bosnia and Herzegovina, but through a sophisticated network of underground karst cavitites, percolate far distances to the territory of Croatia. As this happens within the Cetina river catchement which is shared by the two countries, the project, therefore, although targeting stabilization of the karst ecosystem in BiH, has value from the International Waters perspective.

68. National benefits accruing from the project include demonstration of an innovative approach for BiH potentially replicable to at least 125,000 ha of similar habitats in the country. A model for integration of biodiversity into spatial planning at a sub-national (cantonal) level will be demonstrated. Environmental knowledge (e.g. on value of pealands) and enforcement capacity of cantons and Federal governments will be strengthened. Links between local authorities, NGOs, private sector strengthened for maximum effectiveness.

69. Benefits at the local level will include better understanding and awareness of municipalities on opportunities for integration of environment into municipal spatial planning. Capacities of local NGOs will be strengthened as well. By exploring opportunities for alternative green businesses (such as ecotourism) higher employment will be encouraged and less damaging behaviour of local people will be promoted.

70. The project boasts 3 innovative elements: (1) its multifocal relevance: as has been discussed in Section C.1 the project is explicitly relevant to 4 GEF focal areas, the primary being biodiversity, but also climate change (as regeneration of 750 ha of peatlands will reduce carbon emissions), land degradation, and international waters; (2) the model for rehabilitation of karst peatlands through reseeding of aborigenous genetic material and sustaining the optimal groundwater tabe; this model is critical for generating knowledge on conservation and management of temperate grasslands and peatlands, (3) the concept of communal environmental police as a culturally accepted way to enforce environmental policies and prevent environmentally risky behaviour.

B.4 Risks and Mitigation Strategies

71. Project risks will be managed through the mitigation strateties. Risk monitoring will be effected through the UNDP Atlas corporate software.

Risk	***Level***	***Mitigation Strategy***
Transfer of more authority in the environmental matters from cantonal to municipality level	M	The project is not working with environmental sector primarily. Its main strategic thrust is internalizing environment within spatial plan. It is highly unlikely that cantons in BiH are going to be abolished altogether, and it is very probably that cantons will have to receive spatial plans.
Peatland renaturalization suffers from lack of expertise	M	The project recognizes that currently BiH has very little expertise in peatland renaturalization. This risk will be mitigated mainly by drawing best available expertise from sister GEF projects, but also through building local capacities.
Unable to reach consensus with Croatia on water management	M - H	The current level of political turbulence in BiH and its relations with neighbors do not allow for predicting in a clearer way on the success chances for a cross-border water management agreement. If a stand-alone water management agreement with Croatia is not possible during the life of the project, it will prepare all the necessary documentation and help conduct a transboundary Strategic Environmental Assessment, leading both countries as close as possible to accepting the agreement.

Risk	*Level*	*Mitigation Strategy*
Constitutional reform driving transfer of more responsibilities from entity to state level	M	The project's focus is municipal capacities, and cantonal spatial planning. By this, project largely mitigates the risk if shifting power within the entity-state couple, as responsibilities and mandates of entities are expected to remain the same, at least in the area of spatial planning. The only thing that may change is the approval of cantonal plans – either by entity or state, but this is largely a formality compared to the preparation of the spatial plan itself, and it does not have a bearing on the achievement of project goals.

Note: Given the location, size of the country, its relief and duration of the expected GEF intervention, the Climate Change risk is considered by specialists to be irrelevant for the project.

B.5 Sustainability (including financial sustainability)

Ecological sustainability

72. The main instrument to prevent further degradation of important karst habitats is the Cantonal Spatial Plan. Once adopted, the Plan becomes a law. The sustainability principle imbedded in the project is that joint development of the Cantonal Spatial plan by the Cantonal Government and UNDP clearly delineates, at least in a 10-year perspective, geographic and physical boundaries for such activities as mining, inappropriate water management, inappropriate use of local woods and ecosystems by local people. According to the acting regulations, once the spatial plan is adopted, Federal Ministries can not give concessions for land use that would contradict the spatial plan, and that is the main instrument for ensuring long-term ecological integrity of the habitat. Similarly, the sustainability mechanism for the water use issues is the transboundary agreement itself, which if adopted, becomes obligatory under international water treaties.

73. Nonetheless, as is recoginized by the GEF Biodiversity Strategy, spatial mainstreaming alone may not reach the deepness of the controversies between ecological fragility and economic ambition. In the case of karst systems ecological risks come from mining, and water use sector. For each of the two sectors, therefore, the project will, in pursuit of sustainable solutions, work on the regulatory and by-regulatory basis that would once and for all set rules for sector operations. By-laws will be adopted by corresponding authorities and will be obligatory for reference henceforth. For peat mining, specifically, as the subject of peat ecology is virtually unknown in BiH, the project will go further to conduct a joint demonstration project with the private sector on peat renaturalization. By first setting the rules, and secondly working together in the field to demonstrate the effectiveness of harminized approach, the project believes to achieve the ecological sustainability, on top of the spatial plan mentioned in the previous paragraph.

Financial and institutional sustainability

74. Financial sustainability is relevant for implementation of recommendations of the Cantonal spatial plan, especially if there are any new mechanisms such as the tax relief support for environmental businesses. The sustainability mechanism envisaged for this is the agreement with the Cantonal government, which has the authority to set its own taxes and tax reliefs, that if the project support scheme proves successful (i.e. number of potential users of the scheme is socially important, meaning there is evidence of diminishing unemployment due to scheme operation), then the tax relief scheme will continue in existence within the Cantonal budget for at least 4 years beyond the project.

75. In terms of institutional sustainability, the main element of the sustainability is the fact that the Cantonal spatial plan developed under Output 1.1 is approved not only by the Canton but also the existing land users, thus ensuring that the mid-term vision for this internationally important karst field will materialize without a discord among institutions/stakeholders.

76. The institutional sustainability of the communal environmental police will be ensured through two tracs: (1) making sure that municipalities continue to finance these positions beyond the 4-years of the

project, and (2) working with other donors in BiH (e.g. EU, Dutch, other bilateral donors) towards strengthening the powers, mandates and roles of municipalities as the decentralized units of administrative governance. This second track (strengthening capacities of municipalities with assistance from international community) is very likely under the current scenarios under the current constitutional reform process, and the project manager will be specifically tasked to make the good use of this 2-track strategy. Other than the two points above, the project does not envisage creation of new structures.

B.6 Stakeholder involvement

77. Table 3 presents the main stakeholders and how were they involved in project preparation and will be involved in project implementation

Table 3. Key stakeholders and their involvement in preparation and implementation

Stakeholder[10]	***Involvement in project preparation***	***Role and responsibility in project implementation***
Key project partners in the Government		
MOFTER	Consultations in capacity as GEF OFP	Exchange of information and political support. Participant of the Project Board.
Canton 10 Ministry of Construction, Spatial Planning, and Environment	Extensive consultations during the project preparation process	Cofinancing, collaboration in environmental studies under the Spatial Plan preparation, a beneficiary for capacity building. Participant of Project Board
Municipalities of Grahovo and Livno	Consultations during the project preparation process through bilateral meetings and participation in workshops	Hosts for communal environmental police. Collaboration and approval for environmental rules of conduct.
FBiH Ministry of Environment and Physical Planning	Extensive consultations and wide support to project elaboration. Focal Point for CBD	Political support in approval of bylaws on mining, and resolution of water management issues. Support for cross-border agreements with Croatia. Participant of Project Board.
FBiH Ministry of Energy, Mining and Industry	Consultations during the preparation process, exchange of information with Ministry's mining inspectors	Political support for approval of mining pravilniks. Participant of Project Board.
FBiH Ministry of Agriculture, Water Management and Forestry	Regular consultations	Political support for cross-border agreement on the Cetina river catchment use with Croatia. Participant of the Project Board.
Tomislavgrad water authority	Consultations	Exchange of information and support for cross-border cooperation with Croatia
Key non-government partners and associations		
WWF and Euronatur	Meetings, coordination of project development	Public awareness and NGO support activities at Livanjsko polje, project cofinancing. Participation in the Project Board.
Other NGOs (i.e. Youth Centre Livno)	Meetings, coordinatiton of project development	Professional contribution on the ground to some of the project activities.
Academia		
Sarajevo University, Biodiversity specialists	Close involvement in preparing the project proposal	Involvement in modification of mining instructions, EIA process, rehabilitation design
Private		
FINVEST	Meetings, consultations, provision of	Collaboration in rehabilitation works, in-kind

[10] Description of the main mandate and scope of activities of the stakeholders was provided in the description of the *Institutional Context,* and is not repeated here, except for those stakeholders not mentioned before.

Stakeholder[10]	*Involvement in project preparation*	*Role and responsibility in project implementation*
	data	financing
Coal mining investor	Meetings, consultations, provision of data	Exchange of information

PART C – Management arrangements

C.1 Implementation arrangements

78. The project will be directly implemented by UNDP BiH office. UNDP Country Office will take full responsibility for the administration of the financial and human resources, which is justified based on the long-standing experience of direct implementation and weak capacity on the side of any of the potential partners to implement the project on their own.

79. In its efforts to assist the country's transition towards peace and sustainable development UNDP Bosnia and Herzegovina (BiH) is currently running several Area Based Development (ABD) programs. The ABD programs are covering mainly rural areas, allowing minorities and the most vulnerable to return to their` pre-war homes. The households of the beneficiaries are in a lot of cases run by single women (widows) or by elderly people with low or no income at all. The ABD programs aim to re-establish viable multi ethnic communities in a sustainable manner with the design of projects that involve several components such as reconstruction of housing and infrastructure, strengthening local government capacities, support to local economic development and job creation, and development of civil society. While the ABD programs support reconstruction of war-damaged houses and community infrastructure (utilities, roads and bridges, schools, commercial centers, ambulatory care facilities) that are expected to be in place for many decades, the current programs do not explicitly consider environmental issues

80. UNDP BiH is committed to build up and expand its environmental portfolio. It currently has 2 GEF MSP projects in the pipeline for the GEF (biomass and energy efficieny in housing), and one additional concept under development for the biodiversity focal area (medicinal plants project). The current proposal will be an important element in the biodiversity sub-portfolio, but will also be linked closely with the on-going rural development and area-based initiatives.

81. The Country Office will hold the overall responsibility for the production of outputs/implementation of activities envisaged. The management of project funds will be carried out according to UNDP financial rules and regulations, based on a work plan with a detailed budget.

82. A Project Manager, an Administrator, and Local Liason Officer will be hired through a competitive advertisement, and will work under close supervision of the UNDP CO Program Manager on Energy and Environment. The project manager will ensure day-to-day management of the project. He/she will be assisted by the administrative assistant. As has been discussed above, the project will support 4 "communal environmental police", who during the life of the project will serve as Local Liaison Officers[11]. The latter positions are critical, among other things, for ensuring day-to-day communications to the Cantonal authorities and representateives of the impacting sectors. Further, the project will consider hiring short term thematic Specialists for each of the following areas relevant to the project: (1) spatial planning at fragile ecosystems, (2) environmental economist, (3) peatland ecologist, (4) water specialist, (5) monitoring of vegetation communities, (6) monitoring of bird populations, (7) tourism expert (This is not an all-inclusive list – as the composition of working groups for Outputs 1.1 and 2.2 will be defined at early stages of the project start). The Terms of Reference for the key positions are attached in Annex C of the CEO approval template. Terms of reference for short-term positions will be fine-tuned shortly after

[11] After the project they will be supported by municipal administrations.

the project start jointly by UNDP and the Project Manager. International expertise will be drawn as necessary, especially in the area of peatland management and renaturalization. Generally, the activities of the project manager will include: (i) launching and managing the project effectively, including ensuring of the Project Board meetings; (ii) conducting monitoring, including completion of the BD2 tracking tool of the GEF.

83. The overall coordination of the project will be the responsibility of a **Project Board** (PB) whose mandate will be to:

- Provide strategic guidance to the project;
- Support project implementation, including bottlenecks resolution;
- Monitor project implementation, discuss and assess project results.

84. The PB will meet on a semi-annual basis or more frequently if necessary. It will be composed of the representatives of the following agencies:

- the Ministry of Foreign Trade and Economic Relations, represented by GEF Operational Focal Point or his/her designated official.
- Canton Herzebosanski Represented by Assiant Minister for Environment or his/her designated official.
- FBiH Ministry of Environment and Physical Planning represented by Deputy Minister or his/her designated official,
- FBiH Ministry of Energy, Mining and Industry, represented by Deputy Minister or his/her designated official,
- FBiH Ministry of Agriculture, Water Management, and Forestry, represenented by Deputy Minister or his/her designated official
- WWF/Euronature,
- UNDP Country Office in BiH represented by the Resident Representative or his/her designated official.
- World Bank Office in BiH.

85. Project revisions that involve changes to project goal, or substantial modification of project outputs, will be agreed in writing by members of the Project Board by calling an ad hoc session, or by collecting (including through email) written opinions of the PB members. Revisions will then have to be approved by UNDP/GEF Regional Technical Advisor for Biodiversity.

C.2 Consultations, Coordination and Collaboration between and among Implementing Agencies and the GEF Secretariat, if appropriate

86. Currently, the WB is implementing a forestry loan and a GEF – funded project focused on the forestry sector, and protected areas strengthening. The proposed project will coordinate with this project by inviting the WB to join the project's board. In addition coordination was established with the *Peatlands MSP* in Belarus and the *Grasslands* project in Bulgaria, both UNDP/GEF, in order to use the project management and scientific experience from the Belarus and Bulgaria. Specifically, experts from Belarus and Bulgaria projects will be considered as primary resource persons for Outcome 2 assignments, on peatland conservation policies and rehabilitation techniques. No other initiatives have been identified as relevant to this project.

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87. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated from the GEF logo if possible, as UN visibility is important for security purposes

PART D – Monitoring and evaluation plan and budget

88. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures. M&E will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF, or by Independent Evaluators in the case of the Mid-Term and Terminal Evaluations. The Logical Framework Matrix in Annex A of the CEO approval template describes *performance* and *impact* indicators for project implementation along with their corresponding *means of verification.* The Output Budget in Annex 5 provides delivery and disbursement targets. The Tracking Tool presented in Annex 2 will be conducted at mid-term and end of the project. These elements form the basis on which the project's Monitoring and Evaluation system will function.

89. The following sections outline the principle components of Monitoring and Evaluation. The project's Monitoring and Evaluation approach will be discussed during the Project's Inception Report so as to fine-tune indicators and means of verification, as well as an explanation and full definition of project staff M&E responsibilities.

D.1 Monitoring and Reporting

90. A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO, local NGOs and representation from the UNDP-GEF Regional Coordinating Unit as appropriate.

91. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's log-frame matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

92. Additionally, the purpose and objective of the Inception Workshop will be to: (i) introduce project staff to the UNDP-GEF *expanded team* which will support the project during its implementation, namely the CO and responsible project specialists; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and project manager vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the combined Annual Project Reports - Annual Project Implementation Reviews (APR/PIRs), Project Board Meetings, as well as mid-term and final evaluations. Equally, the Workshop will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget re-phasing.

93. The Inception Workshop will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms.

94. The Inception Workshop will present a Schedule of M&E-related meetings and reports. This will have been developed by the Project Manager (PM) in consultation with UNDP. Such a schedule will

include: (i) tentative time frames for Project Board Meetings, and (ii) project related Monitoring and Evaluation activities.

95. *Day to day monitoring of implementation progress* will be the responsibility of the PM based on the project's Annual Work Plan and its indicators. PM will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

96. The PM will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the Project Team, and agreed with the Executing Agency and key project partners sitting on the Project Board.

97. *Periodic monitoring of implementation progress* will be undertaken by the UNDP-CO through the provision of quarterly reports from the PM. Furthermore, specific meetings can be scheduled between the project manager, the UNDP CO and other pertinent stakeholders as deemed appropriate and relevant (especially the Project Board members). Such meetings will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

98. *Semi-annual and annual Monitoring* will occur through the **Annual Project Board Meeting (PB).** This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Project board meetings at least twice per year. The first such meeting will be held within the first twelve months following the Inception Workshop. For each year-end meeting of the Project board PM will prepare Annual harmonized Project Report (APR) / Project Implementation Reviews (PIR) and submit it to UNDP-CO, the UNDP-GEF regional office and all Committee members at least two weeks prior to the meeting for review and comments.

99. The APR will be used as one of the basic documents for discussions in the Project board year-end meeting. The PM will present the APR to the Committee members, highlighting policy issues and recommendations for the decision of the Committee participants. The PM also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each Project Outcome may also be conducted if necessary. Details regarding the requirements and conduct of the APR and Project Board meetings are contained with the M&E Information Kit available through UNDP GEF.

Terminal Review

100. The terminal review meeting is held by the Project board, with invitation to other relevant Government and municipal stakeholders as necessary, in the last month of project operations. The PM is responsible for preparing the Terminal Report and submitting it to UNDP-COs, GEF's Regional Coordinating Unit and all participants of the terminal review meeting. It shall be prepared in draft at least two months in advance of the terminal review meeting, in order to allow review, and will serve as the basis for discussions. The terminal review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation. The terminal review meeting should refer to the Independent Terminal Evaluation report, conclusions and recommendations as appropriate.

101. UNDP-CO in consultations with UNDP-GEF Regional Coordinator and members of the Project board has the authority to suspend disbursement if project performance benchmarks are not met as per delivery rates, and qualitative assessments of achievements of outputs.

Reports

102. The PM in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process.

Inception Report (IR)

103. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan will include the proposed dates for any visits and/or support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

104. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation, including any unforeseen or newly arisen constraints. When finalized, the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries.

Annual Project Report (APR) and Project Implementation Review (PIR)

105. The combined APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self-assessment report by project management to the Country Office and is a key input to the year-end project board meetings. The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. These two reporting requirements are so similar in input, purpose and timing that they have now been amalgamated into a single APR/PIR Report.

106. An APR/PIR is prepared on an annual basis by June, but well in time to be considered at the Project board Meeting. The purpose of the APR/PIR is to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work. The APR/PIR is discussed by the Project board, so that the resultant report represents a document that has been agreed upon by all of the primary stakeholders.

107. A standard format/template for the APR/PIR is provided by UNDP GEF. This includes the following:

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome; report under BD-2 tracking tool12;
- The constraints experienced in the progress towards results and the reasons for these;

[12] Please see in the corresponding annex

- The three (at most) major constraints to achievement of results;
- Annual Work Plans and related expenditure reports ;
- Lessons learned;
- Clear recommendations for future orientation in addressing key problems in lack of progress.

