United Nations Educational, Scientific and Cultural Organization

Project funded by the European Union

REPUBLIKA E SHQIPËRISË
MINISTRIA E MJEDISIT

TOWARDS STRENGTHENED GOVERNANCE OF THE SHARED TRANSBOUNDARY NATURAL AND CULTURAL HERITAGE OF THE LAKE OHRID REGION

ICOMOS IUCN

Baseline Assessment of the Lake Ohrid region - Albania

IUCN – ICOMOS joint draft report

January 2016

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AA	Annual Average (concentration of priority substances in water)
AAS	Atomic Absorption Spectroscopy
AADF	Albanian-American Development Foundation
Al	Albania
AFSS	Agriculture and Food Sector Strategy
APHA	American Public Health Association
AQEM/STAR	Assessment system for the ecological Quality of streams and rivers throughout Europe using benthic
ASPT	Average Score Per Taxon
ATTA	Adventure Travel Trade Association
BMWP	Biological Monitoring Working Party
BOD5	Biochemical Oxygen Demand (measured over a 5-day period)
CEED	Centre for Entrepreneurship and Economic Development
COD	Chemical Oxygen Demand
CSBL	Conservation and Sustainable Use of Biodiversity at Lakes Prespa, Ohrid and Shkodra/Skadar
DCM	Decision of Council of Ministers (Albania)
DDD	Dichlorodiphenyldichloroethane (a metabolite of DDD)
DDE	Dichlorodiphenyldichloroethylene (a metabolite of DDT)
DDT	Dichlorodiphenyltrichloroethane (organochlorine insecticide, now banned for agricultural use)
DO	Dissolved Oxygen
DOC	Denomination of controlled origin
DOCG	Denomination of controlled and guaranteed origin
EC	European Commission/Community
EN	EuropeaN (an EN document is a regional standard for use in the European Union)
EPA	Environmental Protection Agency
EQR	Ecological Quality Ratio
EQS	Environmental Quality Standard
EU	European Union
FAO	Food Agriculture Organisation
FMO	Fisheries Management Organization
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GIZ	Gesellschaft für Internationale Zusammenarbeit GmbH
GIS	Geographic Information System
IBA	Important Bird Area
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites
IPA	Important Plant Area
IPA	Instrument of Pre- accession Assistance of the European Union
ICASA	Institute of Cultural Anthropology and Study of the Arts
ICH	Intangible Cultural heritage
ISO	International Standardisation Organisation
IUCN	International Union for Conservation of Nature
LOR	Lake Ohrid Region
LPMP	Lake Prespa Management Plan
MAB	Man And the Biosphere
MAP	Medicinal Aromatic Plant
masl	metres above sea level
MAV	Maximum Approved Value (concentration of priority substances in water)
MEA	Millennium Ecosystem Assessment
MoCA	Ministry of Cultural Affairs
MoE	Ministry of the Environment
MARDWA	Ministry of Agriculture, Rural Development and Water Administration
MoEPP	Ministry of Environment and Physical Planning (FYR of Macedonia)
NCA	National Council of Archaeology
NCFA	National Centre of Folkloric Activities
NAPA	National Agency Protected Areas
NEA	National Environmental Agency (Albania)
NSDI	National Strategy for Development and Integration
N-taxa	Number of taxa
NTC	National Territorial Council
NWC	National Water Council (Albania)
OCP	OrganoChlorine Pesticide
OECD	Organization for Economic Cooperation and Development
OG	Official Gazette
OJ	Official Journal
OUV	Outstanding Universal Value
PA	Protected Area

PDO Protected Designation of Origin
PGI Protected Geographical Indication;
POP Persistent Organic Pollutant
RAPA Regional Agency Protected Areas
RBD River Basin District
RBMP River Basin Management Plan
RDNC Regional Directorate of National Culture
SPA Special Protection Area
SWOT Strength Weakness Opportunity Threat
TSG Traditional Specialty Guaranteed
UNDP United Nations Development Programme
UNEP United Nations Environment Programme
UNESCO United Nations Education Science Culture Organisation
UNWTO United Nations World Tourism Organisation
UWWT Urban Waste Water Treatment
WB Water Body
WHC World Heritage Centre
WHC World Heritage Committee
WFD Water Framework Directive
WHO World Health Organization
WHS World Heritage Site
WMP Watershed Management Plan
WWTP Waste Water Treatment Plant

A. Executive Summary

The World Heritage property "Natural and Cultural Heritage of the Ohrid Region" has been inscribed on the World Heritage List in 1979 initially as a natural property, under natural criterion (iii), today criterion (vii). In 1980 the site was extended under cultural criteria (iii) and (iv), and became a mixed property.

In 2009, at its 33rd session, the World Heritage Committee approved a minor boundary modification that slightly reduced the boundaries of the property to the north and to the west. Within this process, the creation of a buffer zone was encouraged by the Committee. On this occasion, the Committee also recommended that "a trans-boundary extension of the property to include the Albanian part of Lake Ohrid and its watershed be considered in order to strengthen the value and integrity of the property."

The State party of Albania proposed the pilot project "Natural and Cultural Heritage of the Ohrid Region" in the framework of the Upstream Process in support of World Heritage nominations, established on an experimental basis following Decisions of the World Heritage Committee (see particularly 34 COM 12 and 35 COM 12). The aims of the upstream process are to provide transparent and systematic support in the nomination process in the very early stages of their preparation as well as to test more cooperative working methods among the State Parties, the World Heritage Centre and the Advisory Bodies with the broad aim of improving protection and management of Word Heritage properties.

The present Upstream Pilot Project finds its origins within this context and its specificity is that it considers an extension of an inscribed mixed site – the Natural and Cultural Heritage of the Ohrid Region (former Yugoslav Republic of Macedonia) to become a transboundary property.

The implementation of the Pilot Upstream project is supported financially by the European Union through the IPA programme within the project "Towards strengthened governance of the shared transboundary natural and cultural heritage of the Lake Ohrid Region" via an agreement between EU and UNESCO.

The present Baseline assessment has been elaborated with a view to achieve the enhanced recognition and profiling of the transboundary area and to identify opportunities for its sustainable development. It also represent a pre-condition for the integrated management planning based on active cross-sectoral cooperation and public participation and for facilitating the extension process of the World Heritage property "Natural and Cultural Heritage of the Ohrid Region" in Albania.

The information and assessment contained in this report have been elaborated on the ground of a variety of written sources, including scientific literature, administrative and institutional reports, research and project reports, including EU- funded projects, on direct surveys conducted on site and on interviews to local stakeholders.

Below are summarized the main findings of this baseline assessment.

Significance of the Lake Ohrid Region

Lake Ohrid is a deep, oligotrophic lake of tectonic origin and amongst the few ancient lakes in the world. This long existence of the lake allowed the independent development of an extraordinary ecosystem that harbours an outstanding degree of endemic biodiversity. Objectively, Lake Ohrid represents a superlative natural phenomenon in the sense of the Criterion (vii) of the Operational Guidelines for the Implementation of the World Heritage Convention. Harbouring about 1,500 species, and more than 300 endemic species, Lake Ohrid is probably by far the most diverse lake in the world taking surface area into account. It is likely that even this high rate of endemicity is underestimated as there remain a number of taxa which are poorly studied or even unstudied, particularly within the Protista, Coelenterata, Trematoda, Cestoda, Nemertina, Tardigrades, and Insecta.