108. The UNDP/GEF M&E Unit analyse the individual APR/PIRs by focal area, theme and region for common issues/results and lessons. The Reports are also valuable for the Independent Evaluators who can utilise them to identify any changes in project structure, indicators, workplan, etc. and view a past history of delivery and assessment.

Quarterly Progress Reports

109. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office. UNDP CO will share the report with GEF RCU. Format is available in GEF guidelines for quarterly operational reports.

Technical Reports / project publications

110. The project team will ensure that lessons learnt from the project are widely replicated. Specific Thematic Reports or papers, focusing on karst systems will be produced in the course of the project and proposed for publishing through GEF or in international magazines. This is considered an important indication of the lessons sharing exercise. The project team will determine which technical reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these publications in a consistent and recognizable format. Project resources have been defined and allocated for these activities as appropriate.

Project Terminal Report

111. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

D.2 Evaluation

112. The project will be subjected to at least two evaluations as follows:

Mid-term Evaluation

113. An independent Mid-Term Evaluation will be undertaken at the mid point of project implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided

after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

Final Evaluation

114. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The final evaluation should also provide recommendations for follow-up activities, and the report will feature management response to the issues raised. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

D.3 Audit Clause

115. PM will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of UNDP BiH.

D.4 Learning and Knowledge Sharing

116. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums, and among other things through the above mentioned project technical reports and publications. In addition:

117. The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP/GEF shall establish a number of networks, such as Integrated Ecosystem Management, co-management, etc, that will largely function on the basis of an electronic platform.

118. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

119. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analysing lessons learned is an on- going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities. *The budget for the monitoring and evaluation activities is presented in Section G of the CEO approval template.*

PART E – Legal context

120. This project document together with CPAP shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Bosnia-Herzegovina and the United Nations Development Programme, signed by the parties on 7 December 1997. The host country

implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

121. The following types of revisions may be made to this project document with the signature of the UNDP Resident Representative only, provided s/he is assured that the other signatories of the project document have no objections to the proposed changes:

(i) Revisions in, or addition of, any of the annexes of the project document;
(ii) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of a project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation; and
(iii) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility.

SECTION II – STRATEGIC RESULTS FRAMEWORK

122. For the detailed project results framework please refer to Annex 1 "Logical Framework" of this document. The incremental cost analysis (including the table) is presented Annex 6.

SECTION III – TOTAL BUDGET AND WORK-PLAN (GEF BUDGET)

Award ID:	00049292
Award Title:	PIMS 3306 BD MSP: Karst Peatlands BD-SO4
Business Unit:	Bosnia and Herzegovina (BIH10)
Project Title:	PIMS 3306 BD MSP: Karst Peatlands BD-SO4
Project ID:	00060010
PIMS	3306
Implementing Partner (Executing Agency)	UNDP – Direct implementation

GEF Outcome/Atlas Activity	Responsible Party	Fund ID	Donor Name	Atlas Budgetary Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:
OUTCOME 1: Karst and peatland needs integrated in the BiH cantonal spatial planning policies and procedures	**UNDP**	**62000**	**GEF**	71200	International Consultants	20000	20000			**40000**	1
				71300	Local Consultants	10500	10500	10500	10180	**41680**	2
				72100	Contractual services	17750	27750	17750	17750	**81000**	3
				71600	Travel	6000	6000	4000	4000	**20000**	
				74500	Misc.	6000	6000	6000	5000	**23000**	
				72200	Equipment	20000	20000			**40000**	4
				72600	Micro-capital grants	25000	20000	20000		**65000**	
					Total Outcome 1	**105250**	**110250**	**58250**	**36930**	**310680**	
OUTCOME 2: Water use and mining policies in BiH reflect karst and peatland biodiversity conservation requirements	**UNDP**	**62000**	**GEF**	71200	International Consultants		20000		5800	**25800**	5
				71300	Local Consultants	30000	30000	30000	23480	**113480**	6
				72100	Contractual services	20000	110000	110000	24100	**264100**	7
				71600	Travel	33750	33750	33750	33750	**135000**	
				74500	Misc.	2610	2610	2610	2610	**10440**	
					Total Outcome 2	**86360**	**196360**	**176360**	**89740**	**548820**	
PROJECT MANAGEMENT	**UNDP**	**62000**	**GEF**	71600	Travel	1000	1000	1000	1000	**4000**	
				72100	Contractual Services	18480	18480	18480	18480	**73920**	8
				72200	Equipment	4420				**4420**	9
				72500	Office Supplies	2040	2040	2040	2040	**8160**	
					Total Management	**25940**	**21520**	**21520**	**21520**	**90500**	
					PROJECT TOTAL	**217550**	**328130**	**256130**	**148190**	**950000**	

1-Facilitate the SWOT analysis and help with analysis and comparison of the short term economic benefits with those that may present a value in the long-term
2-Capacitating 4 persons in the three municipalities (2 in Grahovo, 1 in Livno, and 1 in Tomislavgrad) to become environmental communal police officer
3-This will include organizing of targeted trainings for cantonal public officers and specialists in the area of ecologically safe mining, water management, agro tourism, etc.
4-Ensure environmental inspectors have on the ground equipment (laboratory, monitoring and surveillance equipment) and mobility to react timely and efficiently to environmental violations
5-Providing advice to the local consultants (including work in the field), on the karst and peatland rehabilitation techniques, as well as project evaluation

6-National consultants, including lawyers, on policies for ecologically safe use of karst fields and its rehabilitation, as well as assessment and development of cross-border water use plan

7-this will include capacity building of existing national specialists through targeted trainings (Peatland renaturalization8-This amount includes partly project manager and salary of the project assistant which will be engaged during overall project implementation

9-Procurment of computer and printer for project office

Summary of Funds: [13]

GEF	217550	328130	256130	148190	**950000**
Finvest in-kind		100000			**100000**
Euronature in-kind	60000	60000			**120000**
Canton 10 in-kind/cash	150000	150000	100000	50000	**450000**
UNDP in-kind/cash	250000	200000	250000	200000	**900000**
TOTAL	**677550**	**838130**	**606130**	**398190**	**2520000**

[13] Summary table should include all financing of all kinds: GEF financing, cofinancing, cash, in-kind, etc. etc

SECTION IV – ADDITIONAL INFORMATION AND ANNEXES

Approved MSP PIF
Letters of co-financing, and the GEF Operational Focal Point Endorsement Letter (attached separately).
Terms of reference for relevant staff

PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Medium-sized Project
THE GEF TRUST FUND

*

Submission date: 2 July 2007
Resubmission date: 27 August 2007

PART I: PROJECT IDENTIFICATION

GEFSEC PROJECT ID: 2723
GEF AGENCY PROJECT ID: 3306
COUNTRY(IES): Bosnia and Herzegovina
PROJECT TITLE: Mainstreaming karst peatlands conservation concerns into key economic sectors
GEF AGENCY(IES): UNDP
OTHER EXECUTING PARTNERS: Cantonal Government
GEF FOCAL AREAS: Biodiversity,
GEF-4 STRATEGIC PROGRAM(S): BD-SP 4

INDICATIVE CALENDAR	
Milestones	**Expected Dates**
Work Program (for FSP)	NA
CEO Endorsement/Approval	Dec 2007
GEF Agency Approval	Jan 2008
Implementation Start	Feb 2008
Mid-term Review	Apr 2010
Implementation Completion	Mar 2012

A. PROJECT RESULTS FRAMEWORK

Project Objective: To strengthen the policy and regulatory framework for mainstreaming the requirements for conservation of karst and peatland biodiversity into productive sectors (mining, water use) and spatial planning at Cantonal level.

Project Components	Type	Expected Outcomes	Expected Outputs	Indicative GEF Financing*		Indicative Co-financing*		Total ($)
				($)	%	($)	%	
1. Mainstreaming globally important biodiversity into spatial planning policies	TA	Karst and peatland needs integrated in the BiH cantonal spatial planning policies and procedures	- Spatial plans for cantons fully integrates biodiversity concerns; - Municipal by-laws and policies for karst field use developed; capacity for their enforcement strengthened among municipal and cantonal officers and inspectors;	319,000	33.6	770,000	49	1,089,000
2. Mainstreaming globally important biodiversity into key sectors of impact	TA	Water use and mining policies in BiH reflect karst and peatland biodiversity conservation requirements	- By-laws and methodological guidance on ecologically safe peat mining developed and validated at 750 ha of karst peatlands; - International (Croatia-BiH) water use agreement and plan for cross-border water management plan; - Lessons extracted and shared on sectoral mainstreaming for peatlands and karst biodiversity.	540,500	56.9	640,000	40.8	1,180,500
Project management				90,500	9.5	160,000	10	250,500
Total project costs				950,000	100	1,570,000	100	2,520,000

B. INDICATIVE FINANCING PLAN SUMMARY FOR THE PROJECT ($)

	Project Preparation: pre-RAF PDFA	Project	Agency Fee	Total
GEF Grant	50,000	950,000	100,000	1,100,000
Co-financing	19,782	1,570,000		1,589,782
Total	50,000	2,520,000	100,000	2,689,782

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE ($), IF AVAILABLE

Co-financing Source	Cash	In-kind	Total
Project Government Contribution	370,000	80,000	450,000
GEF Agency(ies)	450,000	450,000	900,000
Private Sector		100,000	100,000
NGO		120,000	120,000
Total co-financing	820,000	750,000	1,570,000

D. GEF RESOURCES REQUESTED BY FOCAL AREA(S), AGENCY (IES) SHARE AND COUNTRY(IES): NA

PART II: PROJECT JUSTIFICATION

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO SOLVE IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED

123. Bosnia and Herzegovina (BiH) is a small country (51,129 km^2) in the mid-western Balkans. At least 30% of the country lies on the karst bedrock of the Dinaric mountain range which shelters the largest karst fields[14] in the world, including some 6,500 ha of karsts covered by semi-natural peatlands. Karst landscapes normally bear a peat or coal layer, and are affiliated with floodplain rivers, therefore actively exploited by industries such as peat/coal/mineral mining, and water management. These industries in turn are threatening the karst biodiversity. Other threats come from unsustainable practices including oak logging and destruction of karst peatlands by fire by local people. The Government of BiH recognizing the impact of these threats onto the globally significant karst biodiversity, recently adopted the spatial planning process as an approach to mainstreaming biodiversity concerns at the cantonal level. In the Federation of Bosnia and Herzegovina, Cantons are responsible for the preparation, adoption and implementation of Cantonal Spatial Plans. A cantonal spatial plan should contain long-term development objectives, land use guidelines, settlement and population distribution, industries and services distribution, infrastructure positioning and area connections, environmental protection measures, as well as directions for development of municipal spatial plans. Plans are approved and adopted by the Cantonal Parliament and prior to this, the Federal Ministry for Spatial Planning and municipal councils has to give their consent. In an environmentally fragile areas such as karst peatlands, cantonal spatial planning is an important process, as it largely defines the future set up of industries, and prevents damaging behaviours. The Government is eager to adapt the spatial planning and sectoral policies to better reflect the principles of sustainable development, and some of the most progressive cantons have already allocated resources to develop integrated spatial plans and establishing linkages to the regulations/methods of operation of key industries (e.g. mining, water management). However, Herzebosanski Canton hosting the world's largest karst field Livno Polie, although

[14] Biologically and geologically unique areas with bedrock mainly consisting of carbonate rocks such as CaCO3 and MgCO3. At least 30% of BiH landscape is classified as karst and it lies in Dinaric Mountain range. The project is therefore consistent with Operational Program 4 *Mountain Ecosystems.* The projects works to remove several of the main threats identified under the OP, which include inappropriate "fires regimes, illegal logging, poaching, quarrying and mining". By imbedding biodiversity principle in spatial planning it harmonizes "productive, socio-economic, and conservation goals". By incorporating the karst field biodiversity into spatial planning, mining, water management, and behavioral patterns, as well as by strengthening the law enforcement capacity and planning transparency the project is removing key threats to the karst fields in BiH, and thus fully addresses the guidance of the OP4.

one of the first in the state to show interest in developing a new spatial plan, has for the past year not been able so far to mobilize capacity and resources enough for a holistic, participatory and detailed spatial plan.

124. The barriers which hamper mainstreaming karst biodiversity conservation requirements into spatial planning at local level are: (i) Cantons and municipalities lack capacity for analysis of possible options of land use in karst areas. Studies have identified clear capacity gaps among municipalities (such as Grahovo and Livno) and Cantonal authorities to carry out a serious economic and environmental research of options for the short-term, mid-term, and long-term vision of areas such as karst fields, under different assumptions and scenarios; (ii) poor local enforcement capacity. At this stage of BiH governance building, the country, as well as the international donors, are focused on the senior levels, and this clearly creates a problem for addressing critical capacity gaps at the local level, especially in the under-represented areas of conservation. Introduction of the institute of local environmental inspector has been slow, their TORs are still vague and it is not clear how much they would be able to afford to focus on biodiversity hot-spots, such as karst ecosystems; and (iii) Scientific knowledge is outdated, decoupled from practitioners, or altogether lacking for decision making. Peat excavation and recultivation plans do not contain annexes about biodiversity and peat ecology as this knowledge is rare in BiH. Peat excavation methods have not been analyzed for their impact on the ecosystem, which leaves it for the mining companies to decide on the mining methods.

125. The project aims to remove the above barriers by developing a model for imbedding karst biodiversity conservation concerns into policies and regulations governing spatial planning at the cantonal level, as well as into the said sectors. Specifically, the project will: (i) assist in preparation of biodiversity-minded policy instrument - a Cantonal spatial plan; further, through replication and co-financing the project will trigger biodiversity-friendly local spatial panning at all karst-lying cantons and municipalities in BiH; (ii) introduce municipal-level regulations for karst field biodiversity use by local population parallel to strengthening enforcement capacity of municipal and cantonal officers and inspectors; (iii) develop by-laws and methodological guidance on ecologically safe peat mining, and test it at 750 ha of karst peatlands; and (iv) promote an international (Croatia-BiH) formal agreement and plan for cross-border water management plan. Land ownership for the Polje is mainly municipal, with privately owned lands (mainly farm plots) along the periphery. The peatland area in the northern part of the Polje is mostly municipal – split between municipalities of B.Grahovo and Livno. The northern part of the peatland is under a long-term concession to Finvest extraction company (30 years), and after extraction the land will be transferred back to the municipality. The Canton can, through its spatial planning process (coordinated with municipality and current land users and concessionees), decide on long-term land use, however, the practice of spatial plan development has been only emerging recently, and currently neither municipalities nor the Canton have spatial plans that could define the long-term vision for the Polje.

126. In addition, the project will support collecting information and initial capacity development for monitoring CO_2 storage in peatlands and will apply carbon measurement methodology in its monitoring framework. Global benefits will include securing long-term protection for globally threatened species such as Corncrake, common snipe, as well as for unique raised and blanket peatland communities occurring at karst systems. Restoration of natural peatlands will be triggered at 780 ha of degraded karsts, which will contribute to a reduction of, in a 30-year perspective, at least 25,000 tons of CO_2. The waters of Livno polje originate in BiH, but through a sophisticated network of underground karst cavities, percolate far distances to the territory of Croatia: the project, therefore, although targeting stabilization of the karst ecosystem in BiH, has value from the International Waters perspective.

i. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS

127. The Third National Report on Biodiversity of BiH promotes reconciliation of economic, environmental and social priorities. The National Environmental Action Plan identifies conservation of biodiversity as an important priority and further seeks integration of biodiversity into sectors and sustainable livelihood opportunities through the Poverty Reduction Strategy Paper. Within those policies, karst and peatland fields are the main priorities in BiH, as these cover one third of the country. The Federation of BiH

has adopted a Law on Nature Protection which sets up the norms and standards for biodiversity conservation, including for integration of nature conservation principles in spatial and sectoral planning. The Government, through the Ministry of Foreign Trade and Economic Relations at the central level, cantonal and municipal authorities have been strongly advocating for this project.

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND FIT WITH SP

128. By introducing requirements for conservation of karst natural systems into regulations and policies governing spatial planning at the sub-national level (Cantonal government); and the productive activities in BiH (mining, water management), the project approach is fully consistent with the GEF Biodiversity Strategic Program 4.

D. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES

129. Currently, the WB is implementing a forestry loan and a GEF – funded project focused on the forestry sector, and protected areas strengthening. The proposed project will coordinate with this project by inviting the WB to join the project's steering committee. In addition coordination was established with the *Peatlands MSP* in Belarus and the *Grasslands* project in Bulgaria, both UNDP/GEF, in order to use the project management and scientific experience from the Belarus and Bulgaria.

E. DESCRIBE THE INCREMENTAL REASONING OF THE PROJECT

130. As a post-war country, most baseline activities will focus on social protection, government reforms, and industry growth; ecological mainstreaming will be marginal. Specifically, coal mining will continue to be the main income-generating activity at the karst cantons. Second biggest industry will remain peat extraction. Without the project, the Federation of BiH is likely to develop a general spatial plan in the next 2 years. However, the level of detail and the elaboration process (in terms of participatory principles) will not be sufficient to resolve the fate of critical natural landscapes used in productive sectors, such as Livno Polje – and thus this opportunity will be lost for the global environment. The cross-border dispute about water use in the Cetina river basin will remain largely unresolved. The world's largest karst and peatland area Livno Polje and karst systems alike throughout the country are likely to degrade and lose most of their global importance. The incremental reasoning of the project is to create a replicable model of ensuring long-term integrity of karst landscapes, reconciling industry practices with biodiversity conservation, securing preservation of globally important species and habitats.

F. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED

Risk	Level	Mitigation Strategy
Transfer of more authority in the environmental matters from cantonal to municipality level	M	The project is not working with environmental sector primarily. Its main strategic thrust is internalizing environment within spatial plan. It is highly unlikely that cantons in BiH are going to be abolished altogether, and it is very probably that cantons will have to receive spatial plans.
Peatland renaturalization suffers from lack of expertise	M	The project recognizes that currently BiH has very little expertise in peatland renaturalization. This risk will be mitigated mainly by drawing best available expertise from sister GEF projects, but also through building local capacities.
Unable to reach consensus with Croatia on water management	M - H	The current level of political turbulence in BiH and its relations with neighbors do not allow for predicting in a clearer way on the success chances for a cross-border water management agreement. If a stand-alone water management agreement with Croatia is not possible during the life of the project, it will prepare all the necessary documentation and help conduct a transboundary Strategic Environmental Assessment, leading both countries as close as possible to accepting the agreement.