Within the Ohrid watershed, endemism occurs at different spatial scales with some species being endemic to the lake proper and other restricted to its adjacent and surrounding springs or only certain locations isolated by horizontal and vertical barriers. The most important locations for the conservation of the endemic aquatic biodiversity within Lake Ohrid include Veli Dab, the littoral zone near Saint Naum monastery and the feeder spring complex at Saint Naum, in the former Yugoslav Republic of Macedonia and the feeder spring complex at Tushemisht/Zagorican (Drilon) in Albania. Currently there is no comprehensive and systematic review of the distribution of the endemic species in Lake Ohrid and its watershed, but probably a high number of endemic species are distributed throughout the lake, including four endemic species of sponges and several endemic fish. Other endemic species have been described from locations in the Albanian part of the lake, such as several endemic diatom species that have been published recently as new to science.

A very high number of Palaearctic water birds regularly winter at Lake Ohrid, rendering it an internationally important wetland. The watershed of Lake Ohrid also harbours rich and important biodiversity. Based on a number of species of international and national conservation values have been identified in the Albanian part of the watershed: 44 taxa of invertebrates, 21 fish species, 6 amphibians, 13 reptiles, 137 birds, and 21 mammals.

The evolution of the exceptionally rich biodiversity of Lake Ohrid is closely related to its specific ecology. Like for most other lakes, the ecology of Lake Ohrid is a mirror of its catchment and its eco-climatological setting. The presence and evolution of the rich biodiversity of the lake was supported by the subaquatic inflow of cool, clean and oxygen rich water into the lake. The subaquatic springs contribute to the establishment of specific habitats for endemic species as they supply oxygen, nutrients, and ions and by creating distinctly different, but constant boundary conditions. The occurrence of a number of endemic taxa is exclusively linked to the springs and this seems to indicate that the spring water may have been important for the evolution of the unique ecosystem of Lake Ohrid. Due to the long hydraulic residence time in Lake Ohrid the water through-flow is weak and the subaquatic springs contribute a significant portion of the water budget. The dilution of regular lake waters with pure spring waters is important for the oligotrophic status of Lake Ohrid and its subsequent low algae productivity. The lake is still highly oligotrophic, with a transparency of 14m, but the mean total phosphorus concentration has risen to 4.5 mg m^{-3}.

Lake Ohrid also provides invaluable archives of tectonic, climate, environmental, and evolutionary histories (Albrecht et al. 2010). Recently, Lake Ohrid has been recognized as a site of global importance for long-term palaeoclimate reconstruction. With its long sediment record and key geographic location between the Mediterranean and Western Europe it is increasingly used to test hypotheses concerning biodiversity and the evolution of endemism in ancient lakes (Reed et al. 2010).

The Albanian side of the lake Ohrid/ Pogradec enjoys some of the most evocative views over the lake and the surrounding mountains. The form and prominent position of the Lin peninsula projecting into the lake, surrounded by a still preserved cultivated plain with the backdrop of Mount Galicica and Mali i Thate is the first visual and astonishing experience that visitors can have of the lake-scape when descending from Qafe Thane towards the lake. It is unique as it gives immediately the sense of a very special place. The presence of the vestiges paleo-christian tri-conch basilica of Lin with its precious mosaics on top of the promontory confirms that the advantages of that location were understood and already used since centuries ago. The fishermen settlement of Lin with its street pattern adjusted to the morphology of the peninsula completes the visual picture of a settlement pattern that characterises the entire lake area.

Archaeological findings attest to the early human occupation in the region, at least from the Neolithic Age. Investigations and research, carried out in the 1960s – 70s, have been recently revived, especially in the surroundings around Korça, with rewarding results: excavations carried out in the 21st century shed new light on the transition to agriculture in southern Europe and in Albania. Radiocarbon dates from places like Vashtemi and the density of Early Neolithic sites in the area (e.g., settlements in Podgorie, Vashtemi, Barc, Maliq) “point

towards the Korça basin as the leading edge of the agricultural transition in Albania" and among the earliest farming sites in Europe (Allen, Gjipali, 2014).

In the Pogradec area, research still awaits systematic reactivation: in most cases, archaeological sites have been investigated around the 1960s – 1970s and here the vestiges of prehistoric human occupation appear less dense than around Korça but promising in terms of future investigations and certainly interesting in relation to their potential for attracting visitors and to their ability to shed light on the history of human settlement pattern within the Lake Ohrid Region.

Remains of several pile dwelling settlements have been found and continue to be discovered in the region both in Albania - in Maliq, Zagradie, near lake Prespa, and in former Yugoslav Republic of Macedonia - near Gradishte in the Bay of Bones –shedding new light on the pattern of human settlement since the Neolithic onwards in the Lake Ohrid Region and in the Balkans.

Traces of Bronze and Iron Age fortified settlements attest to the continuity of human presence throughout proto-historic phases, among these, it is worth recalling the Monumental Tombs of Lower Selca, dating back to the 3rd century BC. Testimony of human presence in the late Antiquity is represented by the archaeological vestiges of the triconch churchin Lin, while toponyms attest to the Slav presence around the lake Ohrid in subsequent centuries.

Ottoman presence in the region is particularly evident in Korça, with its market district, hans and commercial/ residential buildings, currently being restored, however also Pogradec exhibits good examples of ottoman architecture now under protection within the recently declared historic centre and buffer zone of the city of Pogradec and along with the approval of the regulation for the administration of this centre.

However, further research is needed to address specifically the wider territory and the historic landscape, and their development and modifications.

Improving knowledge of heritage values

The research that has been carried out over the last months suggests that a certain imbalance exists between the knowledge and understanding of the natural values and history of the region and that of the cultural values, its historic development over the centuries and the current landscape and settlement structure/ pattern/ features.

A clearer understanding of the historical and cultural specificity of this region as a whole, beyond the boundaries of present-day nation-states, would require an exercise of 'global history' in which the Lake Ohrid Region becomes the object of the study and in which all aspects of human activities, their interaction with the environment and with other human communities / societies is examined throughout the centuries.

Negative factors impacting the Albanian side of the Lake Ohrid/ Pogradec region

Although Lake Ohrid has experienced major natural environmental changes and fluctuations throughout its history, the magnitude of anthropogenic impact seen in the past years is a source of concern. There is some evidence for a "creeping biodiversity crisis" due to the human impacts that have accumulated over the last decades. Currently the major conservation concerns for Lake Ohrid include various impacts originating in its watershed, pressures from unsustainable activities in agriculture and forestry, pressures from tourism activities and the growing human population in the watershed, introduction of alien species, degradation of natural habitats and global climate change. Although the lake is still oligotrophic the global warming may exacerbate the negative effects of eutrophication. It is expected that with the rising temperature the vertical mixing of water will decrease and that complete deep convection will be less frequent.

A concerted action is needed across the state border and encompassing the entire watershed, including the part in Albania in order to reduce the negative impacts to the vulnerable and ancient ecosystem of Lake Ohrid.

In order to ensure the full exploitation of the potentials of the region, it is important to be aware of a number of weaknesses and factors that need be addressed urgently, as they may limit and, if not stopped, prevent from the possibility to enjoy the benefits of the rich natural and cultural resources of the area and eventually affect the final result for which this Pilot Project has been initiated. Details could be found in the Conclusions.

Issues detected in the Albanian side of the Lake are common with those affecting the inscribed property in the former Yugoslav Republic of Macedonia

With a view to develop compatible, sustainable and equitable forms of development in the Lake Ohrid Region, it is crucial that the Government of Albania continues to give consideration to building a vision for the future of the region based on its natural and cultural values and assess impacts of existing planning provisions, infrastructure development and prospects on these values and the related attributes, that is to say tangible and intangible resources, features and processes that make explicit these values, and particularly those which could sustain the extension of the inscribed World Heritage Property “Cultural and Natural Heritage of Ohrid region” and its implementation.

B. The study area

B.1 The physical environment

Lake Ohrid is a transboundary lake in the Western Balkans, straddling the border between the Republic of Albania and the former Yugoslav Republic of Macedonia. It is possibly the oldest lake in continuous existence in Europe with current age estimates ranging between 2 and 5 million years, based on geological investigations, and between 1.5 and 3.0 million years, based on molecular clock analyses of endemic taxa (Wagner et al. 2014, Baumgarten et al. 2015).

The Lake Ohrid basin is a N–S trending graben structure, 40 km in length, developed on the contact between the Western Macedonian Zone and the Mirdita Ophiolite Zone where the units of the latter are being thrust over the former in a westward direction for more than 50 km (Reichter et al. 2014). The basin is defined by major trending active faults at the eastern (NW-SE) and western shore (NE-SW), which also affect the development of the surrounding mountain ranges of Galicica and Mokra (Hoffmann, 2013). They are activated or reactivated by the E-W trending extensional regime dominating the basin since Holocene. The lake is located at an altitude of 693 m a.s.l., and surrounded by mountains reaching ca. 1,500 m a.s.l. to the west (Mokra) and 2,265 m a.s.l. to the east (Galicica). According to Hoffmann (2013), the basin is an active tectonic graben system that evolved "as an extensional basin-and-range-like system within the Albanides, which is influenced by the roll-back and detachment of the subducted slab of the Northern Hellenic Trench." The geology of the basin is dominated by the Mirdita Ophiolite Zone (internal zone of the Albanides) and the Korabi Zone (Western Macedonian Zone; which is part of the interior Dinaric Alps) (Reichter et al. 2014).

As a result, the west, southwest and south of the basin are dominated by Triassic conglomerates and Jurassic ophiolites, whereas the eastern flank, north and northwest are dominated by Paleozoic metamorphic rocks, Triassic limestones and Quaternary sediments (Hoffmann, 2013; see Figure 1 below). According to Reichter et al. (2014) Palaeozoic metamorphic and magmatic rocks of the Western Macedonian Zone consist mainly of granites, greywackes and phyllites with a complex metamorphic history. Triassic to Lower Jurassic carbonates (Korabi Unit) and clastics are widely exposed to the east, southeast and northwest of the lake. Carbonates are represented by dolomites and limestones, partly thinbedded and intercalated with radiolarites and cherts. Occasionally, serpentinites are exposed as isolated blocks in shear lenses along prominent normal faults. The western part of the Lake Ohrid Basin is made up of ophiolitic rocks of the Mirdita Zone (gabbros, pyroxenites, lherzolites and serpentinites) of mainly Jurassic age. These rocks are overlaid by Upper Cretaceous shallow-water limestones, sandstones and claystones. Following Reichter et al. (2014), the outcrops in the area expose flyschand molasse-type sediments which consist of folded and thrusted granite-bearing conglomerates and sandstones, deposited in Pliocene (near Pogradec) and Eocene to Tortonian (west of Prrenjas).

According to Hoffmann (2013) the landscape features which are still preserved in the surroundings of Lake Ohrid are evidence for the link between landscape evolution and tectonic activity in the region. According to Hoffmann (2013), the Ohrid-Korca zone is regarded as one of the zones with the highest seismic hazard in the Republic of Albania and the former Yugoslav Republic of Macedonia with frequent moderate earthquakes in the last few centuries. Several earthquakes have already been documented in historical times. In A.D. 518 almost the entire city of Ohrid had to be rebuilt after the earthquake. Other significant events occurred in February A.D. 548; April 3, 1673, February 7, 1871, September 10, 1889, and September 28, 1896 (M 6.7). According to Hoffmann (2013), the strongest event ever measured since the beginning of instrumental seismicity records in the early 20th Century was the February 18, 1911, earthquake at 9.35 p.m. It occurred in the Ohrid-Korca area (40.9°N, 20.8°E) at a depth of 15 km and a magnitude of 6.7 (corresponding to EMS X).

Lake Ohrid has a surface area of 358 km^2, a maximum depth of 288.7 m, and a mean depth of 155 m (Albrecht and Wilke 2008). With 55 km^3 of water the lake is one of the most voluminous in Europe. The lake has a maximum length of 30 km and maximum width of 14.5 km; its coastline is 87.5 km long, 31.5 km of which are

within the borders of Albania. The topographic catchment area of the lake covers 1,129 km^2, but the effective catchment extends into the Lake Prespa basin due to an underground karst connection and is about 2,489 km^2. Due to the karstic bedrock, water from Lake Prespa and its catchment area contributes significantly to the water inflow of Lake Ohrid.