Note: Given the location, size of the country, its relief and duration of the expected GEF intervention, the Climate Change risk is considered by specialists to be irrelevant for the project.

G. DESCRIBE, IF POSSIBLE, THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT

131. In a post-war environment such as BiH, it is more cost-effective to assist in policy governing environmentally sound spatial planning at the cantonal level compared to the practicality and feasibility of seeking profound changes in the operations of mining and water use sectors. There is no other approach in BiH to reconcile biodiversity interests with resource use by local people, than a participatory spatial plan development process. A more solid cost-effectiveness statement will be developed for the CEO endorsement.

H. GEF AGENCY COMPARATIVE ADVANTAGE (leave blank if GEF Agency is within the comparative advantage matrix)

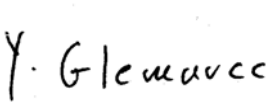
132. The project fully complies with the comparative advantages matrix approved by the GEF Council. In the environmental sector UNDP BiH is relying on its success in managing technical assistance and capacity building experience arising from the Area Based Development (ABD) programs. The multi-million and multi-donor ABD programs, managed by UNDP, have made a major contribution to the country's revitalization of rural areas, successfully dealing with local government empowerment, policy development, care for vulnerable people and their return to pre-war homes, all across the country. Currently, UNDP BiH is strengthening its ABD programs through an environmental policy and capacity building element, being successful in raising funds from bilateral and multilateral donors, such as Spanish MDG fund, which in 2007 granted UNDP BiH USD 5.5 million for local and national environmental planning activities, part of which will be co-financing for the submitted project. This experiences and co-financing opportunities justify the UNDP BiH strong niche for managing GEF projects, as long as they deal with technical assistance, capacity building, and policy development.

PART III: ENDORSEMENT BY GEF OPERATIONAL FOCAL POINTS AND GEF AGENCIES

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the endorsement letter(s) with this template).

Mr. Senad Oprasic GEF Operational Focal Point for BiH, Ministry of Foreign Trade and Economic Relations, Council of Ministers of Bosnia and Herzegovina	Date: August 20, 2007

C. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.	
 Yannick Glemarec UNDP/GEF Executive Coordinator	Adriana Dinu Project Contact Person
Date: August 27, 2007	Tel. and Email:adriana.dinu@undp.org; +421 905 428 238

TERMS OF REFERENCE FOR CONSULTANTS TO BE HIRED FOR THE PROJECT

Positions marked with * are supported only from co-financing.

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
For Project Management		**413**	
Local		393	
Project Manager	450	59	• Preparation of detailed work plans for the project. Overall co-ordination, management, monitoring of the project implementation; • Organize and supervise workshops, study tours, field visits, international missions, and training needed during the project; • Identify national experts and institutions to work for the project, participating in their selection; • Supervise the administrative assistant and maintain partnership with the local liaison officer; • Prepare periodic progress reports (including quarterly report, APR) of the project as per UNDP and GEF requirements, as described in the Monitoring and Evaluation section of the document; • Control expenditures and ensure an adequate management of the project budget; • Identify and mobilize resources for the post-project implementation in line with the replication plan of the project; • Coordinate project activities with other relevant technical assistance program in BiH; • Undertake any other duties in connection with project activities to ensure its effective implementation which are within his/her competence as the Project Manager; • Act as representative of the project at national and international meetings; • Ensure smooth activities of project Steering Committee, and timely implementation of project reporting requirements.
Project administrative assistant	245	196	• Maintain the project documentation up-to-date and in perfect order; • Keep attendance records in an impeccable way; • Draft minutes of meetings; • Elaborate rosters of potential consultants and sub-contractors; • Assist the Project Manager in elaborating the project work plans; • Assist the Project Manager in elaborating the project reports as per the applicable UNDP Bulgaria procedures; • Maintain project equipment ledgers and contract logs; • Assist in the organization of project events (workshops, working group meetings, local stakeholder consultations, management/steering committee meetings, etc.); • Provide support to project audits; • Draft correspondence and documents; finalize correspondence of administrative nature; edit reports and other documents for

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
			correctness of form and content; • Facilitate project communications (telephone, fax, e-mail, post, etc.); • Ensure that UNDP's procurement procedures are adhered to; • Liaise with individual and corporate project sub-contractors; • Assist the Project Manager and UNDP in all financial matters related to the project, observing the set deadlines; • Maintain the project financial records in an impeccable way; • Ensure strict observation of UNDP financial planning and reporting requirements; prepare requests for direct payments from UNDP against the required supporting documentation; • Ensure conformity of project disbursements and commitments with the UNDP contractual policy and allocation of funds; • Custody of the project's petty-cash;
Canton 10 project liaison officer*	250	98	• Represents the government of Canton 10 in day-to-day project matters, maintaining day-to-day communications with project management, representatives of the Cantonal Ministry of Environment, Ministry of Agriculture, and public officers involved in preparation of the Cantotal spatial planning; • Regular communications with FinVest, coal mining companies, water management companies, tourism agencies and other private sector representatives to ensure coordination of activities with the view of implementing all project outputs in an effective manner; • Monitoring of the situation on the ground, both – ecological (including supervision of short term consultants monotirng vegetation communities and birds) and technically and reporting to Project Manager. • Advice to Project Manager and Project Steering Committee regarding possible adjustments to project activities if and when situation changes on the ground, or any of the risks described in the project are close to materialization; • Work with the Project Manager to ensure generation and dissemination of information about the project activities among national and international stakeholders; • Coordinate project activities with other relevant technical assistance program and projects in the area.
Canton 10 government in-kind time (5 people)*	240	40	• Based on inputs from the local liaison officer and Project Manager, - to represents the project in front of the State Government, in discussions with Republica Srpska, and at the FBiH level; • To ensure access to all relevant data and contact persons pertinent to the implementation of project outcomes, especially during the process of cantonal spatial plan development; • Formal communications with private sector, water authorities in BiH; • Coordination of cross-border water use issues with Croatia tackled under the project; • Active participation in the Project Steering Committee; • Hooking up project activities with other on-going and expected

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
			projects on karst and peatland biodiversity, as well as on sustainable land use.
International		20	
ABD policy advisor to Project Manager* (to be provided by UNDP in-kind from its co-financing initiatives on Area Based Development in Srebrenitsa)	2,740	20	• Advise Project Manager on cantonal level policies for biodiversity friendly land-use incentives, specifically for tax incentive schemes and micro-capital grants, to support biodiversity friendly activities in Canton 10, and their reflection in the Cantonal Spatial Plan • Advise on opportunities for cross-fertilization with co-financing UNDP projects in Srebrenitsa and Sutra, regarding Area Based Development Linkage • Work with local consultants on cantonal policies for biodiversity friendly businesses/livelihoods, • Help Project Manager in identifying best mechanisms to launch the micro-capital grant scheme. Help in its launching, and monitoring.
For Technical Assistance		**471**	
Local		384	
Project Manager (role in technical assistance)	450	134	• Coordination of the dialogue with Cantonal Government on the spatial plan preparation; • Special focus to the quality of work of consultants involved in the delivery of outputs under Outcome on sectoral mainstreaming; coordination of scientific monitoring, public awareness activities. • Ensure proper biodiversity monitoring is carried out annually during the field season, and log-frame indicators are traced and recorded properly both in the project reports and BD-2 tracking tool. • Ensure that best available national and international expertise is made available to the project, especially for outputs under Outcome 2. Drafting terms of reference for the experts and subcontracts. • Develop detailed TORs for short term consultants for (1) monitoring of vegetation community biodiversity, (2) monitoring of bird populations, (3) tourism opportunities in the area, etc. • Liaise with Federal Ministry of Mining, Cantonal Government, UNDP, other ministries, state and federal institutes, and Academia in order to involve their staff in project activities, and to gather and disseminate information relevant to the project. • Facilitate and support participation of various stakeholders in all stages of the project and promote the creation of informal networks in order to mainstream lessons learnt from the project into the state policy making process, namely preparation of Cantonal spatial plans, municipal and federal plans, as well as incorporating lessons learnt in other areas of BiH with similar situations. • Ensure generation and dissemination of information about the project activities among national and international stakeholders,

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
			including providing information for UN periodicals, in close cooperation with the Communications Unit of UNDP BiH.
Spatial planning developers and karst policy experts (a working group)	380	57	This working group will consist of 3-6 persons (at different times based on needs) and will be an integral part of the Cantonal Spatial planning project, and should be considered as a specialized body affiliated with the process of Cantonal spatial plan preparation, in view of the importance of the peatland area for the biodiversity. The TOR: • Analyze the legislative and policy background of BiH in the area of spatial planning, and from that basis develop an action plan and time-table for the elaboration of the spatial plan for Livno Polie; • Develop an annotated map of the biological diversity and its components at the karst peatland field, (including both desk work and field research. The studies will include (1) flora and fauna updated inventory, special focus on wetland vegetation and bird populations, (2) hydrology and hydrography, (3) peatland formation and peat condition assessment; • From that stand point delineate areas which need to remain under high protection, as well as those that can be used in economy; • Develop the annotated map of the current land use patterns at the karst peatland. Special focus will rest with (1) water use, (2) mining of peat and coal, (3) water use, (4) logging, (5) arable farming by local people. Compare the current land use map with the map of biodiversity and identify the ecological gaps within the karst field; • For each gap develop a set of options/recommendations on possible economic use, reconciled with biodiversity requirements; • Discuss each recommendation in a participatory way with the current land-users or owners. For peat excavation this presupposes consultations with the Finvest company manager. For other elements it will include participatory discussions with municipalities (especially Grahovo and Livno), coal mining, and water management sector representatives, local villages; • After participatory discussion – finalize the spatial plan for the karst field, and lobby for its adoption in line with the established BiH government procedures; • Based on the spatial plan – for each industry (peat mining, coal mining, water use) the working group will upgrade/develop industry development plans in the Canton in the next 10 years, and propose them for approval; • Under the auspices of this working group, two specialists (including one lawyer) will work with the municipalities (primarily Grahovo and Livno) to develop and approve biodiversity rules-of-conduct – a municipal level policy that would stipulate allowed and prohibited uses of karst field resources, and introduce a system of disincentives (fines) for illegal activities such as fires and excessive logging. The development of these document will be participatory and

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
			reaching out to local population as much as possible (e.g. through workshops, publications, media messages) to inform of the process of this policy formulation, discuss illegal activities and the newly introduced sanctions. Putting these policies in action will be accompanied by a wide local public campaign and media reports; • A short term consultant will further work under the supervision of the working group and project manger concentrating on the natural wood and oak forest use. Recommendations will be developed and discussed with villagers during the spatial plan validation workshops/discussions.
Communal monitoring officers (4 persons)	350	57	This practice has its historic roots in the rural culture of BiH and has been widely used to monitor and prevent all sorts of social misbehaviours and crimes. In addition to being rooted in the BiH culture, the project will rely on positive experience of the peatland project in Belarus which facilitated creation of the so-called site managers/inspectors and linking them to the local offices of the environmental ministry. Specifically, the project will capacitate 4 people in the three municipalities (2 in Grahovo, 1 in Livno, and 1 in Tomislavgrad) to become environmental communal police. Their TORs in brief: • to enforce the municipal rules-of-conduct and special policies developed above; • to reach out to as many people on the ground as possible monitoring the state of the karst field, and correcting behavior patters; • Equally, the communal policy will be linked to the local fire fighting teams and capacitated to take action against fire at early stages; • site ecological monitoring, data collection and storage and transferring it to relevant scientific institutes and ministries with the idea to help improve the spatial plan of the Canton and develop recommendations for environmentally friendly livelihoods.
National consultants (working group, including one lawyer) on policies for ecologically safe peatland use and peatland rehabilitation activities	380	87	The working group will consist of 3-5 persons at various stages, and it has two main areas of engagement: policy development for karst field use and karst rehabilitation techniques. The TOR: • carefully review the existing by-laws and mining proposal development processes, identify gaps; • Analyze with assistance from the international expert the leading international experience in karst and peatland use and rehabilitation; • work jointly with the Federal Ministry of Mining and the corresponding environmental authorities to develop up-to-date guidelines and processes that would ensure that (1) mining proposal processes does not miss to take fully account of the biodiversity present in the area, (2) mining volumes, boundaries and techniques are environmentally safe, (3) rehabilitation periods and techniques are harmonized with habitat regeneration requirements; • Develop separately by-laws (or with separate chapters) for peat,

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
			coal, as well as sand, gravel). Once elaborated, those bylaws will be adopted by the Federal Government; • Update the data on the ecological condition of the peatland in the northern part (under Finvest concession) and the southern part (municipal land formerly drained for agriculture and currentlty abandoned); • In close cooperation with Finvest and the international peat consultant, develop and control the testing of the at selected sub-sites (totaling approximately 750 ha in both parts – that under concession in the north, and the abandoned municipal land in the south of the peatland); • Participate together with the international consultant on rehabilitation, in the scientific studies and develop technical projects for peatland renaturalization measures; • During and after implementation of the rehabilitation, the specialists from this working group will support ecological monitoring to control the peat renaturalization process and prove that stabilization of grass communities and bird populations at the neighboring areas is in deed taking place.
Working group (consultants) for ecological assessment and planning for cross-border water management issues with Croatia	380	39	This working group will consist of 3 persons, including a lawyer, who will work on the cross-border strategic environmental assessment and development of a cross-border water use plan for the Cetina river catchment. • Organize with assistance with the international consultant and hold the cross-border Strategic Environmental Assessment of the economic plans for the use of the Cetina river catchment; • Conduct research to propose a water use zoning arrangement, considering various water use options within the catchment; • Organize and facilitate a participatory cross-border consultation process, the key element of which will be the results of the cross-border Strategic Environmental Assessment; • Draft and lobby for the adoption of the cross-border agreement between Croatia and BiH. Organize and facilitate high-level consultations between the two countries, once the studies are over and the draft agreement has been developed.
Project evaluation consultants	430	10	The role of the national project evaluation consultant(s) will be to participate, alongside with the international consultants, in the mid-term and final evaluation of the project, in order to assess the project progress, achievement of results and impacts. The national consultants will assist the international evaluation consultant in drafting evaluation report, discuss it with the project team, government and UNDP, and as necessary participate in discussions to realign the project time-table/logical framework at the mid-term stage. The standard UNDP/GEF project evaluation TOR will be used.
International		**87**	
Sustainable rural development consultants*	2,700	44	• Assistance with development and implementation of grass-roots "sustainable development" projects, including setting up Local Action Groups (LAG) that would include community-based organizations, and elaboration of criteria for sustainability that

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
			would take into account valuable habitat integrity at karst and peatland habitats; • providing adequate trainings to LAG; • consultancy to support to reconstruction of environmental infrastructure in the municipality including water use and supply facilities; • assistance in setting up and replenishment of the Municipal Development Fund that would finance sustainable rural development projects; • support to information sharing, and NGOs in the region; • support to environmentally friendly agriculture (pastoralism) at grasslands of Livno Polje.
Sustainable karst use short-term advisor*	2,500	2	• present international experience on sustainable use of karst fields; • discuss with local stakeholders the possibilities of application of the experience in the Livno Polie context.
Ecological assessment assistant for Livanasko Polie*	2,500	4	• analyze reports of the national team on ecological value assessment of Livno Polie; • provide feedback, discuss with national team to clarify inconsistencies and improve the quality of the ecological reports on Livno Polie, consistently (through short-term exercises) during the life of the project.
Spatial plan development advisor	2,400	8	• Facilitate, during the spatial plan preparation, the SWOT analysis. Help with analysis and comparison of the seemingly beneficial but short term economic benefits with those that may present a value in the long-term; • Facilitate, as part of Outcome 1 activities: (a) targeted trainings for cantonal public officers and specialists in the area of ecologically safe mining, water management, agrotourism.
Alternative livelihoods consultant	2,400	8	• Present, during the spatial plan preparation, the international experience on sustainable livelihood opportunities at grasslands and peatlands; • Discuss with the local team answers to such questions as: what are the environmentally and economically good options for extracted peat recultivation? Are there chances for organic farming or ecotourism? How do they look against gravel mining and arable farming on the degraded peatland? Would it be appropriate to create a protected area in the Polje, while allowing certain activities beneficial to environment? • Work with the local spatial plan development team to study and discuss alternative income and employment opportunities (such as expansion of environmental tourism) as well as creation of incentives for alternative income and employment generation.
International advisor on karst and peatlands use policies	2,500	2	Given the lack of knowledge in BiH of the karst and peatland ecosystems, this short term international assignment will be focused on: • Assistance with literature review, analysis of existing internationally accepted ecologically sustainable rules for the use karst and peatland ecosystems, including disturbed peatlands, semi-natural and excavated peatlands;

Position Titles	$/ person week	Estimated person weeks over 4 years	Tasks to be performed
			• Review and discussion with the national consultants of draft BiH-specific policy recommendations and instructions for the use of karst and peatland ecosystems. Review of the draft recommendations.
International consultant on peatland rehabilitation	2,300	7	Based on the best internationally accepted karst and peatland rehabilitation techniques, provide advice to the local consultants (including work in the field), on the rehabilitation measures, in particular on: - closing some of the old drainage ditches by creating and reinforcing ground-and-wooden mounds in order to optimal groundwater table for fire safety and correct vegetation regeneration; - collection and spread of the native genetic material of local peatland plants (such as Carex) in order to ensure quicker renaturalization[15]; - participation jointly with the Finvest company in any other rehabilitation activities (such as returning of the upper humus layer back onto the excavated area soon after excavation and in parallel to plant reseeding); - consideration of afforestation at selected sites;
International consultant(s) for project evaluation	2,900	12	The international evaluation consultant will chair the group for the final external project evaluation. He/she will work with the local evaluation consultants order to assess the project progress, achievement of results and impacts. The project evaluation specialists will develop draft evaluation report, discuss it with the project team, government and UNDP, and as necessary participate in discussions to extract lessons for UNDP and GEF. The standard UNDP/GEF project evaluation TOR will be used.

Note: positions marked with * are funded from co-financing.