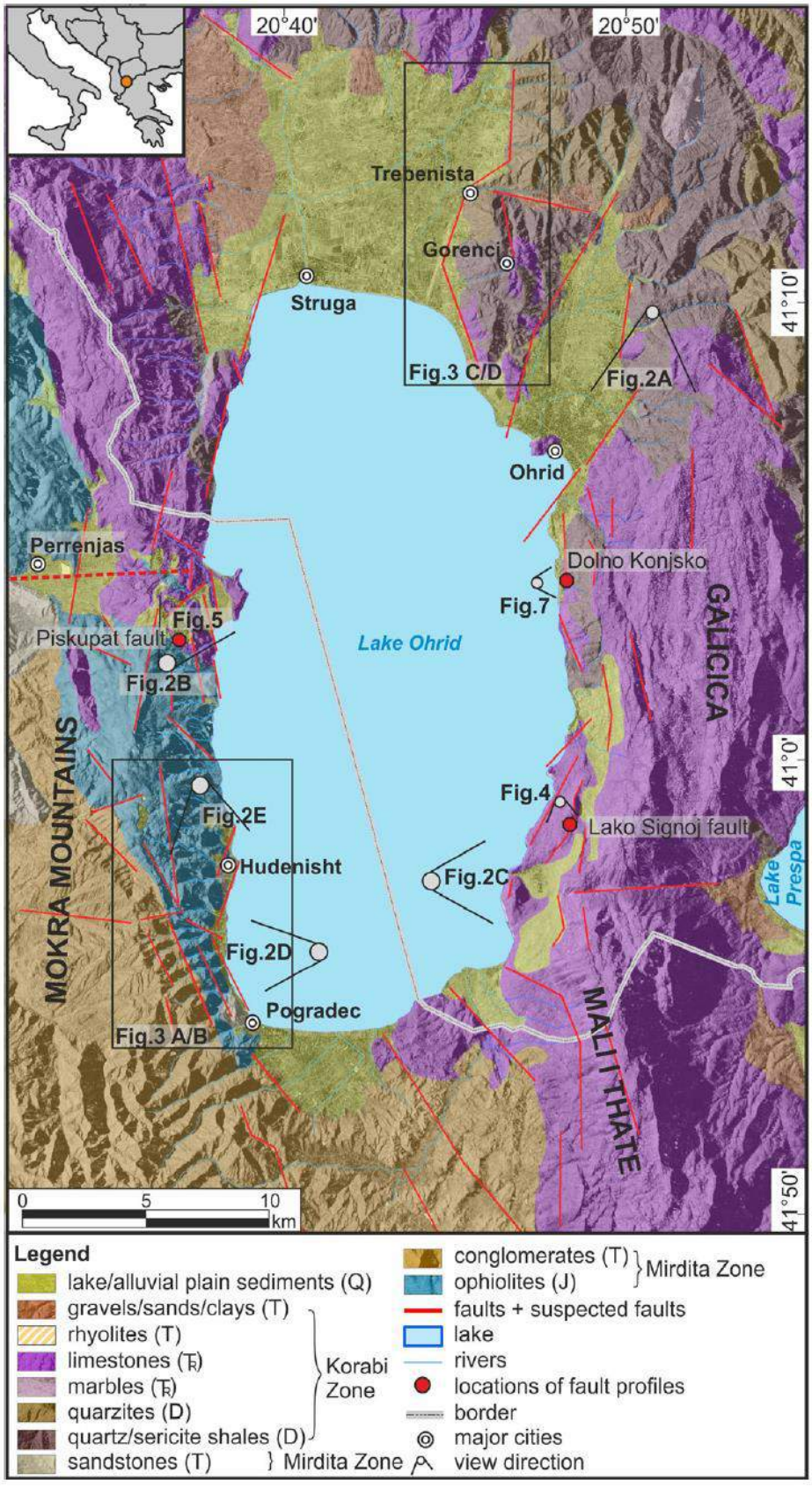

Figure 1 Geology of the Lake Ohrid basin (*source*: Hoffmann, 2014)

According to Matzinger et al. (2006) Lake Ohrid is an oligomictic lake with complete mixing occurring roughly every seven to ten years. Following Naumoski *et al.* (2007), in 2005 the Secchi disk transparency varied between 9 and 17m in the year. The hydraulic residence time in Lake Ohrid is about 70 years and average in and output rates of approximately 37.9 $m^3 s^{-1}$ (Matzinger et al. 2006). According to these authors the water input of the lake is dominated by inflows from karstic aquifers (53%), whereas direct precipitation and river inflow contribute 23% and 23%, respectively. The inflow from karstic aquifers originates in sublacustrine (49%) and surface springs (51%). The contribution of spring water in the overall water input of Lake Ohrid was even higher before the diversion of River Sateska into the lake in 1962 (Matzinger et al. 2006a). About one-third of the water output occurs through evaporation and two-thirds via the River Crni Drim - the only outlet of the lake which flows into the Adriatic Sea (Watzin et al. 2002). This outlet of the lake is human-controlled. According to an agreement between Yugoslavia and Albania of 1962, the maximum water level in Ohrid Lake is not permitted to exceed the value of 693 m a.s.l., and the minimum water level is not permitted to fall below 691.65 m a.s.l.

Lake Ohrid has 40 tributaries most of which are creeks and rivers which flow only temporarily during heavy rains and melting of the snow from the surrounding mountains. The most important tributaries of the lake are river Sateska, Koselska and Cherava. The most important inflows on the Albanian side are the Tushemisht-Driloni springs, the springs in the vicinity of Lini village, the Çerava River, Pogradec River, and Verdova River. The estimated average discharge of the Tushemisht Karstic Springs is 2.5 $m^3 s^{-1}$, and an unknown quantity enters the lake through sublacustrine springs along the shore between the monastery of Saint Naum to Tushemisht Springs. The Çerava River is the largest river on the Albanian side that flows in Lake Ohrid. It is located along the south part of the lake and originates from several springs in the mountainous area of Guri i Kamjes, at an altitude 1,538 m a.s.l. Generally the flow direction is toward the east up to the Çerava village, and after that, to the north, near the Lubanishte village on the Macedonian side. The river runs for 18 km and drains an area of 87 km^2, and the average discharge has been estimated at 1.5 $m^3 s^{-1}$. The Pogradec River is a small stream that flows through the city of Pogradec. Its origin is in the mountains around the city and drains and area of 10.6 km^2. Its steep bed slope of 9.2% poses a threat to the city of Pogradec during heavy storms. To protect the city from floods, the riverbed was reclaimed with concrete in all urban sectors. Following the hydrology data for the period 1974-1990, the annual average discharge of the stream is 0.25 $m^3 s^{-1}$. The Verdova River is also a small stream which drains into the southwest section of Lake Ohrid. The river runs for around 8 km, draining an area of 8.4 km^2, the average bed slope is 4.5 %.

Fluvisols are the dominant soil type in the lowland in the Albanian part of the basin; colluvial soils are well developed around the fluvisols. Hydric soil formation is underway at the southwestern part of the valley, as well as within the band closest to the lakeshore, which leads to the formation of gleysols in different stages of evolution. Chromic luvisols are found in the valley and the adjacent hills on the western side whereas cambisols are found in the mountains around the lake. Rankers (humus-accumulative soils) with various phases of development are formed on the highest altitude in the subalpine e and alpine areas.

According Watzin et al. (2003) the local climate is influenced by the proximity to the Adriatic Sea, by the surrounding mountains, and by the thermal capacity of Lake Ohrid. Average monthly air temperatures range from 26°C during summer to -1°C during winter. Precipitation averages around 750 mm annually and is at a minimum during summer (Watzin *et al.* 2002). Prevailing wind directions are northerly or southerly, being topographically affected by the shape of the Ohrid Valley and the surrounding mountains (Watzin *et al.* 2002). Average speed of the wind in the Lake Ohrid region is relatively low, 3.4 m s^{-1} (Shumka 2015). The temperature of Lake Ohrid's pelagic water ranges from 6°C (below 150 m depth, year-round) to 24–27°C (at the surface during summer) (Watzin *et al.* 2002).

B.2 The biotic environment

There are two biocycles (ecozones) in the Lake Ohrid region: Terrestrial and Fresh-water. The former includes the following biochores: Arboreal (zone of forests); Eremial (zone of steppes, semi deserts and deserts) and Oreotundral (zone of high mountain strips and Arctic tundra). The latter includes the biochores of

permanent waters (lakes and rivers) and temporary waters (tributaries, puddles and marshes). The region is characterized by rich biodiversity and a high level of endemism, which can be attributed to its location (in the peri-Mediterrannean zone), geomorphology, the geological substrate, the very old age of the lake, the local climate, the high altitudinal differences within a small area, its paleogeography, the long limnological and faunal history of Lake Ohrid, and also the long history of human presence.

In his seminal book on Lake Ohrid, Stankovic (1960) summarized the information on the extraordinarily high degree of biodiversity and endemism in many groups organisms of Lake Ohrid taking into account relevant studies conducted in the first half of the twentieth century. More recently, Albrecht and Wilke (2008) provide an extensive review of the patterns of biodiversity and endemism of Lake Ohrid taking into consideration the emerging new results on systematics, biogeography, and evolutionary relationships of most groups that had been studied since the monograph of Stankovic (1960). According to these authors there are more than 1,200 species of plants and animals in Lake Ohrid, including about 500 species of diatoms. More recently, however, Levkov and Williams (2012), summarizing a century of diatom research on Lakes Ohrid, listed 789 taxa (species, varieties and unidentified species) bringing the total number of species in the lake above 1489.

The catchment of Lake Ohrid equally supports rich and important biodiversity with extraordinary endemism occurring at different spatial and taxonomic scales. The most recent overview of biodiversity in the Lake Ohrid region in Albania is presented in the Management Plan for the Pogradec Terrestrial/Aquatic Territory Protected Landscape (Krog and Keco, 2013). This protected area falls entirely within the Lake Ohrid watershed (see Figure 2 below). The vegetation cover in the region is classified in the Balkan sub-zone of the Sub-Mediterranean vegetation zone. The following vegetation belts are successively arranged starting from the lake level to the summits of the mountains: lowland woodland vegetation, deciduous oak forests, deciduous beech forests, mixed beech-fir forests, sub-alpine vegetation of dwarf shrubs, and alpine grassland. In the oak zone, at an altitude between 700 and 1000, are found chestnut forests (Castanea sativa) occupying the north facing slopes south to Pogradec and Bucimas. There are no data available on the distribution and extent of the different habitat types in the Albanian part of the watershed. The only proxy data available are those on land use in the Protected Landscape (Krog and Keco, 2013). According to these authors water bodies cover 10,837.2 ha whereas forests and open forest and shrub land cover 8,997.89 ha. Agricultural area occupies around 4,529.93 ha and pasture and meadows cover approximately 1885.8 ha (including 36.2 ha of reed beds). Other types of land used within the protected landscape include non-productive areas (218.87 ha) and industrial/economic (817.39 ha).

According to Shumka (2015), the vascular flora associated with Lake Ohrid and the adjacent habitats includes 124 wild plant species belonging to 41 families (see Annex I). Following Imeri *et al.* (2001), the sub-cosmopolite species are most abundant chorological elements (28%), followed by Eurosiberian (20%), Circumboreal (17%), Eurimediterran (7%), Eurasiatic (7%), and Balkan (5%) elements. There are at least 1,061 vascular plants in the terrestrial part of the Albanian part of the Lake Ohrid watershed, most of which are hemicryptophytes and geophytes (ca. 65 %), which is typical to continental climate. In lower parts of the region may be encountered Mediterranean species, only app. 8 % of the total species; app. 12 % of species are of Balkan origin, found mainly in mountainous areas. According to Shumka (2015), there are very few published data on fungi in general for Albania, and particularly for the Ohrid basin. The most comprehensive data on fungi in the Lake Ohrid basing have been compiled for the Galicica National Park in the former Yugoslav Republic of Macedonia where about 480 species have been identified, most of them macromycetes in the phylum Basidiomycota.

According to Albrecht and Wilke (2008) there are 17 native fish species in Lake Ohrid, whereas Shumka, lists in total 24 fish species in the Albanian part of the Lake Ohrid region (see Annex II). According to Shumka (2015), there are 27 species of amphibians and reptiles in the protected landscape in the Albanian part of the Lake Ohrid region, representing 57.4% of the total number of Amphibians and Reptiles in Albania (see Annex III). Birds are the most diverse group of vertebrates, including 270 species, of which 132 are breeding in the region.

The list of bird species following the latest data available for the Albanian part of the Lake Ohrid region is presented in Annex IV. More than 23 bird species are wintering at Lake Ohrid. The highest number of birds recorded is 65.000 birds in 1999, where 23 species were identified (Bino *et al.*, 1997; Fremuth *et al.*, 2000; Winter census data, 2014-unpublished). Among the most abundant wintering birds are included the black coot (Fulica atra), Red-crested Pochard (Netta rufina) and Tufted Duck (Aythya fuligula), Black necked grebe (Podiceps nigricollis) and Llittle grebe (Tachibaptus ruficollis). According to Bego (2014), there are 45 species of mammals in the Albanian part of the Lake Ohrid region. Bats (Chrioptera) are the dominant group in terms of number of species (18 species), followed by rodents (13 species) and carnivores (9 species). The preliminary list of mammal species in the Albanian part of the Lake Ohrid according to Bego (2014) region is presented in Annex V. The total number of mammals is likely to increase through detailed faunal surveys, in particular targeting rodents and soricomorphs.

Figure 2 The Albanian part of the Lake Ohrid watershed (*source*: Shumka 2015)

B.3 Cultural Settings

B.3.1 The landscape

The rural landscape between Pogradec and Korça is very pleasant and varied. Immediately behind Pogradec the plains are extensively cultivated and the villages have grown at the foot of the surrounding hills so that land suitable for farming was not eroded; apparently, archaeological research suggests that this settlement pattern could be traced since the early neolithic time (Allen, Gjipali, 2014). Unfortunately, in the recent decades building development has encroached upon the agricultural land, especially in the areas near the lake shore (e.g. in Tushemisht or between Pogradec and Lin), however, the organisation and layout of the rural landscape is still readable. The plains south of Pogradec also preserve traces of a system of small canals, channeling water from the Drilon sources. Investigations on the age of this irrigation system would assist to clarify its origin and history.

The hills surrounding the Pogradec plain exhibit extensive traces of terraces, which, apparently, have a recent origin, being developed during the dictatorship to increase farming land.

Between Korça and Tushemisht, soft hills make the rural landscape more varied and attractive in term of landscape mosaic and type of cultivations, the rolling vegetated hills create an interesting contrast with the bare calcareous slopes of the mountains.

In most cases the settlement structure of the villages is still largely preserved and the residential architecture still exhibit traditional layout, features and materials, although in many cases basic rehabilitation or adaptation interventions have been carried out by the inhabitants with poor or inappropriate materials.

Rural architecture of the villages is very simple but nevertheless, if their characteristics and materials are preserved, they contribute to the overall ambiance of the landscape. If studies on this topic are yet to be commenced, then it would be important that this topic is addressed, not only in terms of building features but also in terms of historic development of their layout, their functional aspects, morphologies, etc. as well as modernisation demands (e.g., services, installations, water pipes, sewerage).

These buildings exhibit a very simple architectural form and language with little or no decoration. Their interest resides mainly in the use of traditional materials (e.g., adobe, or bricks, wooden beams and opening frames, brick tiles, thatched roofs, etc.) and their small scale having associative significance with the local community's harmonious relationship with the land over centuries through sustainable use patterns.

B.3.2 Historic development of the Lake Ohrid/ Pogradec Region and its tangible archaeological and monumental traces

Archaeological findings attest to the early human occupation in the area, at least from the Neolithic Age. Investigations and research, carried out in the 1960s – 70s, have been recently revived, especially in the area around Korça, with rewarding results: excavations carried out in the 21st century shed new light on the transition to agriculture in southern Europe and in Albania. Radiocarbon dates from places like Vashtemi and the density of Early Neolithic sites in the area (e.g., settlements in Podgorie, Vashtemi, Barc, Maliq) "point towards the Korça basin as the leading edge of the agricultural transition in Albania"and among the earliest farming sites in Europe (Allen, Gjipali, 2014).

These sites have witnessed human presence in the region since the early Neolithic and some of them, e.g. Maliq, attest to the continuity of settlement along the Late Neolithic, Copper and Bronze Ages in the region. A number of hill fortifications (Zvedza, Gradishta of Symiza) dated to the Early Iron Age have been studied with major density of traces of fortifications dating back to the Late Antiquity period (kalaja Dishnice, Mborja, Kloca, Gopesh, Podgorie).

In the Pogradec area, research still awaits systematic reactivation: in most cases, archaeological sites have been investigated around the 1960s- 1970s and here the vestiges of prehistoric human occupation appear less dense than around Korça but promising in terms of future investigations and certainly interesting in relation to their potential for attracting visitors and to their ability to shed light on the history of human settlement

pattern within the Lake Ohrid Region. However, it should also be noted that the intense building activity in Pogradec has limited the possibility for archaeological investigations (Allen, Gjipali, 2014). In this regard, systematic application of preventive and rescue archaeological surveys should be integrated in the building permit process, in order to allow the collection of information on the ancient past of the Pogradec area and assist to build a clearer picture of the region as a whole.