[15] This practice is widely used by Canadian peatland rehabilitation projects and has proved one of the most successful.

Annexes

Annex 1	Logical Framework
Annex 2	BD-2 Tracking Tool
Annex 3	Detailed Description of Project Areas (including maps)
Annex 4	List of References
Annex 5	Project Budget per Outputs
Annex 6	Incremental Cost Analysis and Matrix

Annex 1 Logical Framework

Project Strategy	Objectively verifiable indicators				
	Indicator	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
Goal	The project's goal is to ensure conservation of the internationally important natural karst systems in BiH				
Objective of the project: To strengthen the policy and regulatory framework for mainstreaming the requirements for conservation of karst and peatland biodiversity into productive sectors (mining, water use) and spatial planning at Cantonal level	Population size of the indicator species: 1. Great Bittern at Zdralovac Blato 2. Corncrake at 12x6 km in the northern part of Polje (peatland area monitored by ornithologists)	1. 5 calling males singing male across the Blato[16] 2. 200 callers	Stabilization at baseline level.	Project tracking tool. Methods of standard census using transects or count points. GPS data collection.	There is a moderate risk that the on-going Constitutional reform will drive transfer of more responsibilities from entity to state level. The project's focus, however, is cantonal spatial planning. By this, project largely mitigates the risk if shifting power within the entity-state couple, as responsibilities and mandates of entities are expected to remain the same, at least in the area of spatial planning.
	Share of indicator plant wetland communities (*Carex*) in renaturalized 750 ha of peatland habitat	10%	At least 30%	Project tracking tool. Annual botanic monitoring of total area (ha) of habitat in the project sites. Compilation of botanic maps based on field visits and aearial photos.	
Outcome 1: Karst and peatland needs integrated in the BiH cantonal spatial planning policies and procedures	Officially approved maps delineating the geographic and physical boundaries of potentially damaging activities at Livno Polje (mining, water management, logging)	None	A set of maps approved by Cantonal and Federal Government as part of Spatial plan	Project report and official statement in newspapers	There is a moderate risk that more authority in the environmental matters will be transferred from cantonal to municipality level. However, the project's main thrust is is internalizing environment within spatial plan. It is highly unlikely that cantons in FBiH are going to be abolished altogether.
	Number of environmental government officials and inspectors at cantonal, federal, and municipal level with increased understanding of the ecological values of karst systems and ways for their proper management	0	10	Surveys specifically developed to check the level of competency	
Output 1.1 Spatial plans for karst fields, which fully covers the Livno Polje field, integrate biodiversity concerns. Output 1.2 Municipal by-laws and policies for karst field use developed; capacity for their enforcement strengthened among municipal and cantonal officers and inspectors.					

[16] Both indicators: M. Schneider-Jacoby *et al.:* A preliminary assessment of the ornithological importance of Livanjsko Polje (Cetina River Basin, Bosnia and Herzegovina).

Project Strategy	Objectively verifiable indicators				
	Indicator	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
Outcome 2: Water use and mining policies in BiH reflect karst and peatland biodiversity conservation requirements	Ground water table at renaturalized peatland in the North-Western part of the karst field	During October – March the groundwater table at 700 ha in the southern part of the peatland stays below 30 cm.	Stabilization in year 3 and 4 of the project, according to the following pattern: during months October – March the table is not lower than 15 cm below soil at the renaturalized 700 ha in the southern part of the peatland area	Data of extraction companies and inspectorates of environment. Project monitoring reports and tracking tool	One of the main project's assumptions is the willingness of the peat mining companies (primarily FinVest) to cooperate. Project preparation stems from understanding that this willigness is present, and solutions suggested will be mutually beneficial. Back up of the Cantonal government is also a mitigating element. During the course of the project, coal mining for oil production may materialize into a threat. Canton government back up will make sure that the spatial plan discusses and properly defines places eligible for coal mining. Project will closely monitor development of the coal mining prospects in view of this pledge and in the works case scenario seek adaptation of project strategy through a Project board Meeting Peatland renaturalization works may suffer from lack of national expertise, for which the project will draw best available international expertise from siste GEF projects and insure through targeted training building up of local capacities. Finally, there may be difficulties in reaching a cross-border water management agreement with Croatia. If a stand-alone water management agreement with Croatia is not possible during the life of the project, it will prepare all the necessary documentation and help conduct a transboundary Strategic Environmental Assessment, leading both countries as close as possible to accepting the agreement.

Project Strategy	Objectively verifiable indicators				
	Indicator	**Baseline**	**Target**	**Sources of verification**	**Risks and Assumptions**
	Number of municipalities preparing to integrate project approaches and lessons into their municipal spatial planning closer to the end of the project	0	3	Evidence of correspondence/communication with municipalities	Results and lessons learnt from the project are assumbed to be positive and will be be clearly presented to range of different audiences The project assumes that based on its lessons, there will be municipalities willing to replicate the process, meaning integrate biodiversity concerns into municipal planning. Such interest is also assumed among other cantons in FBiH
Output 2.1 By-laws and methodological guidance on ecologically safe peat mining developed and validated at 750 ha of karst peatlands Output 2.2 Internationally accepted (Croatia-BiH) agreement and plan for cross-border water management Output 2.3 Lessons extracted and shared on sectoral mainstreaming for peatlands and karst biodiversity.					

Annex 2 BD-2 Tracking Tool

I. Project General Information

1. Project Name: Mainstreaming biodiversity concerns into spatial planning and key economic sectors at globally important flooded karst fields in BiH
2. Project Type MSP
3. Project ID (GEF): 2723
4. Project ID (IA): 3306
5. Implementing Agency: UNDP
6. Country(ies): Bosnia and Herzegovina

Name of reviewers completing tracking tool and completion dates:

	Name	**Title**	**Agency**
Work Program Inclusion	Maxim Vergeichik	Programme Analyst	UNOPS
Project Mid-term			
Final Evaluation/project completion			

7. Project duration: ***Planned***____4___ years ***Actual*** _____ years

8. Lead Project Executing Agency (ies): Herzegbosanski Canton Federation of Bosnia and Herzegovina, UNDP

9. GEF Strategic Program:
   x Strengthening the policy and regulatory framework for mainstreaming biodiversity (SP 4)
   □ Fostering markets for biodiversity goods and services (SP 5)

10. Production sectors and/or ecosystem services directly targeted by project:

10a. Please identify the main production sectors involved in the project. Please put "**P**" for sectors that are primarily and directly targeted by the project, and "**S**" for those that are secondary or incidentally affected by the project.

Agriculture___S_____
Fisheries_____
Forestry_____
Tourism_____
Mining___P____
Oil_____
Transportation_____
Other (please specify)_ water management (potable water supply, hydropower construction) P

II. Project Landscape/Seascape Coverage

11a. What is the extent (in hectares) of the landscape or seascape where the project will directly or indirectly contribute to biodiversity conservation or sustainable use of its components?

Targets and Timeframe Project Coverage	Foreseen at project start	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
Landscape/seascape area directly covered by the project (ha): karst fields	740 ha		
Landscape/seascape area indirectly covered by the project (ha): karst fields	41,000 ha		

Explanation for indirect coverage numbers:
750 ha is the size of the area that will be directly subject to peatland post-excavation rehabilitation, within the GEF project's life. This is the subject matter of Outcome 2. 41,000 ha is the total area of Livansko Polie karst field, all of which which will benefit from a spatial plan developed under Outcome 1.

11b. Are there Protected Areas within the landscape/seascape covered by the project? If so, names these PAs, their IUCN or national PA category, and their extent in hectares

NA

11c. Within the landscape/seascape covered by the project, is the project implementing payment for environmental service schemes? If so, please complete the table below.

NA

III. Management Practices Applied

12a. Within the scope and objectives of the project, please identify in the table below the management practices employed by project beneficiaries that integrate biodiversity considerations and the area of coverage of these management practices. Please also note if a certification system is being applied and identify the certification system being used. Note: this could range from farmers applying organic agricultural practices, forest management agencies managing forests per Forest Stewardship Council (FSC) guidelines or other forest certification schemes, artisanal fisherfolk practicing sustainable fisheries management, or industries satisfying other similar agreed international standards, etc.

Targets and Timeframe Specific management practices that integrate BD	Area of coverage foreseen at start of project	Achievement at Mid-term Evaluation of Project	Achievement at Final Evaluation of Project
Cantonal governments internalize biodiversity concerns in spatial plans	41,000 hectares		
Guidebooks on mining revised to accommodate environmentally safe techniques	1,500 ha of peatlands		
Peat renaturalization through reseeding, and selective closing drainage ditches	750 ha of peatlands		

IV. Market Transformation and Mainstreaming Biodiversity

13 **For those projects that have identified market transformation as a project objective**, please describe the project's ability to integrate biodiversity considerations into the mainstream economy by measuring the market changes to which the project contributed. The sectors and subsectors and measures of impact in the table below **are illustrative examples, only**. Please complete per the objectives and specifics of the project..

NA

V. Policy and regulatory framework

For those projects that have identified addressing policy, legislation, regulations, and their implementation as project objectives, please complete the following series of questions*:* 14a, 14b, 14c.

An example for a project that focused on the agriculture sector is provided in 14 a, b, and c.

14a. Please complete this table at **CEO endorsement for each sector** that is a primary or a secondary focus of the project.
Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector **Statement: Please answer YES or NO for each sector that is a focus of the project.**	**Agriculture**	**Fisheries**	**Forestry**	**Tourism**	**Other (Water management)**	**Other (mining)**
Biodiversity considerations are mentioned in sector policy	NO				NO	NO
Biodiversity considerations are mentioned in sector policy through specific legislation	NO				NO	NO
Regulations are in place to implement the legislation	NO				NO	NO
The regulations are under implementation	NA				NA	NA
The implementation of regulations is enforced	NA				NA	NA
Enforcement of regulations is monitored	NA				NA	NA

14b. Please complete this table at **the project mid-term for each sector** that is a primary or a secondary focus of the project.
Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector **Statement: Please answer YES or NO for each sector that is a focus of the project.**	**Agriculture**	**Fisheries**	**Forestry**	**Tourism**	**Other (please specify)**	**Other (please specify)**
Biodiversity considerations are mentioned in sector policy						

Biodiversity considerations are mentioned in sector policy through specific legislation						
Regulations are in place to implement the legislation						
The regulations are under implementation						
The implementation of regulations is enforced						
Enforcement of regulations is monitored						

14c. Please complete this table at **project closure for each sector** that is a primary or a secondary focus of the project.
Please answer YES or NO to each statement under the sectors that are a focus of the project.

Sector **Statement: Please answer YES or NO for each sector that is a focus of the project.**	**Agriculture**	**Fisheries**	**Forestry**	**Tourism**	**Other (please specify)**	**Other (please specify)**
Biodiversity considerations are mentioned in sector policy						
Biodiversity considerations are mentioned in sector policy through specific legislation						
Regulations are in place to implement the legislation						
The regulations are under implementation						
The implementation of regulations is enforced						
Enforcement of regulations is monitored						

All projects please complete this question at the project mid-term evaluation and at the final evaluation, if relevant:

14.d. Within the scope and objectives of the project, has the private sector undertaken **voluntary** measures to incorporate biodiversity considerations in production? If yes, please provide brief explanation and specifically mention the sectors involved.

An *example* of this could be a mining company minimizing the impacts on biodiversity by using low-impact exploration techniques and by developing plans for restoration of biodiversity after exploration as part of the site management plan.

_____
_____
_____
_____
_____

VI. Other Impacts

15. Please briefly summarize other impacts that the project has had on mainstreaming biodiversity that have not been recorded above.

_____
_____
_____
_____
_____

Annex 3 General description and biodiversity significance of BiH key karst fields

Topography

Livanjsko polje is located at 44º 55' 56" N and 16 º 36' 28" ; E 43º 45' 50" N and 16º 52' 42"E. (Figure 1). It is located in the southwestern part of Bosnia and Herzegovina, covering about 407 km^2. Livanjsko polje lies between typical high karst mountains Dinara (1,913 m) and Kamešnica (1,849 m) in the South, Tušnica (1,700 m) in the East, Cincar (2,006 m) and Golija (1,892 m) in the North, and Šator (1,875m) with Staretina (1,675 m) in the West. It is situated at altitude of about 700 m a.s.l. and has no surface water outflow. Therefore, all the water is draining, through numerous sinks and a network of underground karst cavities, towards Cetina River in Croatia (see figure 4). Livanjsko Polje is located completely in BiH and it represents significant part of the Cetina River catchment area, which makes all of its waters regarded as international. Livanjsko polje is situated in Federation BiH in Canton 10 (canton that almost entirely corresponds with BiH-part of Cetina river catchment). This Canton has 6 municipalities and polje is shared among three of them (Livno, Tomislavgrad and B. Grahovo)

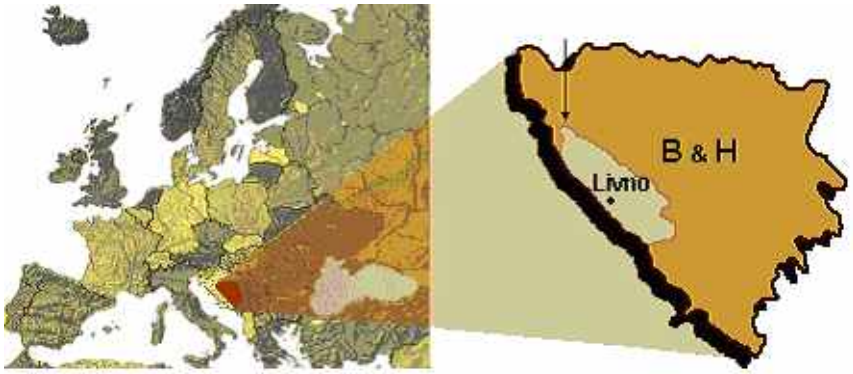


Figure 1. Topographic position of Livanjsko polje

Livanjsko polje is a karst tectonic fissure. Its extension direction corresponds to the extension direction of hte Dinaric Alps from North-West to South-East with Buško Blato (which used to be a natural wetland and today is an artificial lake) in the South-East, and Ždralovac in the northwest. Ždralovac is a narrow ridge which connects Livanjsko polje with Grahovo polje.

Settlements and population

Livanjsko polje used to be inhabited allready in prehystoric era. This settlement culture of the area has been marked first by the Roman period, then Otoman empire and Austro-Hungarian monarchy. There are numerous monuments of culture.

The largest settlement of Livanjsko polje is the town of Livno. The town has 40,000 inhabitans. Livno is situated in the northeastern part of the field, under Bašajkovac hill. It is well known for its multiethnicity. Even before the war Livno had a status of underdevelped municipality. Its economy activity was based on textile, chemical, mining, wood production and agriculture industries, while the most profitable companies were those in transport and trade. A substantial number of people were engaged in subsistance agriculture and catle farming. Livno is famouse for Livno cheese that is made in its villages and in Livno Milkfactory (nowdays mostly owned by Lura company from Croatia). Other key economic developmenst still present in the area with various degrees of effectiveness, are mining, water management (reservoir), tourism.

Since 1960s, when socialist Yugoslavia liberated its migration policy towards West European countries, a large number of mostly rural people from Livno and Tomislavgrad municipalites went to Germany and other countries of western Europe, as labourers. They are known as gastarbaiter. This fact have had a

great impact on living standards in this areas. Today, both Livno and Tomislavgrad municipalites, recieve a substantial amount of financial influx in form of pensions earned abroad.

The largest villages of Livanjsko polje are : Guber, Grborezi, Podhum, Prolog, Čuklić, Zabrišće, Bila, Čelebić, Lusnić, Strupnić, Kovačić, Vrbica and Bojmunte.

The meadows reach high biomass production both in central and peripher part of the field. Because of this tradition pastoral cattle breeding is quite widespread: breeding of sheep, cows, goats and horses. Local milk cheese and locak smoked meat have been well known for centuries.

During the war most companies reduced or completely closed down its operations, which in the post war period have not recoved. Apart from problems that stem from old technologies, lost markets, etc. there is also a problem of privatisation proces. Like in the rest of BiH, the privatisation proces usualy meant only transformation of ownership, without real investment in production proces. A large number of people, which officialy work in companies that are in the proces of privaisation or are privatised, are on the so-called waiting list. The lucky ones who work usually receive their salaries with delay of couple of months, while the employer's contribution towards social and helth insurance of workers are dealayed for couple of years. This can be problematic especialy for those workers who should be going into retirament and cannot do so because of unpaid pension contributions.

Since the end of the war the bigest problem in the municipaity is a high rate of unemployement and general lack of employment opportunities. All bigest pre war employers are still unprivatised: Opskrba, Unkimax, Livtex, Livnotrans, Tusnica and Cincar. Tusnica is the only company form the list working, while Livnotrans is under buncrupcy procedure.

There are no reliable estimates about the number of unemployed, while it is known that 4 600 are officialy working. However, even this figures should be taken with precaution since a substantial number of those that are supposed to be working are in fact on so called waiting list of companies that are not privatised or only partialy privatised and in fact work only from time to time or are inactive. The real number of those working is small, and it is believe that a substantial number of people make living in grey economy.

Key economic sectors

Coal mining. Exploitation of coal in Livanjsko Polje dates from 1889 when Austro-Hungarian geologist started exploration works and some years later in 1908 coal mine “Tusnica” was opened for exploitation of dark coal. More significant exploitation of dark coal started after the World War II, in 1919 when concession for exploitation was given to “Opskrba” company from Split (Croatia). They supplied on average 6000 tones of coal to steam mill societies across Dalmatian coast until the World War II. After the Second World War, new mines were open “Stari Martinovac”, “Drage” and “Novi Martinovac”. Drage were opened only for four years, Stari Martinovac was closed in 1963, while Novi Maritnovac worked until 1992.

The socially-own company Tusnica went into insolvency in 1992 just before the war, mainly because of persisted illiquidity problems. The company’s insolvency status continues event today.

Nowadays within Tusnica company there are three production units: Production unit Tusnica – “Drage” surface mining of coal; production unit of lignite in Prolog: “Table” lignite coal mine; Production unit of construction material “Podgradina” – limestone quarry “Podrgadina”.