Currently this is a legal procedure established by the Law on Cultural Heritage, as amended and implemented by the state institutions and state and private administrators and investors, and notably its articles 47 and 48 of the Law (see the details of both articles under section E2 Legislation for the protection of cultural heritage, in the present report).

In the immediate vicinity of the Lake Ohrid, some archaeological sites have been detected and, in some cases, investigated.

A pile dwelling settlement –known under the name Zagradie - was discovered as early as the 1960s, when a research expedition was carried out by the Pogradec Museum. This settlement has been detected at the bottom of the peninsula of Lin on the shore of Lake Ohrid. The fragments of pottery suggest that the lower part of peninsula has been inhabited since the prehistoric period, although its period of occupation apparently has not been ascertained. Further research and comparative studies with the pile dwelling settlements along the Macedonian lakeshore could bring fruitful results to shed light on the early human colonisation of the region in the immediate vicinity of Lake Ohrid.

On top of a hill dominating Pogradec, remains of a fortified settlement have been found. The Castle of Pogradec belongs to the group of the early Illyrian-Albanian settlements. The site itself has been used by the local population for more than 1000 years. The settlement has been first inhabited in the 6th century BC. During the mid 4th century BC this Illyrian settlement was fortified with walls. From the archaeological findings, it was concluded that the local community used to practice agriculture, fishing and various crafts and had relations with the neighbouring settlements. The castle of Pogradec continued to be inhabited also during the roman period, but without the protective walls and the intensity of life experienced before. By the end of the 4th century AD new defensive walls were erected and the fortress was used by the locals during the barbarian invasions. In the 6th century AD the walls were once again reconstructed. The fortress, with a strong strategic position was transformed again in an important residential centre and remained in this position until the invasions of the 9th century.

Further important archaeological traces of human settlement in the Lake Ohrid area are located in the inland west of the lake. These include important remains of the Illyrian Monumental Tombs of Selca (4th – 3rd cent. BC) with the town of Lower Selca, and the fortified settlement of Gradishta e Sllabinje.

The monumental Tombs of Selca are located in the hills west of the lake, south of Qafe Thane, not far from the route followed by the ancient Via Egnatia, in the hill known as “Gradishtë”where also lie the remains of the ancient Illyrian town of Lower Selca. The tombs of lower Selca were declared Monument of 1st Category in 1948 and then were subject to overall archaeological excavations in 1970-1972. The tombs of lower Selca, four clustered in two groups in the area between the Acropolis and the outer quarters of the ancient city, are now in the WH Tentative List of Albania. They have been in use during the 3rd century BC, a period which corresponds to the flourishing period of the development of the city, and stand as the only known architectural feature of this urban ensemble.

Gradishta e Selcës, known also as the Illyrian town of Lower Selca, is located on the top of the hill above the village of Lower Selce. This town was the ancient centre of ther upper Shkumbini river valley, today known as Mokra. The flourishing of ancient Lower Selca came as a result of its geographical position, from where it was possible control the main roads passing through Cervenake valley to Macedonia. The first phase of development of this town dated back to the proto- urban period, corresponding to the Early Iron Age and lasted until the 5th - 4th century B.C.

The second phase (lasting from the 4th century BC until the 1st century AD) marked the major flourishing period of the settlement, during which it was a craft oriented and the most important trade centre of the region, overseeing the main trade-route passing nearby. The construction of Via Egnatia, avoiding the old route controlled by the Illyrian town, and preferring the main track along Qafe Thane, was the key factor for the decline of Selca. The last documented phase dated back to the Late Antiquity period (4th–6th century AD), when the town was already reduced within the walls of the fortress situated in the highest part of the acropolis.

The peninsula of Lin, which is the only one along the Albanian shores of the Lake, has been inhabited since the the neolithic period, with traces also of human habitation dating back to the first half of the first millennium AD (proto-Illyrian period), Early Iron Age. This has been proved by some archaeological findings from this period, such as clay gray vessels discovered in the site.

During the Roman rule, the Balkan region was organised into provinces which changed over the centuries and the needs of the romans to control and administer the area: initially a wide province was established in the year 146 BC, under the name of Macedonia, from the geographical name under which the wider region was known. Later, under Diocletian's rule, the provinces in the Balkan region were restructured and it is presumed that the Lake Ohrid Region was included in the newly created province of Epirus Nova, which bordered Epirus Vetus to the south and Paeonia to the east. The province of Epirus Nova was later to become a district of the Byzantine Empire. Further changes to these districts were to occur, due to the variable expansion and shrinking of Byzantium's control over the Balkans and the lake Ohrid region witnessed many of these changes.

The key infrastructure from the roman period in the area, the very first roman highway to be built east of the Adriatic, is the Via Egnatia, which allowed settlements along it to flourish and stretches of which survive also in the Lake Ohrid Region.

The road is known to exist since the 2nd century BCE: it connected the Adriatic with the Aegean Sea, however it is not unlikely that the Romans turned into a proper road ancient existing routes and trails.

The direction and length of this road are known thanks to Strabo and other sources, and more precise information is offered by ancient itineraries, particularly the specific section of the Peutinger Table and the corresponding journeys of the Antonine Itinerary, both dating to the 4th century CE; the location of some forty milestones (miliaria) associated with the Via Egnatia; descriptions and maps of early travellers in the 18th and 19th c. as well as the landscape and actual remains. The Via Egnatia from Dyrrachium (Durrës) followed roughly the valley of the river Genusus (modern Shkumbin) and then the northern slopes of Polisit to reach Lake Ohrid and ancient Lychnidos through a mountain pass, today known as QafëThanë. Another stretch of this road, also known under a different name existed leading towards the ancient city of Apollonia (near the village of Pojan, municipality of Fier) and joining the main stretch of the Via Egnatia in the Lake Ohrid region.

Important traces of the Christianisation of the region, presumably initiated in the 1st century AD, are found also along the today Albanian side of the Lake Ohrid: on the top of the peninsula of Lin, the remains of the Early Christian church of Lin dated back to 5th -6th century AD, one of the most important archaeological sites in the area, have been discovered in 1968 by a researching expedition of the local museum of Pogradec. It was dated at the 6th century AD, but it seems to have been in use until the medieval period. On the stratigraphy of this period it is well evidenced the presence of fire indicating that the church was burned and its walls destroyed. The church has seven premises paved with mosaics where white, black and red are the main used colours, but also brown, green yellow and orange. Similar in style to the early medieval mosaics in Macedonia (basilicas in Oktis, Radolisht and Studencisht) just across the lake, biblical scenes (Eucharistic), flowers, animals, svastica and many other objects are depicted on the church floor, some in very good condition.

Between the 7th an 11th century AD the region found itself at the centre of important changes: Slavic tribes progressively settled in the Balkans and in the Lake Ohrid Region, the encounter of the Slavic and

Byzantine cultures gave rise to outstanding artistic, literary and cultural expressions, which is materialised in the cultural heritage of the "natural and cultural heritage of the Ohrid region"World Heritage property. However, from a political point of view, Byzantium struggled to recover control over the territory that came under Slav control since the 7th century AD. The region also assisted to the power struggle between the Byzantine Empire and the Bulgarians. Despite the Byzantines were able to regain control over its possessions, the progressive weakening of Byzantium brought the entire Balkan region under the Ottomans' rule and sphere of influence at the beginning of the 15th century AD.

Under the Ottoman rule the Lake Ohrid region was part of the wide Rumelia Eyalet and administered through subdivision into smaller districts (sanjaks) that, in the region, were modified along the centuries and included the Sanjak of Monastir, the capital of which was in alternation Bitola – Monastir or Ohrid: this administrative unit extended also into present-day Albania. On the other hand, the sanjak of Albania covered a much wider area closer to the Adriatic coast. The boundaries and extension of the Ottoman administrative units in the Lake Ohrid Region were modified over time, for different reasons, including efforts to counteract pushes for independence. Eventually, in the 19th century, the Sanjak of Ohri was split into two units: the sanjak of Monastir and the sanjak of Goricë (present day Korça).

Information on the profile of the region under the Ottoman Empire could be found in the accounts of travellers, among whom, it is worth recalling the famous traveller and writer EvliyāÇelebi, who left a description of the Sanjak of Ohri in his Book of Travels. However this long period of the history of the region still awaits systematic investigations aiming to reconstruct the cultural, socio-economic as well as physical settings under the Ottomans.

The Ottoman period has left significant urban and architectural imprint, particularly in Korça but also in Pogradec, where a part of the traditional urban area city of Pogradec including buildings and street pattern has been recently protected under the Albanian legislation for Cultural Heritage as the Historic Centre and Buffer Zone of Pogradec. Some of the historic houses have already been restored, while other ones still await some maintenance works. The houses presumably date back to the 19th – 20th century AD, however further information would assist also to understand the history of Pogradec.

Tangible evidence of the connection between the city and Archdioceses of Ohrid and the region south of the Lake Ohrid are attested to by the history of the towns of Moschopolis, today Voskopoje, located in a mountainous zone south of Pogradec and west of Korça, and Vithkuq, situated not far from Voskopoje. They both conserve the vestiges of a few churches with remains of wall painting cycles, out of the many that were built and decorated during the 17th and 18th century, when the cities experienced a period of cultural and economic flourishing. In this period, Ochrid, the St. Nahum Monastery and Moschopolis took part in the process of cultural and cleric-educational upsurge, headed by the then Archbishop of Ochrid Joasaph of Moschopolis (1719-1745) and the printing house established by the Archbishop Joasaph, which is said to be the only one existing outside Constantinople, was instrumental for this process.

The complex history of region could only be appreciated and understood through a thorough investigation of the political, administrative, cultural and religious continuities and discontinuities that characterised this area throughout the centuries. A comprehensive research approach in the historic, geographic and socio-cultural fields which goes beyond current national boundaries is necessary to achieve a better understanding of the evolution of human occupation in the region.

B.3.3 Intangible Cultural Heritage

When considering intangible cultural heritage- ICH, the key point of reference must be the 2003 UNESCO convention on intangible cultural heritage. Both Albania and Macedonia have ratified the convention. To allow a clear and consistent understanding of what features and manifestations constitute ICH, the convention categorises five domains;

- Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage
- Performing arts
- Social practices, rituals and festive events
- Knowledge and practices concerning nature and the universe
- Traditional craftsmanship

In practical terms ICH around Lake Ohrid region can be recognised in all of these domains. The report by Korça Regional Council on tourism in the region, for instance identifies a range of elements including music, dance and folklore; food and culinary traditions (in particular mountain cheeses, honey and other bee products, herbs, herbal teas and traditional medicinal plants); the works of poets, writers and painters; local festivals (e.g. the International Festival of Comic Theater, Festival of popular instrument both held in Korça, or the International Festival of Experimental Theater in Elbasan) and events, that are visible across the region.

A further significant intervention took place in 2014. The Albanian Ministry of Culture and UNESCO, coordinated a report on the Needs assessment for safeguarding intangible cultural heritage in the Republic of Albania. The study was conducted by Nikolai Vukov of the Institute of Ethnology and Folklore Studies, Sofia (see attached report in annexes).

The report and associated research represents the first important effort at capturing a state of the art image of ICH in Albania. It places the engagement of ICH in the social, economic and cultural context that has been in significant flux since the collapse of the communist regime. Before moving on to map out the legislative, institutional (governmental and non-governmental) and financial mechanisms that are being used to safeguard ICH practices.

A number of key issues are raised in the report, which are highly relevant when considering future developments in the arena of cultural tourism. These can be summarised as follows:

- ICH is rich and diverse throughout Albania, but its future viability and vitality is threatened most importantly through the dramatic emigrations, internal migrations to urban centres and overall 'brain drain'that occurred between 1991 and present.
- Regional and local folklore festivals and events are flourishing and engage inter-generational participation (eg. Festival of popular instruments in Korça). However, there is a current tendency through competitive and selective processes, to make these actions focus on aspects of 'protection', 'conservation'and 'authenticity'. In so doing the dynamic, living practice and contemporary relevance of ICH is not encouraged, rather a process of preserving forms known as 'museumification' is generated. The 2003 convention explicitly addresses such concerns, and outlines a more nuanced vision and understanding of ICH that is living and still practiced today within communities. Wider engagement and understanding of the convention is required.

The agencies and institutions working around ICH in Albania are numerous. On a state level the core involvement with ICH is through the Ministry of Cultural Affairs, the National Centre of Folkloric Activities (NCFA) and the Institute of Cultural Anthropology and Study of the Arts (ICASA). Additionally there are a number of independent institutions and NGOs at local and regional levels. However, collaboration across governmental institutions, NGOs, ICH bearers or practitioners and community associations is not consistent. This leads to weak representation beyond governmental agencies in considerations of ICH policy.

Funding opportunities are hamstrung by a lack of functioning policies and strategic plans. Individual initiatives from independent organisations or bilateral funders, appear piecemeal and uncoordinated at a regional and national level.

As part of the decentralisation of government in Albania, it is important to note that in the Regional Directorates of National Culture, the tasks of carrying out ICH safeguarding are conducted by an individual ICH expert with a permanent work position. This is the case in Korça, a situation which may help coordination and an integrated approach to safeguard and promotion.

The report finishes by proposing an action plan involving the Ministry of Cultural Affairs, the Regional Directorates of National Culture, as well as widespread civil society representatives. This represents a good basis for future action in this realm.

The first follow up to the needs assessment report has already been staged in Tirana. From 14-18 September 2015 a workshop held for local authorities, practitioners, civil society organizations and ICH experts, was hosted on the theme of implementing the 2003 UNESCO Convention for the Safeguarding Intangible Heritage.

For ICH to function, and in the language of the 2003 Convention, 'be viable', it has to be produced and placed within a context that is meaningful and desired by the practicing communities. Therefore, it is important for ICH expressions not to be demonstrated solely for tourist audiences as 'traditional' folkloric expressions, but for it to simultaneously have a meaning for the local population.

C. Heritage values and resources/ attributes

C.1 Natural heritage values and resources

Understanding the natural attributes (values, features) in and around the Lake Ohrid Region is a crucial prerequisite for its effective management and protection. While it is essential to be clear about region's specific attributes that are the basis for its recognition as a World Heritage property, other natural attributes of the property that are important at local, regional, national or European levels should also be considered. The emphasis on the importance of local values, alongside Outstanding Universal Value is in line with the fifth Strategic Objective of World Heritage Convention ('Community') and reflects the need to strengthen the bridging between the World Heritage property and local communities. Thus the first subsection summarizes the outstanding universal values following the concept defined by the Operational Guidelines for the Implementation of the World Heritage Convention. The subsequent subsection briefly presents other natural values on the region, in particular those of national and European conservation interest.