Tusnica mine is placed in the far southeastern part of Livanjsko polje between mountains Tusnica, Podhum and Grgurici. The exploitation field has 400 hectare. In close vicinity to coal mine there are four water streams: Martinovac, Drage, Novakovac and Mandrak. Water streams in the upper part are deeply placed in terrene. The ground surface is broken and easily absorbs water. The coalfield has 39 exploration digs that were done in different time periods and sometimes with longer pauses. in 1985 the Investment

Programme was developed, which envisaged opening of New Dig – Tusnica that was never implemented because of unstable market and insufficient investment funds.

In 1991 exploitation of Tusnica continued on a small scale on its micro location called Drage, but only as a surface exploitation which continues today. The examination works were done in 1995, 1996, 2002 with reports that followed. On the basis on latest report from 2002, the Federal Ministry for Energy, Mining and Industry issued Decision on confirmation of geological reserves of dark coal and its quality in micro location Drage. In 2004, Mining Institute from Tuzla developed "Additional mining project on exploitation of remaining coal reserves".

Exploitation of coal for 2003 and 2004 was managed at the B-1 mining sector with total amount of 24.312 t. This amount of coal was sold and delivered to the thermo plant Kakanj. Before the war, Tusnica sold most of its coal to Jugovinil (later renamed INA Vinil) in Kastel Sucurac (in Croatia), which is some 100km south from Livno, where it soled some 80 000t a year. When INA Vinil closed down in 1995, Tusnica coal production almost closed down.

With the 1st of January 2006 Tusnica employs in total 120 workers, as 5 employees were retired with the end of 2005. The table below show the number of employees in 2005, number of work places in accordance with the Rule Book on Internal Organisation (updated last time in March 2005) and number of people that were surplus in 2005.

There is one person working in the company who is responsible for environment issues and protection of labour at work.

Table 1. Information on Tusnica

Info received in March 2006	Lignite production "Prolog"	Coal mine "Tusnica"	Pogradina	Management building	Total
Current umber of employees	36	33	33	23	125
No. of envisaged w.p.	9	26	30	19	84
Surplus	27	7	3	4	41

According to the company's Profit and Loss Account for 2005, the company's total revenue was 3 731 618KM which includes 2 989 336KM revenue earned from the company's main activity, i.e. sale of coal and construction material. It can be seen that in 2005 Federal Pension Fund wrote off their debt towards employees pension contributions for 1999 and 2000 which amounts to 477 000KM, as shown on the revenue side of the Profit and Loss Account. The company's highest expenditure is represented in the costs of transport service that amount to 1 959 857KM and total costs related to employees net salaries and contributions are 876 891KM. According to the company's management, 2005 was financially the best year in recent years.

Table 2. Revenues and Expenditure

Revenue	Expenditure
3 731 618KM	4 299 586KM
Net Loss: 567 968 KM	

As Livno does not have a railway connection the transport of coal is done by trucks. The transport costs have increased last year and they are likely to increase even further in the future. If demands for substantial quantities of coal do not open in the radius of 30 km from Tusnica, Tusnica company and coal exploitation will close down in a the near future as soon as transport costs outweigh earned income from exploitation and sale of coal**.**

The Table 3 below shows distance between Tusnica and its buyers or potential buyers, with their current and prewar demand coal.

Table 3. Distance between Tusnica and its buyers

Annual demand			Distance between coal mine and buyers		
Location	Before the war	After the war	"Tusnica" Livno	"Gracanica" G.Vakuf/Uskopje	"Kamengrad" Sanski Most
Maglaj	100 kt	25 kt	220 km	150km	225km
Banja Luka	500 kt	20 kt	190 km	125km	90km
Mostar	250 kt	10 kt	125 km	115km	240km
Split	100 kt	20 kt	70 km	175km	260km

For the year 2006, the management made agreement with Natron company from Maglay for sale of additional 20 000t of lignite.

Deposit "TABLE". Represents the north-east part of the huge deposit of lignite "Prolog", and it is located at the central part of Livno field between villages: Prisap, Komorani and Grborezi. Exploration and survey activities were completed in 1994 at the location "Table". It was confirmed that there are 6 coal seams in total, with capabilities for each seam in between 1,2 – 3,5m. Based on the overall geological surveys conducted in 1995, the Institute for Geological surveys from Zagreb (Croatia) completed the "Study on exploration of coal deposits in the "Prolog" area with the lignite reserves estimation for the "Table" location.

The lignite exploitation at this site started in 1992 and continues today. Since then every year the production has been increasing. Total amount of produced lignite for year 2004 is 6.120 t, which is 22% increase comparing with 2003. Aggregate sale of lignite for 2004 was 7.441 t. and all of it deleivered to Natron, Maglaj.

Inventories of fine and grain coal that have been put aside since 1999 are flammable and exposed to atmospheric influence and therefore loose its qualitative and quantitative properties, which make it difficult to sell. The company should find a way how to secure safe removal of this waist, which is potential environmental hazard.

Intoo and Alphakat investment in production of synthetic fuel. Agreement on Partnership signed between companies Intoo and Alphakat d.o.o (Ltd), Livno Municipality and Cantonal Government was signed on 14th October 2005, which was subsequently approved by Municipal and Cantonal Assembly. By this agreement parties to the contract decided to establish company "Inteza-Livno" shareholding company, where 70% of shares will be owned by Intoo and Alphakat and 30% will be owned by Livno Municipality. The deal is that Itoo and Alphakat invests 75 million Euros, while Livno Municipality secures required concession for exploitation of lignite. The company will be registered for production of synthetic fuel from lignite by using patented KDV and Fischer-Tropsch method, which would eventually create some 200 work places.

The contract stipulated in advance that the agreement is subject to gaining the concession on 30 years for exploitation of lignite in Celebici and Table by the Intoo-Alphakat, the concession which will eventually be transfer to Inteza- Livno once it is established.

The agreement also stipulates that the company will use services of Tusnica and if needed provide the coalmine with necessary equipment that would enable Tusnica to meet demand for coal by Inteza – Livno. It is predicted that this relationship between Tusnica and Inteza will be subject of a special contract. The predicted needs of Inteza company are 400 000 tones lignite a year, which is some ten times more than the current average yearly productions. This would also mean additional employment of some 400 people. In order to meet estimated demands by Intoo, the coal mine would have to invest approximately 10 milions KM in modernizing its production. Clearly this investment cannot be beard by

the coalmine and therefore would have to be done by the Intoo company. In case that something like this happens that would result in changes of ownership of the coalmine, i.e. Tusnica would become part of Inteza – Livno.

Currently, Tusnica does mining in depth up to 25 meters. In order to satisfy production needs of Intoo, the mining would have to be extended to depth of 100 meters and all production would have to be modernized.

Within the agreement it is emphasized that the new company will have to fulfill all its duties with regard to BiH environment law (this is their legal requirement anyhow) and in addition to this it is stated that the company will in all its project documentation include all EU directives and standards that are related to environment protection.

In September 2004 "Conel" consulting company from Tuzla company completed a feasibility study for building of small thermo-heating company in Linvo. This thermo plant is envisage on premises of still unprivatised LIVTEX company situated at the entrance of Livno town.

At the time of speaking with Director of Tusnica, the consultant was informed that is expected from the Cantonal Government to publish tender for concession on building thermo heating plant this year. Thermo heating company is a necessity for Livno where most public institutions and private housing units use electricity or fuel for heating its premises during long and cold winters.

The question is what would be the capacity of this plant since according to the Feasibility Study it can vary between 5 megawatts to 40 megawatts in strength.

According to some, the optimum for the town needs would be power plant in capacity of 30 megawatts that would require some 200 000 tons of lignite a year for its production. In order to meet demands of thermo plant, Tusnica would have to modernize its production and additionally employ 100 people.

Peat extraction. Finvest company. Before the war peat extraction was done by a socialist company (state owned), which had three production units: peat extraction, agriculture and repair of trucks and agricultural machines. The company at that time employed 126 workers and their financial statements were positive. This information is received from people who were familiar with the company before the war, as all documentation about the company was destroyed during the war (Bos. Grahovo was completely destroyed in 1995).

Currently the company has six full time employees while during the season they additionally employ approximately 20 workers on contract basis. The season time mostly depends on weather conditions – they cannot work during rainy season.

Location and exact boundaries of the exploitation field for the next 30 years - surface extraction "Zdralovac" - are defined by the exploitation approval paperwork, issued by the Cantonal Ministry of economy, No. 05-310-7/02, dated 25.03.2003. Size of the peat exploitation area is approximately 770 ha, which are divided into 16 extraction sites.

The planned annual production for 2006 is 40,000 m3. The company pays annually 3% of the production value as the concession to the municipality.

The company is trying to win a market share in BiH and Croatia by having a very competitive price. They would be able to expand the exploitation if the market conditions were more favorable. The problems is that in BiH and in Croatia the market is controlled by a few large importers of agricultural equipment who buy everything in one place (from one supplier), usually Holland. In these conditions Fininvest can fill only gaps in market demand for peat.

They sell its products in BiH, Croatia and Macedonia. Currently they are conducting negotiation with some Italian companies to expand the market.

Tourism**.** Tourism sector on the cantonal level is under competence of Ministry for Economy and on the entity level under competence of recently formed Ministry for Tourism and Environment (before it was under competence of Ministry of Trade and Tourism). This area has been neglected from all levels of government. However, there have been talks recently that the Ministry of Foreign Trade and Economic relation, which has competence in defining state policy towards tourism and representation in the world, will start drafting a state law on tourism.

Canton 10 has cantonal Tourist Association established in accordance with the above mentioned Federal law, whose function is to promote tourism and work on its development in the given area on non profit basis. Tourist Association is supposed to be finance from special fixed tax levied on hotel and hostel customers that stay overnight and grant contributions. The tax varies from 0.60KM to 2KM depending on type of accommodation, season, etc as it is defined in Decision on Tax for Overnight Stay (Federal Official Gazette, no.45/04). This tax is always paid by hotel customers, as it is calculated in the price they pay, but it is not transferred to the association. This is also one of the reasons why tourist associations don't have information on overnight stays for which they should be keeping a record.

Apart from Adria Ski in Kupres (1250m altitude), which is a bright example of local entrepreneurship, tourism sector is generally underdeveloped in the canton. The canton does not even have a tourist agency.

Adria Ski resort which in its complex has hotel with 90 rooms and 3 ski treks and ski lift, uses services of tourist agencies from Croatia. Contrary to other municipalities in the canton, Kupres municipality recognized the potential of tourist sector for its development and passed some decisions that encouraged especially people from Croatia to build weekend houses in this area. Mayor of Kupres stated recently that in 2005 Kupres had 60 000 overnight stays by tourists, which in opinion of many is exaggeration. This town has all together 401 registered beds (this number includes 27 family house that have all together 80 registered beds) and there is no way to check whether the mayor's statement is correct or not since no one is keeping a proper statistics.

The below table is received from Kupres municipality and shows data on municipal room and bed capacity and number of visitor from 1st and 31st of January 2006. The table was made as an attempt by the municipality to keep a record of its tourist capacities and visitor, but never the less should be taken with precaution as this king of data is often underestimated for the purpose of tax evasion.

Table 4. Tourism information from Kupres

Number	Name and type of accomodation	accomodation capacity		Number of turists			Number of overnight stays		
		number of rooms	total beds	Total	Foreign	Domestic	Total	Domestic	Foreign
1	Rooms in private houses	27	80	140	/	140	344	/	344
2	Pansion St. Marcus	5	10	15	/	15	30	/	30
3	Pansion Kraljica	5	10	36	/	36	63	/	63
4	Hotel Maestral	18	40	143	18	125	223	17	206
5	Gradska Kavana	5	11	15	/	15	30	/	30
6	Hotel Adria Ski	90	250	343	21	322	1451	63	1388
	TOTAL	150	401	692	39	653	2141	80	2061

Livno has two hotels and 5 registered pansions with total capacity of 340 beds. There is no available data on overnight stays. Majority of those that visit Livno are there on business, while during peak skiing season some tourists that visit Kupres stay overnigh in Livno, which is 30 minites drive from Kupres.

Livno clearly has a potential for developemnt of tourism, but so far nothing has been done in this field by authorities nor there has been any private initiative.

Livno has on average 2252 sunny hours a year, or 6,4 hours a day. For comparison ireland Hvar in neighbouring Croation, which is the sunnies ireland in Adriatic sea, has on average 7,2 sunny hours a day.

Livno has three rivers, Sturba, Zabljak and Bistrik, all excellent for trout fly fishing which is regulated by municipal Fishing Association. In Livno this association has approximately 150 local members that pay for seasonal fishing cards between 40 and 50 KM depening on the years spent with the association. The association also issues fishing tickets for a day and a half day that cost 20 and 15 KM repectively. They have its own fishing inspection to make sure that there is no fishing out of season or by those without permit. The association also does trout breeding.

Krila Livna – paragliding club from Livno – is held by a small group of paragliding enthusiast who claim that Livno has ideal conditions for this sport. The club does not receive any support from authorities, thus has not been able to expand its activities.

Another small group of enthusiasts is running aero modeling club and have been asking from the municipality funds for building runway. 17 years ago Livno held world championship in aero modeling.

The municipality has a good potential for development of agro-tourism, hunting and fishing and sport tourism (cycling, walking). There is an idea that mountain Kamesnica would be suitable for building a ski resort. This is still only an idea.

Development of tourist sector in Livno municipality, as well as in the whole canton, demands a serious and systematic approach to this issue, assessment and analysis of the current situations, available resources, infrastructure, institutional framework, and potential market demand.

Tourist product of the canton has not been defined, nor they identified a potential target groups of tourist. These questions should be tackled in an organised and systematic manner, with clearly defining tourist offers, target groups, a way of promotion, quality of service that would be matched to needs of targeted tourists, etc.

Water management. Due to development of various projects in water resources (mostly hydropower) in the period between World War II (1945) and the wars in the countries of former Yugoslavia (1991-1995) karstic regions became exceptionally interesting. However, there were some problems in implementation of the projects (technical, natural, political – in those days environmental issues were hardly noted and considered at all). Sufficient technical and engineering skills were gained within first decade after the WW II and in terms of taming the nature great efforts were focused in the explorations of groundwater connections (and generally other odd phenomena) in karst. Many of the projects were developed to control wet-season flooding in combination with Hydropower development. Example of such project is HPP Orlovac – where artificial lake "Buško blato" is formed in the world's largest karst field "Livanjsko polje" and water is diverted via 12 km long tunnel towards power plant situated in Croatia. Thus, in late 60's and early 70's a complex water resources project dramatically changed natural conditions for about 50% of the area (south-eastern part) of the site. The network of drainage ditches was constructed, which firstly provided security against flooding and improved the soil quality for agriculture, but more importantly – all the water draining through this ditch network from the Polje was conveyed towards Busko blato which has been turned into Bosnian most area-spacious (6000 ha) and second largest artificial lake - storage reservoir ($800 \cdot 10^6$ m^3) for Orlovac Hydropower plant in Croatia. In 1974 HPP Orlovac was commenced. Its powerhouse is in Croatia whose hydropower company HEP owns it, while most of the other structures including huge storage reservoir (Buško blato) are in BiH.

Recently, plans emerged to expand this scheme with Phase II and to develop new reservoirs. Answering the question of future development plans in Livanjsko polje HEP representatives were not sincere in the meeting held 11-10-2005 as they were unwilling to disclose those plans. Obviously, with newest environmental awareness and by this issue becoming officially an international one, the phase II is less likely to see the daylight. Nevertheless, it is still "alive" in the development plan of the Canton (1988), and certainly even more so in the future development plans on HEP. Most of the infrastructure is already

in place (tunnel, penstock, powerhouse, etc.) and only some relatively minor works (canals, pumping station and small dam to form Čaprazlije retention) would bring much more water for electricity generation.

Hydrography

Precipitation in the south of the country (Adriatic catchment), on annual basis is about twice as much as compared to northern part of the country (Black Sea catchment) – ca. 2000 mm versus 1000 mm per year. If distribution of river network in BiH (figure 1) is studied, an obvious lack of streams in the southern (Adriatic) catchment can be seen, which mainly corresponds to karstic area. Karstic depressions ranging from "vrtača" (small depression in order of tens of meters in diameter) to "karst fields" (easily exciding tens of square kilometers) have no natural surface flow outlets. Therefore, surface water runoff coefficients are rather low in the karst, as long as immediate catchments are considered. Most of the water drains underground through network of cavities and caverns forming even big underground rivers. Water is disappearing from the surface in numerous sinkholes (sinks, swallow-holes, "ponors"). Some of them are clearly visible while others are more obscure. Generally, capacity of those sinkholes is not sufficient to drain all the water in wet periods, therefore large water retentions are formed flooding significant parts of the fields.

Hydrogeological studies have proved that Livanjsko polje was covered by water during Neogen. There are few remaining lakes in the field itself, of which Buško jezero is the largest artificial water reservoir in this part of the Dinaric Alps. Today, all water from this huge reservoir is being used for purposes of powerplant *Orlovac* , as well as for purposes of water supply in thte neighbouring Republic of Croatia. Allthough the level of the lake varies depending on powerplant's needs and despite the fact that rising of lake's level had caused certain changes in the wetland of Buško blato, these ecosystems still play an important role in the life of many birds and other fauna representatives, of which many are endemic and relict.

There is also Brežinsko jezero in the southwest of the field. Several rivers flow through Livanjsko polje disappearing underground; they belong to the Adriatic Sea confluence. The most important of them are : Sturba, Žabljak, Bistrica, Brina, Plovuča, Jaruga and Ričina. What makes the hydrography of the site special are numerous karst phenomena, such as springs, abysses, estavels (places where water disappears during seasons of low water level, or comes to the surface when the level of underground water rises). The majority of water bodies in the area is highly valuable from the ecology point of view and serve as habitat for many important species of shrimps and fishes, amphibians and reptiles, including many endemic ones that can be found only in Livanjsko polje.

Biogeography

From the standpoint of biogeography, Livanjsko polje belongs to the Illyrian province of the Eurosibir-Boreoamerican region. As a response to a combination of ecologic factors during post-tertiary period, unique climax vegetation formed here. In other similar regions, climax vegetation is composed mostly of different types of woods, but in Livanjsko polje this is not the case. In its typical zone, natural vegetation are bogs of order *Caricetalia davallianae*, ponds and swamps of order *Phragmitetalia*. The most typical forest vegetation is developed in the northwestern part of Livanjsko polje: unique common oak woods *Quercetum roboris* with boggy birch woods *Betuletum pubescentis*, adler woods *Alnetum glutinosae* and willow woods *Salicetum pentandrae*. In deeper alluvial depositions one can recognize fragments of white willow woods *Salicetum albae* that used to be well developed in the area. The edge of Livanjsko polje is covered with thermophilous woods of turkey oak Quercus cerris, sessile oak Quercus daleschampii, Quercus petraea and pubescent oak Quercus pubescens. The area is dominated by turkey oak that builds here a characteristic community known as *Quercetum cerris*. The belt of oak woods is on vertical profile

of surrounding mountains Dinara and Cincar continued by the empire of illyrian beech woods with different communities: *Fagetum sylvaticae illyricum*, *Seslerio autumnalis-Fagetum* , and on higher positions the most beautiful dinaric woods of the region mixed beech-fir woods *Abieti albae-Fagetum illyricum*. Going further to the mountain peaks, these communities are replaced with subalpine woods of beech and maple *Aceri-Fagetum subalpinum.* The last belt of forest is made of dinaric *Pinetum mughi dinaricum,* which is characterized by shrubs of *Sorbus chamaemespilus*. It grows mostly on dolomite. Above the belt of woodland mountain meadows and alpine grassland are found. These are from the floristic point of view so unique that they were described as a special alliances *Seslerion tenuifoliae* and *Festucion bosniacae*. They are rich with endemic and relict species that belong to the vegetation of crevices *Asplenietea trichomanis* and screes *Thalspieetea rotundifolii*. In the mountain depressions, where snow stays for a longer time, vegetation around snow patches has *Salicetum retusae*, which indicates former glacier influences.

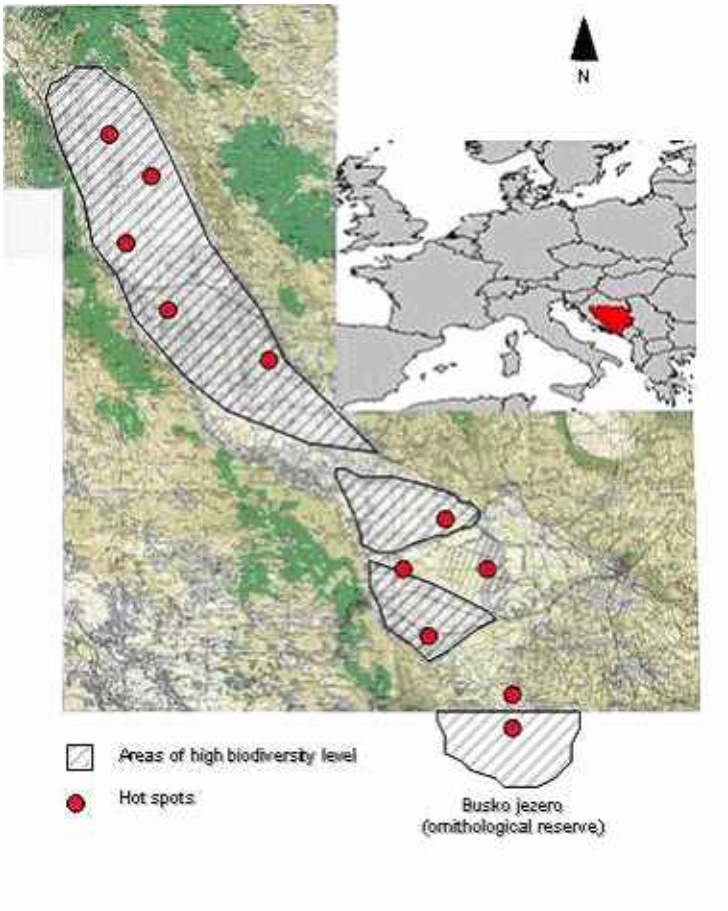


Figure 2. Biodiversity hot spots in Livanjsko polje

Ecosystem diversity

Mesophilous and hygrothermophilous meadows. One of the most prominant features of Livanjsko polje are meadows that are being developed in the field area where the level of underground water varies over the entire year. During spring and autumn this level is very high, which causes development of hydrophilous communities accompanied with numerous species that are characteristic for moist habitats. In the summer the water level falls down considerably and many places are then being covered by thermophilous communities. Thus, the same habitat through the entire year is being shared by different communities. This phenomenon is unique to the karst fields of Dinaric Alps.

Within this vegetation type many species are included, but the most significant are the endemic species: *Molinia coerulea, Peucedanum pospichalii, Gladiolus illyricus* and *Carex panicea*. *Succisella petteri* shows up with a high abundance, which is the reason to differentiate it into a sub-community. Besides, high abundance is characteristic for *Sanguisorba officinalis, Iris sibirica, Galium boreale, Ophioglossum vulgatum, Allium angulosum, Serratula tinctoria, Orchis palustris, Thalictrum flavum* etc. Species that are typical for the illyrian communities are: *Sesleria uliginosa, Carex panicea* and *Ranunculus auricomus* f. *crenatus*.

Because of a short vegetative period, vegetation develops fast and spring species meet summer ones early. After the autumn rain falls, vegetation flourishes again, whereby coverage of graminea reaches almost 100%. There are *Bromus racemossus, Aegilops sp., Haynaldia villosa, Hordeum gussoneanum.*

This vegetation type is represented by following communities that are exclusively attached to Livanjsko polje:

- *Molinietum coerulae illyricum* (*Gladiolo-Molinietum coeruleae*)
- *Shoenetum nigricantis illyricum* Horvatić 1930
- *Molinio-Lathyretum pannonici* Horvatić 1963

Hygromesophilous meadows (*Deschampsion caespitosae).* As one moves from wet to dry soils, the communities described in the previous subsection are being replaced by hygromesophilous vegetation that belongs to the alliance *Descampsion caespitosae.* Communitites of the following species are found here: *Inula britannica, Gratiola officinalis, Teucrium scordium* and *Roripa silvestris*. In addititon to these species, the fofllowing species add to the karst uniqueness of the area: *Centaurea pannonica* f.g*labrescens, Hordeum gussoneanum,Oenanthe fistulosa*, as well as submediterranean species: *Deschampsia media, Scilla pratensis* and *Poa silvicola.* There is also *Plantago altissima*, which is a very rare species within the flora of Bosnia and Herzegovina. The hygromesophilous meadows of Livanjsko polje are being represented by the following communities:

- *Centauretum pannonicae*
- *Plantaginetum altissimae*
- *Deschampsietum mediae illyricum* (Zeidelr 1944) Horvatić 1963

Mesophilous meadows (Alliance *Arrhenatherion*). In places which are not influenced by underground water, highly productive meadows belonging to the alliance *Arrhenatherion elatioris* have developed. The most common communities within these wide spread meadows are:

- *Festucetum pratensis*
- *Festuco-Agrostetum tenuis*
- *Arrhenatheretum elatioris.*

Bogs and fens. *Carex fusca* plays a major role in the vegetaton cover. These communities don't tolerate temporary dryouts, being therefore limited to permanently wet places. Beside dominating species there are mosses *Calliergon cuspidatum, Chrysosyphnum stellatum* and *Drepanocladus aduncus*.

During spring *Carex fusca,* being accompanied by mosses and *Polygonum amphibium,* cover the ground like a carpet. After these communities thin out, *C. echinata, C. oederi, Ranunculus flammula* and *Heleocharis palustris* appear in great quantity. One endemic species here is *Juncus hercegovinus*. A transition from wetlands to meadows happens over the stage of fragmented stands of *Carex fusca*. Bogs in Livanjsko polje are represented with few communities of which three are endemic:

- *Shoenetum nigricantis* W.Koch 1926

- *Valeriano-Caricetum buxbaumii* Rt 1972
- *Eriophoro-Caricetum davallianae* Rt 1972

Reedbeds (PHRAGMITETALIA). This alliance is developed today only in Livanjsko polje, or to be more precise in Ždralovac area. Plant community *Caricetum elatae* Koch covers the largest area of impassable swamps, whose edges are covered with the community *Caricetum inflato-vesicariae* containing following species: *Carex riparia, C. pseudocyperus, C. acutiformis* and *C. prostrata.* High importance within this vegetation type comes to the community *Scirpeto-Phragmitetum* W.Koch , for it is habitat for numerous birds and plays significant role in the protection of bird's biodiversity.

Alder woods *Alno-Quercion roboris.* Alder woods *Alnetum glutinosae* cover large area in the northwestern part of the field. In other places these woods are being kept fragmented only along river sides, where they form narrow vegetation belts. Alder woods are also important habitat for numerous species of both plants and animals. From biodiversity standpoint, important plants in Livanjsko polje are: Frangula alnus, Evonymus europaeus, Stellaria nemorum, Lychnis flos-cuculi, Caltha palustris, Carex brizoides, Carex remota, Cardamine pratensis, Valeriana dioica, Iris pseudacorus, Leucojum aestivum and many others. Besides, one should emphasize great number of nesting birds, reptiles, amphibians and large mammals.

Oak woods *Quercetum roboris.* In the northwestern part of Livanjsko polje, close to Ždralovac area, there are unique woods of Quercus robur, which is true biodiversity phenomenon of this field. These woods are characterized by extremely high bioproductivity, like in no other place of the Dinaric Alps.

Woods and shrubs with Betula pubescens. In the northwestern area of Livanjsko polje, in the zone of Quercus robur woods, there are beautifull communities of bog's birch Betula pubescens. These woods that are being developed on swampy and acid boggy soils (planohistosol), are easy to be recognized from a distance, due to the white bark of Betula pubescens and B.alba. From biodiversity point of view, these woods are very important for Livanjsko polje.

Submediterranean and montane rock debris communities. Much larger area around the field is covered with a different kind of submediterranean and montane rock debris communities.Soils are shallow. Temperature and relative humidity vary significant. Therefore, plant diversity is very high. The most frequent species are: *Bromus erectus, Hippocrepis comosa, Dorycnium herbaceum, Anthyllis vulneraria, Veronica spicata, Koeleria splendens, Thymus longicaulis, Plantago carinata, Astragalus illyricus, Medicago prostrata, Linum montanum*, on more arid spots occur : *Satureja subspicata, S. montana, Artemisia camphorata, Festuca pseudovina, F. vallesiaca, Sanguisorba minor, Salvia bertolonii, Tragopogon oriental, Scabiosa leucophylla, Stipa pennata, Centaurea rupestris, Pulsastila alpina, Asperula longiflora, Potentilla tommasiniana etc.* These are all mostly medicinal and aromatic plants that build up following communities:

- *Festuco-Linetum flavo-angustifolii Riter 1972*
- *Festuco-Koelerietunm splendentis Horvatić 1963*
- *Bromo-Seslerietum tenuifoliae Trinajstić 1965*
- *Carici-Centauretum rupestris Horvat 1931*
- *Danthonio-Scorzoneretum villosae Horvat et Horvatić (1956) 1958*
- *Peucedano-Lathyretum filiformis Rt 1972*
- *Festuco-Armerietum canescentis Trinajstic et Sugar 1972*
- *Festucetum pseudovino-vallesiacae Ht 1954*

Majority of above named communities is endemic and relict. Despite the fact that their contribution to the biodiversity of Livanjsko polje isn't significant, they play an important role in general biodiversity picture. Because of massive drainage over the last 50 years, vegetation of rock debris has been extending.

Internatinal importance of ecosystems. The state of biocoenosis is the best indicator of ecosystem's health. There is a great number endagnered, vulnerable and rare plant communities that would be affected under business as usual. (Fig.3). Many of these communities become vulnerable if water balance should be disturbed, or humus overexploitated, with high risk of total extinction. Besides, there is significant number of rare communities, mostly swampy ones, which find safe sanctuary only in such places like Livanjsko polje.

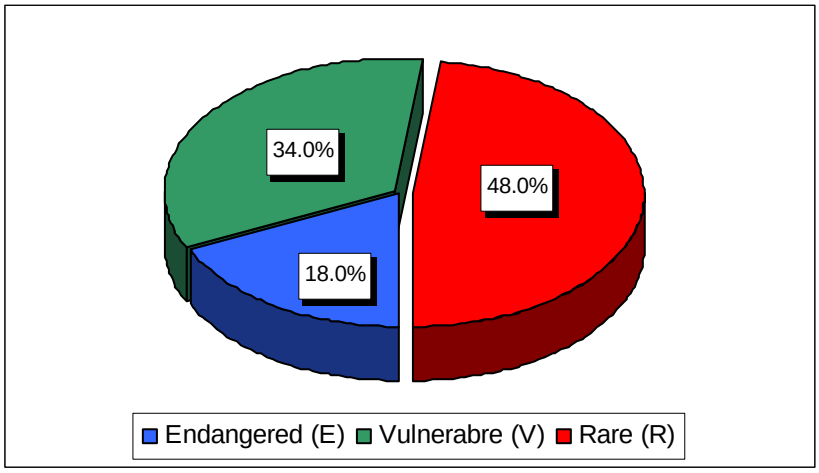


Fig.3. Status of plant communities in Livanjsko polje

Diversity of vascular plants

The diagram below presents the distribution of vascular plants according to their rstatus. There is a significant group of vascular plant species which is endangered and bound specifically to karst fields, such as Livanjsko polje. In addition, there is a number of rare plants for which the project site is the only shelter. These are mostly wetland species which are extremely sensitive to water level fluctuations and pH change.

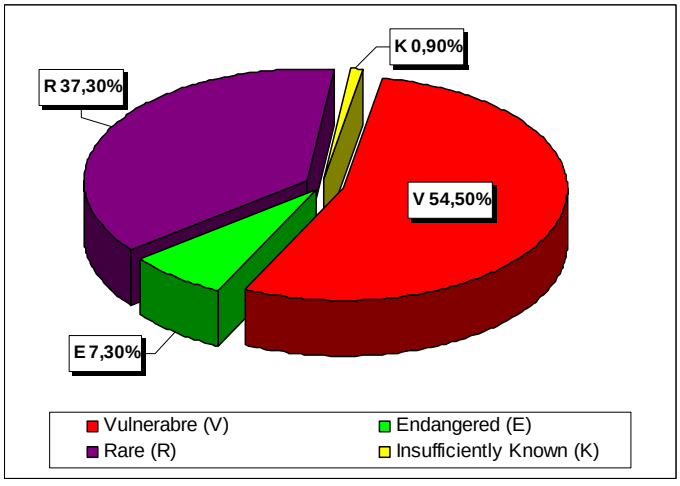


Fig.4. Categories of vascular flora in Livanjsko polje according to IUCN

Fish diversty

According to earlier investigations, there are 8 fish taxa inhabiting the waters of Livanjsko polje. Four of these are exclusively bound to the surface and underground watercourses and are included in the Red List. These are endangered species. There is a critically endangered species exclusively inhabiting underground watercourses: Phoxinelus alepidotus.

Table 5. Fish diversity in the waters of Livanjsko polje

	Latin name of fish species	Local name
	Family: SALMONIDAE	
1.	Salmo trutta Linnaeus 1758	Pastrmka
1a	Salmo trutta m. Fario	Potočna pastrmka
1b	Salmo truta m. Lacustris	Jezerska pastrmka
	Family: CYPRINIDAE	
2.	Aulopyge hugeli Heckel 1841	Oštrulj
3.	Chondrostoma phoxinus Heckel 1843	Podbila
4.	Leuciscus turskyi Heckel 1843	Turski klijen
5.	Phoxinelus alepidotus	Gaovica
6.	Scardinius erythrophthalmus Linnaeus 1758	Crvenperka

Bird diversity

Based on earlier investigations in the area of Livanjsko polje, including Buško blato (Obratil S. – see references) 96 bird taxa were recorded. During spring migrations 63 species were recorded and 46 species during autumn. In the area of Livanjsko polje there are 59 nesting and 25 wintering bird species.

The conservatory status of bird species in Livanjsko polje in accordance with IUCN is presented at Fig.5 and Table 8.

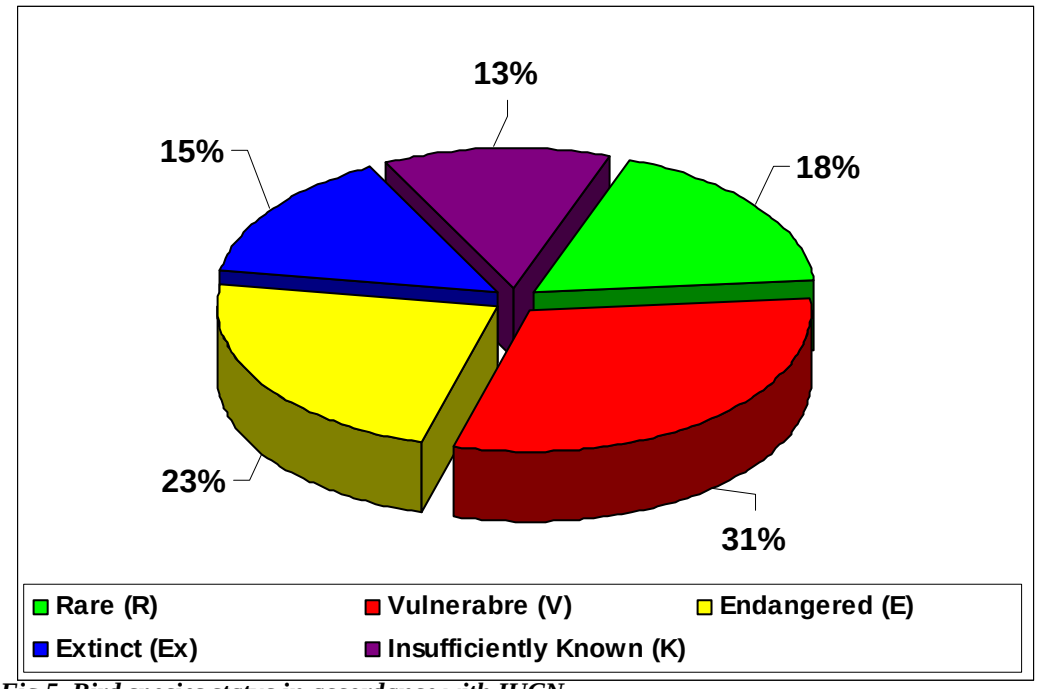


Fig.5. Bird species status in accordance with IUCN

Table 6. Conservatory status of ecosystem diversity in accordance with IUCN

Community name	***CONSERVATORY STATUS***
Hygrothermophilous meadows Molinio-Hordeion secalini	
Molinietum coeruleae illyricum	E
Shoenetum nigricantis illyricum	E
Molinio-Lathyretum pannonici	E
Hygromesophilous meadows Deschampsion caespitosae	
Deschampsietum mediae illyricum	E
Centauretum pannonicae	V
Plantaginetum altissimae	
	V
Mesophilous meadows Arrhentaherion	
Festucetum pratensis	R
Festuco-Agrostetum	R
Arrhenatheretum elatioris	R
Blanket bogs Caricion davallianae	
Shoenetum nigricantis	E
Valeriano-Caricetum buxbaumii	E
Eriophoro-Caricetum davallianae	E
Marshes Magnocaricion	
Mariscetum	E
Caricetum elatae	V
Caricetum gracilis	V
Reedbeds Phragmition australis	
Scirpo-Phragmitetum	V
Water communities Potamion eurosibiricum	
Myriophyllo-Nupharetum	V
Nasturtio-Beruletum angustifoliae submersae	V
Communities along the shores of fresh water Fimbrystilion dichotomae	
Fimbristylietum dichotomae	V
Willow communities Salicion purpureae	
Cirsio-Salicetum pentandrae	V
Saponario-Salicetum pupureae	
Salicetum cinereae	R
Hygrophilous woods of oak and alder Alno-Quercion roboris	
Quercetum roboris	R
Betuletum pubescentis	R
Hygrophilous woods of white willow Salicion albae	
Salicetum albae	V
Salicetum albo-fragilis	V
Thermophilous meadows Bromion erecti	
Bromo-Plantaginetum mediae	R

Bomo-Danthonietum alpinae	R
Submediterranean and montane rock debris communities and meadows Chrysopogoni-Satureion and Scorzonerion villosae	
Festuco-Linetum flavo-angustifolii	V
Festuco-Koelerietunm splendentis	R
Bromo-Seslerietum tenuifoliae	R
Carici-Centauretum rupestris	R
Danthonio-Scorzoneretum illosae	R
Perucedano-Lathyretum filiformis	R
Festuco-Armerietum canescentis	R
Festucetum pseudovino-vallesiacae	R
Stipo-Genistetum dalmaticae	R
Thermophilous woods and oriental hornbeam Quercion petraeae and Carpinion orientalis	
Quercetum cecrris mediterraneo-montanum	R
Fraxino orni-Quercetum cerris	R
Quercetum pubescentis-daleschampi	R
Querctum petraeae-cerris	R
Rusco-Carpinetum orientalis	R
Beech woods Fagion sylvaticae	
Fagetum illyricum	V
Seslerio autumnalis-Fagetum	V
Abieti-Fagetum	V

Table 7. Conservatory status of vascular flora in Livanjsko polje in accordance with IUCN

No.	Latin name	IUCN Status
	PTERIDOPHYTA	
1.	Ophioglossum vulgatum L.	V
	SPERMATOPHYTA	
	DICOTYLEDONES	
	Betulaceae	
2.	Betula pubescens Ehrh.	V
	Salicaceae	
3.	Salix petandra L.	V
	Caryophyllaceae	
4.	Agrostema githago	E
5.	Dianthus croatcus Borb.	V
	Ranunculaceae	
6.	Paeonia corallina Retz.	E
7.	Paeonia officinalis L.	E
8.	Caltha longirostris G.Beck	V
9.	Hepatica nobilis Mill.	V
10.	Helleborus hercegovinus Martinis	R
11.	Pulsailla montana (Hoppe)Reich.	V
12.	Pulsatilla alpina Schrank	V
	Nymphaceae	
13.	Castelia alba (L.) Wood	V
14.	Numphar luteum Sibth. &Sm.	V

	Papaveraceae	
15.	Corydalis leiosperma Hayek	R
	Cruciferae	
16.	Aubrietia croatica Schott, Nyman & otschy	V
17.	Cardamine pratensis	R
18.	Hesperis dinarica G.Beck in Doerfler	R
	Rhamnaceae	
19.	Rhamnus intermedius Steud. et Hochst	R
	Linaceae	
20.	Linum flavum	R
	Rosaceae	
21.	Potentilla montenegrina Pant.	R
22.	Sanguisorba officinalis L.	R
23.	Sorbus chamamespilus (L.) Crantz	V
24.	Prunus padus L.	V
	Saxifragaceae	
25.	Parnassia palustris L.	R
	Fabaceae	
26.	Vicia oroboides Wulf. In Jacq.	R
27.	Astragalus illyricus Bernh.	V
28.	Lathyrus pannonicus Garcke	R
29.	Genista dalmatica Lindb.	R
30.	Genista radiata var. Bosniaca Buch.	R
31.	Trifolium fragiferum	R
	Oenatheraceae	
32.	Ludwigia palustris (L.) Ell.	E
	Hippuridaceae	
33.	Hippuris vulgaris L.	V
	Umbelliferae	
34.	Angelica illyrica K.Maly	V
35.	Siler trilobum (L.) Crantz	R
36.	Peucedanunm pospichalii (Thelg.) Horvatić	R
	Primulaceae	
37.	Hottonia palustris L.	V
38.	Cyclamen purpurascens Miller	V
	Boraginaceae	
39.	Onosma visianii Clem.	R
	Scrophulariaceae	
40.	Scrophularia bosniaca G.Beck	R
41.	Euphrasia illyrica Wettst.	R
42.	Pedicularis brachyodonta Schloss. Et Vuk.	V
43.	Pedicularis hoermaniana K.Maly	V
44.	Pedicularis palustris L.	R
45.	Veronica poljensis Murb.	V
	Lentibulariaceae	
46.	Pinguicula vulgaris L.	V
47.	Utricularia vulgaris L.	V
	Lamiaceae	
48.	Salvia bertolonii Vis.	V
49.	Satureja subspicata Vis.	V
50.	Micromeria croatica (Pers.)Schott.	R
51.	Mycromeria thymifolia (Scop.)Fritsch	R
52.	Hyssopus officinalis L.	V

53.	Thymus balcanus Borb.	R
54.	Thymus striatus Vahl.	R
	Plantaginaceae	
55.	Plantago altissima L.	V
	Gentianaceae	
56.	Gentiana symphyandra Murb.	E
57.	Gentianella crispata (Vis.) Holub	R
	Menyanthaceae	
58.	Menyanthes trifoliata L.	V
	Dipsacaceae	
59.	Succisella petteri (Kern. Et Murb.) G.Beck	V
60.	Knautia dinaica (Murb.)Borb.	R
61.	Scabiosa graminifolia L.	V
62.	Scabiosa leucophylla Borbas	R
63.	Scabiosa canescens W.et .K	K
64.	Scabiosa silenifolia W. et . K.	R
	Campanulaceae	
65.	Edraiantghus dalmaticus (A. DC) A.DC	V
66.	Edraianthus tenuifolius (W.et K.) A.DC in A.DC	V
	Compositae	
67.	Leucathemum illyricum (Horvatić)Papeš	R
68.	Serratula lycopifolia (ill.)Kern.	V
69.	Crepis dinarica G.Beck	R
	MONOCOTYLEDONES	
	Alismataceae	
70.	Sagittaria sagittifolia L.	V
	Butomaceae	
71.	Butomus umbellatus L.	V
	Liliaceae	
72.	Lilium bosniacum G.Beck	V
73.	Lilium cattaniae	V
74.	Lilium martagon L.	V
75.	Tulipa silvestris L.	V
76.	Scilla litardierei Breistr.	V
77.	Convalaria maialis L.	V
	Amaryllidaceae	
78.	Galanthus nivalis L.	V
79.	Narcissus radiifolorus Salisb.	V
80.	Leucojum aestivum L.	V
	Iridaceae	
81.	Iris sibirica L.	V
82.	Iris pseudacorus L.	V
83.	Iris illyrica Tom.	V
84.	Gladiolus illyricus Koch	V
85.	Gladiolus palustris Gaud.	V
	Cyperaceae	
86.	Eriophorum angustifolium Roth.	V
87.	Eriophorum latifolium Hoppe	R
88.	Carex davalliana Sm.	V
89.	Carex nigra All.	V
	Gramineae	
90.	Deschampsia media R. Sch.	R

91.	Fesuca dalmatica (Hack.)Rich.	R
99.	Festuca illyrica Markgraf-Danneberg	R
100.	Hordeum gussoneanum Parl.	R
101.	Sesleria uliginosa Opiz	R
	Orchidaceae	
102.	Cypripedium calceolus L.	E
103.	Ophris muscifera Huds.	V
104.	Dactylorhiza maculata	V
105.	Orchis globosa L.	V
106.	Anacamptis pyramidalis (L.)Rich.	V
107.	Gymnadenia odoratissima (L.)Rich.	V
108.	Listera cordata (L.)R.Br.	V
109.	Goodyera repens (L.) R.Br.	V
110.	Nigritella nigra (L.) Reichenb.	V
111.	Plantanthera bifolia (L.)Rchb.	R
112.	Cephalanthera alba (Cr.) Simk.	R
113.	Cephalanthera longifolia (L.) Fritsch	R
114.	Cephalanthera rubra (L.)Rich.	R
115.	Spiranthes autumnalis Rich.	E
116.	Limodorum abortivum (L.) Sw.	E
	Typhaceae	
117.	Typha shutleworthi	R

Table 8. Conservation status of birds detected in Livanjsko polje and its surrounding - from 1888 to 2005

Species	**BHCL**	**SPECs**	**ETS**	**WBD**	**Bern**	**Bonn**
Gavia artica		3	(VU)	I	II	II*
Podiceps ruficollis	R	-	S		II	
Podiceps nigricollis	R	-	S		II*	
Podiceps cristatus		-	S		II	
Phalacrocorax carbo	R	-	S		III	
Botaurus stellaris	V	3	H	I	III	II*
Ixobrychus minutes	V	3	(H)	I	III	II*
Nycticorax nycticorax	V	3	H	I	III	
Ardeola ralloides	V	3	(D)	I	III	
Egretta alba		-	S	I	III	II*
Egretta garzetta	V	-	S	I	III	
Ardea purpurea	E	3	(D)	I	III	II*
Platalea leucorodia	E	2	R	I	III	II
Plegadis falcinellus	E	3	(D)	I	III	II
Ciconia ciconia	E	2	H	I	III	II
Anser fabalis		-^{E}W	S	II/1	III	II
Anser anser	Ex	-	S	II/1; III/2	III	II
Cygnus Cygnus		-^{E}W	S	I	III	II
Anas platyrhynchos		-	(S)	II/1; III/2	III	II
Anas crecca		-	(S)	II/1; III/2	III	II
Anas strepera	R	3	(H)	II/1	III	II
Anas Penelope		-^{E}W	S	II/1; III/2	III	II
Anas acuta		3	(D)	II/1; III/2	III	II
Anas querquedula		3	(D)	II/1	III	II

Anas clypeata		3	(D)	II/1; III/2	III	II
Netta rufina		-	(S)	II/2	III	II
Aythya farina		2	(D)	II/1; III/2	III	II
Aythya nyroca		1	(VU)	I	III	I; II
Aythya fuligula	V	3	(D)	II/1; III/2	III	II
Aythya marila		3 W	EN	II/1; III/2	III	II
Bucephala clangula		-	(S)	II/2	III	II
Mergus merganser		-	(S)	II/2	III	II
Aquila pomarina	Ex?	2	(D)	I	III	II
Haliaeetus albicilla	Ex?	1	R	I	III	I; II
Pernis apivorus	E	-[E]	(S)	I	III	II
Accipiter gentiles		-	(S)	I*	III	II
Accipiter nisus		-	(S)	I*	III	II
Buteo lagopus		-	(S)		III	II
Buteo buteo		-	S		III	II
Gyps fulvus	E	-	S	I	III	II
Circaëtus gallicus	V	3	(R)	I	III	II
Circus cyaneus		3	H	I	III	II
Circus pygarcus	Ex	-[E]	S	I	III	II
Circus aeruginosus	V	-	S	I	III	II
Falco peregrinus	V	-	S	I	III	II
Falco subbuteo		-	(S)		III	II
Falco columbarius		-	(S)	I	III	II
Falco vespertinus		3	(VU)	I	III	II
Falco naumanni		1	H	I	III	I; II
Falco tinnunculus		3	D		III	II
Perdix perdix	I	3	VU	I*; II/I**	III	
Coturnix coturnix	I	3	(H)	II/2	III	II*
Grus grus	Ex	2	(H)	I	III	II
Rallus aquaticus	V	-	(S)	II/2	III	
Porzana porzana	V	-[E]	(S)	I	III	II
Porzana parva	V	-[E]	(S)	I	III	II*
Crex crex	R	1	H	I	III	II
Gallinula chloropus		-	S	II/2	III	
Fulica atra		-	(S)	II/1; III/2	III	II*
Charadrius dubius		-	(S)		III	II
Pluvialis apricaria		-[E]	(S)	I; II/2; III/2	III	II
Vanellus vanellus		2	VU	II/2	III	II
Calidris alpine		3	(H)	I*	III	II
Philomachus pugnax		2	(D)	I; II/2	III	II
Tringa tetanus	R	2	D	II/2	III	II
Tringa nebularia		-	S	II/2	III	II
Tringa ochropus		-	S		III	II
Tringa glareola		3	H	I	III	II
Tringa hypoleucos		3	(D)		III	II
Numenius arquata		2	D	II/2	III	II
Gallinago gallinago		3	(D)	II/1; III/2	III	II
Recurvivostra avoseta		-	S	I	III	II

Glareola pranticola		3	D	I	III	II
Larus ridibundus	V	-[E]	(S)	II/2	III	
Larus cachinans		-[E]	S	II/2	III	
Chlidonias niger	Ex	3	(H)	I	III	II*
Chlidonias leucopterus		-	(S)		III	II
Columba palumbus		-[E]	S	I*; II/1**; III/1		
Columba oenas	I	-[E]	S	II/2	III	
Columba livia		-	(S)	II/1	III	
Streptopelia turtur	I	3	D	II/2	III	II*
Cuculus canorus		-	S		III	
Strix aluco		-[E]	S		III	
Apus apus		-	(S)		III	
Coracias garrulous	V	2	VU	I	III	II
Alcedo atthis	V	3	H	I	III	
Merops apiaster	E	3	(H)		III	II
Upupa epops	E	3	(D)		III	
Jynx torquilla		3	(D)		III	
Picus viridis		2	(H)		III	
Picus canus		3	(H)	I	III	
Dendrocopus major		-	S	I*	III	
Riparia riparia	R	3	(H)		III	
Hirundo rustica		3	H		III	
Delichon urbica		3	(D)		III	
Eremophila alpestris	E	-	(S)		III	
Galerida cristata		3	(H)		III	
Lullula arborea		2	H	I	III	
Alauda arvensis		-	(S)	II/2	III	
Anthus trivialis		-	S		III	
Anthus pratensis		-[E]	(S)		III	
Anthus spinoletta		-	(S)		III	
Motacilla flava		-	(S)		III	
Motacilla cinerea		-	S		III	
Motacilla alba		-	S		III	
Lanius collurio		3	(H)	I	III	
Lanius minor		2	(D)	I	III	
Lanius exubitor		3	(H)		III	
Oriolus oriolus		-	S		III	
Sturnus vulgaris		3	D	II/2		
Garrulus glandarius		-	S	II/2		
Pica pica		-	S	II/2		
Pyrrhocorax graculus		-	(S)		III	
Coloeus monedula		-[E]	(S)	II/2		
Corvus cornix		-	S	II/2		
Corvus corax		-	S		III	
Troglodytes troglodytes		-	S	I*	III	
Acrocephalus schoenobaenus		-[E]	S		III	II
Acrocephalus scirpaceus		-[E]	S		III	II
Acrocephalus arundinaceus		-[E]	(S)		III	II
Hyppolais icterina		-[E]	(S)		III	II
Sylvia nisoria		-[E]	S	I	III	II
Sylvia atricapilla		-[E]	S		III	II
Sylvia communis		-[E]	S		III	II
Sylvia curucca		-	S		III	II
Phylloscopus collybita		-	S		III	II

Phylloscopus sibilatrix	2	D		III	II
Regulus regulus	-E	S		III	II
Regulus ignicapilus	-E	(S)		III	II
Ficedula hypoleuca	-E	S		III	II
Ficedula parva	-	(S)	I	III	II
Muscicapa striata	3	H		III	II
Saxicola rubetra	-E	(S)		III	II
Saxicola torquata	-	(S)		III	II
Oenanthe oenanthe	3	(D)	I	III	II
Oenanthe hispanica	2	(H)		III	II
Phoenicurus ochruros	-	(S)		III	II
Phoenicurus phoenicurus	2	(H)		III	II
Erithacus rubecula	-E	S		III	II
Luscinia megarhynchos	-E	(S)		III	II
Turdus pilaris	-EW	(S)	II/2	III	II
Turdus merula	-E	S	II/2	III	II
Turdus iliacus	-EW	(S)	II/2	III	II
Turdus viscivorus	-E	S	II/2	III	II
Aegithalos caudatus	-	S		III	
Parus palustris	3	D		III	
Parus lagubris	-E	(S)		III	
Parus coeruleus	-E	S		III	
Parus major	-E	S		III	
Sitta europea	-	S		III	
Certhia brachydactyla	-E	(S)		III	
Passer domesticus	3	D			
Passer montanus	3	D		III	
Fringilla coelebs	-E	S	I*	III	
Fringilla montifringilla	-	S		III	
Serinus serinus	-E	S		III	
Carduelis chloris	-E	S		III	
Carduelis spinus	-E	S		III	
Carduelis carduelis	-E	S		III	
Acanthis cannabina	2	D		III	
Coccothraustes coccothraustes	-	S		III	
Emberiza calandra	2	(D)		III	
Emberiza citronella	-E	(S)		III	
Emberiza cia	3	(H)		III	
Emberiza hortulana	2	(H)	I	III	
Emberiza cirlus	-E	S		III	
Emberiza schoeniclus	-	S		III	

BHCL – threat's categories according to Obratil & Matvejev (1989).
SPECs – system of criteria for identification of species that require co-ordinated measures for the protection on European level (according to the Bird Life International, 2004).
ETS – threat's status according to theBird Life International (2004).
WBD - EU Wild Bird Directive
Bern – categories according to the Bern Convention
Bonn – categories according to the Bonn Convention

Of globally endangered species (according to the "Global IUCN Red List Categories") the following species are found: *Aynthya nyroca* (NT), *Aquila pomarina* (NT), *Falco neumanni* (VU), *Crex crex* (NT)

Annex 4 List of References

Ballif Philipp – Wasserbauten in Bosnien und der Hercegovina. I. Tell, Meliorationsarbeiten und Cisternen im Karstgebiet 1896.

Beck Mannagetta G. – Flora Bosne, Hercegovine i Novopazarskog Sandžaka, Glasnik Zem. Muzeja, sarajevo 1917, 1923 g. i dalje.

Beck-Maly – Flora Bosnae et hercegovinae, IV. Sympetalae, Posebna izdanja Biol. Inst. Sarajevo, 1950.

BirdLife International, 2004: Birds in Europe: population estimates, trends and conservation status. BirdLife International (BirdLife Conservation Series No.12), Cambridge.

Bjelčić Ž. et al., ANUBiH, Posebna izdanja, knjiga XI – Odjl. Pri. i matm. nauka, knjiga, 1969; 3: 91.

Blagojević S., Petković S., Hafner D., Ispitivanje fitoplanktona, zooplanktona, fitobentosa i aktuelne žetve planktona, Elaborat Biološkog instituta u Sarajevu., III: 1985; Sarajevo

Braun-Blanquet J. – Pflanzensoziologie, Berlin 1928.

Dizdarević M. Zbornik refereata i rezimea Naučnog skupa Valorizacija prirodnih i društvenh vrijednosti sliva rijeke Une. Bihać, 1991; 6: 87.

Ellenberg Heinz – Zur Entwicklung der Vegetations-systematik. Angewandte Pflanzensoziologie, Klagenfurt 1954. Bd 1.

Freyn J. – Die Flora von Südistrien, Verhandl. D. Zool. Bot. Gesell., Wien 1878.

Fukarek P., ANUBiH, Posebna izdanja, knjiga XI – Odjl. Pri. i matm. nauka, knjiga, 1969; 3: 189.

Gračanin M. – Mjesečni kišni faktor i njihovo značenje u pedološkim istraživanjima. Polopr. Znanstvena smotra, zagreb 1950., 12.

Horvatić Stj. – Die verbreitetsten Pflanzengesellschaften der Wasser-und Ufervegetation in Kroatien und Slavonien. Acta bot. Ist. Univ. Zagreb, 1931.

Horvatić Stj. – Soziologische Einheiten der Niederungswiesen in Kroatien und Slavonien. Acta bot. ist univ. Zagreb, V. 1930.

Kaćanski D., Ratković V., Ispitivanje zoobentosa, Elaborat Biološkog instituta u Sarajevu., IV: 1985; Sarajevo

Kosorić Đ., Istraživanje vodenog ekosistema Buškog jezera usmejereno na ribarsku eksploataciju, Elaborat Biološkog instituta u Sarajevu., 1985; Sarajevo

Kosorić Đ., Vuković T., Sofradžija A., Kapetanović N., Čanković M., Mikavica D., Guzina N., Bošnjak Ž., Ihtiofaunistička istraživanja Elaborat Biološkog instituta u Sarajevu.,VI: 1985; Sarajevo

Lakušić R. et al. ANUBiH, Posebna izdanja, knjiga XI – Odjl. Pri. i matm. nauka, knjiga , 1969; 3: 171.

Lakušić R. et al. Zbornik refereata i rezimea Naučnog skupa Valorizacija prirodnih i društvenh vrijednosti sliva rijeke Une. Bihać, 1991; 6: 15.

Lakušić R., Kutleša L. Zbornik refereata i rezimea Naučnog skupa Valorizacija prirodnih i društvenh vrijednosti sliva rijeke Une. Bihać, 1991; 6: 115

Lakušić R., Redžić, S., Glasnik CANU, Prirodne nauke, 1989;

Lakušić R., Redžić, S.. Zbornik referata i rezimea Naučnog skupa Valorizacija prirodnih i društvenh vrijednosti sliva rijeke Une. Bihać, 1991; 6: 25.

Obratil S., Ispitivanje avifaune /ptice/ Elaborat Biološkog instituta u Sarajevu., V: 1985; Sarajevo

Obratil, S. , Matvejev, S., 1989: Predlog "Crvene liste" ugroženih ptica SR Bosne i Hercegovine. Naše starine, 18-19:227-235.

Obratil, S., 1976: Pregled istraživanja ornitofaune Bosne i Hercegovine V (*Charadriiformes*). GZM BiH (PN) NS 15: 221-241.

Pavlović B. Zbornik refereata i rezimea Naučnog skupa Valorizacija prirodnih i društvenh vrijednosti sliva rijeke Une. Bihać, 1991; 6: 95.

Radović, D., Dumbović, V., 1999: The Corncrake (*Crex crex*) in Croatia. In: Schäffer, N., Mammen, U.,1999: Proceedings International Corncrake Workshop 1998, Hilpoltstein/Germany, pp. 49-53.

Redžič S. et al.. Zbornik refereata i rezimea Naučnog skupa Valorizacija prirodnih i društvenh vrijednosti sliva rijeke Une. Bihać, 1991; 6: 81.

Redžić S., Annali di Botanica , 2002.

Rubinič, B., 2002c: North wheater *Oenanthe oenanthe* and Black-eared wheater *Oe. hispanica*. Acrocephalus 23 (112): 108.

Schneider-Jacoby, M., Štumberger, B., 2003: rapid Assessement of the Value of the Livanjsko polje, Cetina River Basin (Bosnia and Herzegovina). FAKT-Informationen der Stiftung Europisches naturerbe, Sepetember 2003 (internal draft), Radolfzell (unpublished reports).

Vaurie, C., 1959*: The Birds of the Palearctic Fauna-Passeriformes*, London.

Vaurie, C., 1965: *The Birds of the Palearctic Fauna-Non Passeriformes*, London.

Annex 5 Project Budget by Outputs

Outputs	BUDGET (US$)		
	GEF	**Co-financing**	**TOTAL**
Output 1.1 Herzegbosanski Cantonal spatial plan for Livno Polje integrates biodiversity concerns.	206,680	395,900	602,580
Output 1.2 Policies in place, enforcement capacity of cantonal and where appropriate federal environmental ministires and inspectors strengthened.	104,000	324,040	428,040
Output 2.1 By-laws and methodological guidance on ecologically safe peat and coal mining developed and validated.	288,340	100,000	388,340
Output 2.2 Internationally accepted (Croatia-BiH) plan for cross-border water management plan	100,000	0	100,000
Output 2.3 Lessons learned are shared	160,480	590,000	750,480
TOTALS	**950,000**	**1,570,000**	**2,520,000**

Annex 6 Incremental Cost Analysis and Matrix

Baseline

Baseline activities in the area of environment and in the biodiversity conservation sector are few compared to countries with no post-war experience. Similarly, industries impacting the condition of important landscapes, such as mining, water management, tourism, are still far from the pre-war performance.

Coal mining will continue to be the main income-generating activity at karst fields. While under the baseline-as-usual it MAY NOT damage the environment, the project acknowledges as one of potential risks that coal mining concessions without a proper spatial plan could be allocated for areas important for international biodiversity. This necessitates the GEF alternative. Second biggest industry remains peat extraction. It is going on at the Livno peatland habitat, although in a slow pace. Without agreements with peat extraction companies (the largest being FinVest) the scenario will end up in almost complete change of the vegetation at the peatland in the North-Western part of Livno karst field, resulting in loss of important vegetation communitiese and birds.

The spatial planning process is new to the post-war BiH. It is better advocated at the entity level, and less known at the cantonal, not to mention municipal level. FBiH will in the next 2 years develop an all-entity general spatial plan. The level of detail in it, and the elaboration process (in terms of wide participatory principles) will not be sufficient to resolve the fait of critical natural landscapes used in productive sectors, such as Livno Polje.

To summarize, the business-as-usual scenario is unlikely, in the next 3 years, to trigger holistic spatial development at the Cantonal level that would harmonize biodiversity concerns with economic interests. Industries are going to continue to be guided by outdates guide-books, damaging ecosystems, and no value will be attached to important natural resources such as peat. Capacity of local environmental authorities and NGOs will remain weak to advocate harmonization of biodiversity with economic uses, and people will remain largely unaware as to why some of their current practices (such as oak wood logging and burning of vegetation) are destructive for environment

GEF Alternative

Under the GEF alternative, karst fields will receive spatial plans, covering the world's largest karst field (Livno Polje) that would integrate biodiversity concerns into key sectors. The preparation of the spatial plan will include participatory and transparent discussion with the peat mining, coal mining, and water management sector representatives on the one hand, and a group of qualified ecologists on the other. Maps will be produced to delineate boundaries for each industry, ensure water protection zones and conservation activities for selected species. The natural wood and oak forest use will be discussed with owners and users and a model for long term forest use is going to be agreed.

Enforcement capacity will be built by the project to ensure that during the spatial plan preparation and its implementation cantonal environmental governments and inspectors are fully qualified to do their job. By-laws and methodological guidance on ecologically safe peat and coal mining developed. The project will carefully review the existing guide-books and mining proposal development processes, identify gaps, and work jointly with the Federal Ministry of Mining and the corresponding environmental authorities to develop up-to-date guide-books, and processes that would ensure that (1) mining proposal processes does not miss to take fully account of the biodiversity present in the area, (2) mining volumes, boundaries and techniques are environmentally safe, (3) rehabilitation periods and techniques are harmonized with habitat regeneration requirements. Ecological peat rehabilitatin techniques will be demonstrated at 750 ha of karst areas. Finally, a cross-border agreement on water use and management in the Cetina River catchment between Croatia and BiH will be developed and submitted for approval.

Systems Boundary

Biological boundaries: Habitat-wise the project is focused on a habitat known as karst systems, bearing a layer of peat. Species wise its focus is on a number of globally important communities, plant species, and birds, such as *Aynthya nyroca* (NT), *Aquila pomarina* (NT), *Falco neumanni* (VU), *Crex crex* (NT).

Sectoral boundaries: The project is focused on mainstreaming conservation of important biodiversity into spatial planning, peat mining, water management, agricultural practices.

Geographic boundaries: The project is validating the proposed approach (agri-environmental payments) at the internationally important Livanjsko polje karst system (totaling 41,000 ha). The long term theoretic replication potential in BiH is 27% of the country, but as minimum at 125,000 ha in the long-term perspective.

Summary of Costs

Costs of the baseline, those related to attainment of the alternative, and the derivative total incremental costs (GEF plus co-financing) are presented in the matrix below.

Incremental Cost Matrix

	Baseline Scenario (B)	**GEF Alternative (A)**	**Increment (A-B)**
Domestic Benefits	The focus in BiH development in areas such as Livno Polje remains largely driven by quick profits. Baseline activities in the area of environment, and in the biodiversity conservation sector will remain few compared to countries with no post-war experience. Coal mining will continue to be the main income-generating activity at karst fields. Second biggest industry will remain peat extraction. It is going on at the Livno peatland habitat, although in a slow pace. Tourism will not reach its full potential. The spatial planning process at the cantola level will not roll out at a large scale in the next years, and will not incompass environmental benefits. FBiH will in the next 2 years develop an all-entity general spatial plan. The level of detail in it, and the elaboration process (in terms of wide participatory principles) will not be sufficient to resolve the faith of critical natural landscapes used in productive sectors, such as Livno Polje. The cross-border dispute about water use in the Cetina river basin remains largely unresolved.	A more strategic (longer-term) spatial planning approach will be taken up at the sub-natinal (cantonal level) and will incompass environmental considerations. Mining industries will continue to develop but in a way not damaging international habitats and species, and competition to them will be made by increasing sector of agro- and ecotourism in areas such as Livno Polje. New guidance will be approved and noted for reference by mining industries. A bilateral Cetina river catchment agreement will end the dispute about water use and management.	- A model for integration of biodiversity into spatial planning at a sub-national (cantonal) and municipal level - Reinforced knowledge of value of peatlands and karst systems in general - Strengthened capacity of cantons and Federal Governments in conservation policy making and enforcement - Better outreach effectiveness of local conservation NGOs - Alternative / green businesses encouraged through a sustainable tax relief scheme - Cross border agreement with Croatia
Global Benefits	Under the baseline scenario global benefits are not likely to accrue in the next 3 years. The areas of Livno Polje and karst systems alike throughout the country are likely to degrade substantially and lose most of their global importance.	The alternative scenario results in long-term integrity of the internationally importat karst landscapes in BiH, reconciling industry practices with biodiversity conservation, securing preservation of globally important species and habitats. The key threats to karst systems are removed.	- Foundation set up for long-term conservation of *Aynthya nyroca* (NT), *Aquila pomarina* (NT), *Falco neumanni* (VU), *Crex crex* (NT).and conservation of internationally important karst systems. - Lessons learned through this project will contribute to the growing global knowledge on sustainable management of karst ecosystems.
Outcome 1 Activities and costs	Activities to develop a FBiH spatial plan Baseline cost (total): <u>USD 3,000,000</u> <u>Total baseline under Outcome 1: USD 3,000,000</u>	A holistic spatial for the Canton Herzegbosanski, strengthened capacity of cantonal, federal and municipal governments, incentive schemes for alternative employment in place	<u>Outcome 1.</u> Co-financing: Canton: USD 335,900 NGOs: USD 60,000 UNDP (and donors) USD 324,040 <u>Total co-financing: USD 719,940</u>

	Baseline Scenario (B)	GEF Alternative (A)	Increment (A-B)
		The total cost of the alternative in Outcome 1 is: USD 4,038,940	GEF: USD 319,000 **Total increment: USD 1,038,940**
Outcome 2 Activities and costs	Business as usual activities in the coal mining industry, brining: Total gross revenue : USD 11,000,000 Business as usual activities in the peat extraction industry, brining: Total gross revenue : USD 3,500,000 Water governance management: the budget of Water Authority Baseline cost (total): USD 160,000 Business as usual activities in the tourism industry, brining: Total gross revenue : USD 845,000 Dinaric Arc program supported by WWF, IUCN, etc. Baseline cost (total): USD 1,200,000 **Associated activities (support to pastoral agriculture): USD 380,000** Total baseline: USD 17,085,000	By-laws and methodological guidance on mainstreaming environment into sectors. Peat rehabilitation possibilities demonstrated. Cross-border water management plan for the Cetina river catchment developed. Improved environmental monitoring and awareness raising for karst ecosystems, adaptive implementation and evaluation of the project progress, lessons learned and experience disseminated outside BiH. The total cost of the alternative in Outcome 2 is: USD 18,315,500	Outcome 2. Co-financing: Canton: USD 80,000 NGOs: USD 60,000 FinVest (private): USD 100,000 UNDP (and donors) USD 450,000 Total co-financing: USD 690,000 GEF: USD 540,500 **Total increment: USD 1,230,500**
Project Management	Total baseline: USD 0	The total cost of the alternative for project management is: USD 250,560	Project management Co-financing: Canton: USD 34,100 UNDP (and donors) USD 125,960 Total co-financing: USD 160,060 GEF: USD 90,500 **Total increment: USD 250,560**
Cost Totals	The total cost of the most relevant baseline programs and activities above is approximately **USD 20,085,000**	The total cost of the alternative scenario is assessed at **USD 22,605,000**	The total increment of the project is **USD 2,520,000,** of which **USD 950,000** is requested from GEF

SIGNATURE PAGE

Country: **Bosnia and Herzegovina**

UNDAF Outcome(s)/Indicator(s):	**Strengthened accountability and responsiveness on BiH Government to pro-active citizens**
Expected Outcome(s)/Indicator (s):	**4.2. Strengthened national capacity in sustainable environmental management**
Expected Output(s)/Annual Targets:	**4.1.2 National capacity developed in fields of biodiversity conservation**
Implementing partner:	**UNDP**

Programme Period:	**2008-2012**
Programme Component:	**Energy and Environment**
Project Title:	**Mainstreaming karst peatlands conservation concerns into key economic sectors**
Project ID:	**00060010**
Project Duration:	**4 years**
Management Arrangement:	**Direct implementation**

Total Budget	**2,520,000**
Allocated resources:	
• Government (parallel)	370,000
o UNDP (parallel projects)	450,000
o GEF	950,000
In kind contributions	
• Government	80,000
• NGO	120,000
• Private sector	100,000
• UNDP	450,000

Agreed by:

Date

Ministry of Foreign Trade and Economic Relations: _____

Slobodan Puhalac, Minister

Implementing partner UNDP: _____

Christine McNab, UN Resident Coordinator

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Bosnia and Herzegoviva

Country: **Bosnia and Herzegovina**

UNDAF Outcome(s)/Indicator(s):	**Strengthened accountability and responsiveness on BiH Government to pro-active citizens**
Expected Outcome(s)/Indicator (s):	**4.2. Strengthened national capacity in sustainable environmental management**
Expected Output(s)/Annual Targets:	**4.1.2 National capacity developed in fields of biodiversity conservation**
Implementing partner:	**UNDP**

Brief Description

Karst fields (areas with geologic bedrock mainly consisting of carbonate rocks such as CaCO3 and MgCO3) are important production landscapes that are characteristic for the Mediterranean region. Approximately 35% of the European continent consists of carbonate bedrock, which is around 3 million km² and most of it is karstified. The barriers which hamper mainstreaming karst biodiversity conservation requirements into spatial planning at local level are: (i) Cantons and municipalities lack capacity for analysis of possible options of land use in karst areas. Studies have identified clear capacity gaps among municipalities (such as Grahovo and Livno) and Cantonal authorities to carry out a serious economic and environmental research of options for the short-term, mid-term, and long-term vision of areas such as karst fields, under different assumptions and scenarios; (ii) poor local enforcement capacity. The project aims to remove the above barriers by developing a model for imbedding karst biodiversity conservation concerns into policies and regulations governing spatial planning at the cantonal level, as well as into the said sectors. Specifically, the project will: (i) assist in preparation of biodiversity-minded policy instrument - a Cantonal spatial plan; (ii) introduce municipal-level regulations for karst field biodiversity use by local population parallel to strengthening enforcement capacity of municipal and cantonal officers and inspectors; (iii) develop by-laws and methodological guidance on ecologically safe peat mining; and (iv) promote an international (Croatia-BiH) formal agreement and plan for cross-border water management plan.

Programme Period: 2008-2012	
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Agreed by:

Ministry of Foreign Trade and Economic Relations: _____

Slobodan Puhalac, Minister

Implementing partner UNDP: _____

Christine McNab, UN Resident Coordinator