C.1.1 Natural Outstanding universal value of the Lake Ohrid region

Lake Ohrid is probably of early Pleistocene or Pliocene origin and amongst the few ancient lakes in the world (Albrecht *et al.* 2010). This long existence of the lake allowed the independent development of an extraordinary ecosystem that harbours an outstanding degree of endemic biodiversity (Albrecht *et al.* 2010). Following the data presented in the first National Biodiversity Strategy and Action Plan (MoEPP, 2003), there are 212 taxa that are endemic to Lake Ohrid (see Annex VI). Using these data Albrecht and Wilke (2008) argued that Lake Ohrid is probably by far the most diverse lake in the world taking surface area into account. Although the total number of endemic species is higher in lakes Baikal, Tanganyika, Victoria and Malawi, Lake Ohrid is much smaller than these lakes and thus by far the most diverse lake in the world for its size (see Figure 3 below). According to these authors, the adjusted rate of endemicity at Lake Ohrid is estimated at 36% for all taxa and 34% for Animalia (see Table 1 below). Albrecht and Wilke (2008) conclude that within the Ohrid watershed, endemism occurs at different spatial scales:

- species endemic to Lake Ohrid and its adjacent springs
- species endemic to surrounding springs
- species endemic to the lake proper
- species endemic to certain parts of the lake separated by horizontal and vertical barriers

According to Albrecht and Wilke (2008) the following are the key Endemic Areas for aquatic biodiversity within Lake Ohrid:

- Veli Dab (Peshtani-Trpejca, the former Yugoslav Republic of Macedonia);
- The littoral near zone near Saint Zaum monastery, the former Yugoslav Republic of Macedonia;
- The feeder spring complex at Saint Naum, the former Yugoslav Republic of Macedonia;
- The feeder spring complex at Tushemisht/Zagorican (Drilon), Albania.

It is likely that even this high rate of endemicity is underestimate as there remain a number of taxa which are poorly studies or even unstudied, particularly within the Protista, Coelenterata, Trematoda, Cestoda, Nemertina, Tardigrades, and Insecta. Thus, much more work is necessary in order to obtain a precise estimate of overall endemism, both at the species and at the supraspecific level (Albrecht and Wilke 2008). This is well illustrated by the recent review of diatom species in Lake Ohrid by Levkov and Williams (2012). Summarizing a century of diatom research on Lakes Ohrid, including the recent publications of new species (Lange-Bertalot 2001; Levkov *et al.* 2007; Levkov & Williams 2011), these authors listed in total 789 diatom taxa (species, varieties and unidentified species), 117 (15%) of which are considered to be endemic to Lake Ohrid. They have also listed 15 (app. 2%) species considered to be relict species, or known previously only from fossil deposits in Romania (Köpecz and Bodos).

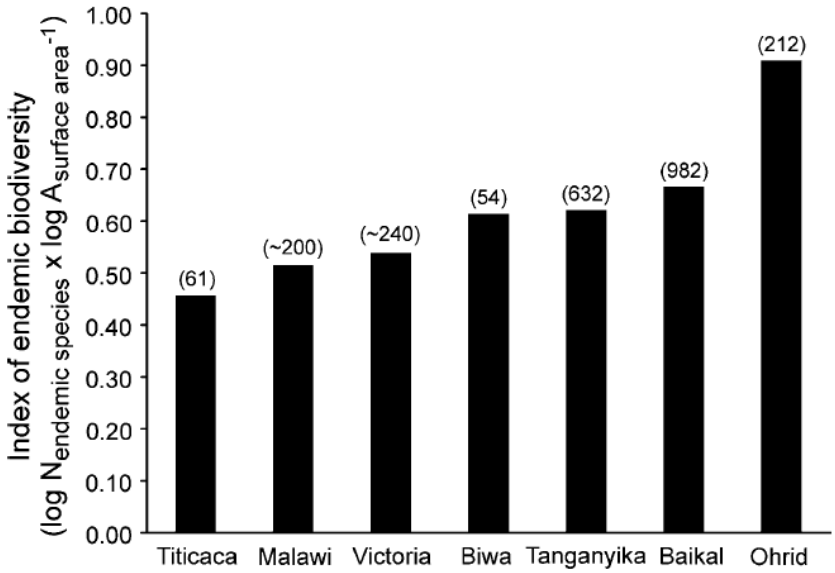

Figure 3 The Index of endemic biodiversity for selected worldwide ancient lakes and Lake Victoria taking surface area into account. Numbers in parentheses above the lakes indicate the total number of respective endemic species (*source*: Albrecht and Wilke 2008)

These authors expect that the number of species recorded for Lake Ohrid continues to increase. In the last 10 years there have been descriptions of at least 100 new species (Levkov & Williams, 2012). The summary results of their inventory of diatom taxa in Lake Ohrid and Lake Prespa are presented in Table 2 and Table 3 (see below) and the list of endemic diatoms is given in Annex VII. According to these authors, the research on the diatom flora revealed the following features of the benthic diatom flora of Lake Ohrid:

- High levels of diatom diversity;
- High levels of diatom endemism;
- The presence of relict species (Jurilj 1956a); and
- The presence of a high diversity of species in genera primarily considered to be more diverse in marine, coastal or brackish habitats, such as species from *Diploneis, Amphora, Surirella Turpin* and *Campylodiscus* Ehrenb. ex Kütz.

The evolution of the exceptionally rich biodiversity of Lake Ohrid is closely related to its specific ecology. Like for most other lakes, the ecology of Lake Ohrid is a mirror of its catchment and its eco-climatological setting. According to Matzinger *et al*., 2007), the presence and evolution of the rich biodiversity of the lake was supported by the subaquatic inflow of cool, clean and oxygen rich water into the lake. The subaquatic springs contribute to the establishment of specific habitats for endemic species as they supply oxygen, nutrients, and ions and by creating distinctly different, but constant boundary conditions. The occurrence of a number of endemic taxa is exclusively linked to the springs and this seems to indicate that the spring water may have been important for the evolution of the unique ecosystem of Lake Ohrid (Stankovic, 1960; Matzinger *et al.*, 2006; Albrecht and Wilke, 2008; Hauffe *et al.*, 2010; Trajanovski *et al.*, 2010). Due to the long hydraulic residence time in Lake Ohrid the water through-flow is weak and the subaquatic springs contribute a significant portion of the water budget. According to Matzinger *et al.* (2006) the dilution of regular lake waters with pure spring waters is important for the oligotrophic status of Lake Ohrid and its subsequent low algae productivity. According to Allen and Ocevski (1977), in the period 1936–1939 soluble reactive phosphorus did not exceed 4 $\mu g\ l^{-1}$, whereas nitrate levels were often reaching 20 µg l−1 in the hypolimnion and 1–5 µg l−1 in the epilimnion. The lake is still highly oligotrophic, with a Secchi disc depth of 14m (Matzinger *et al.*, 2006), but the mean total phosphorus concentration has risen to 4.5 mg-Pm−3, exceeding its former predominantly ultra-oligotrophic state based on a classification boundary of 2.5 mg-Pm−3 used by OECD.

Table 1 Biodiversity and endemism of Lake Ohrid

Taxon	Total # of native species	# of endemic species	Rate of endemism (%)
Bacteria			
Cyanobacteria	~55	n.a.	n.a.
Chlorobionta			
''Macrophytes''	~25	0	0
Protista			
''Diatoms'' (Heterokontobionta)	789[b]	117[b]	15
''Rhizopoda''	14	n.a.	n.a.
Ciliophora	34	30	91
Animalia			
Porifera	5	4	80
Tricladida (Plathelminthes)	29	23	79
Rhabdocoela (Plathelminthes)	25	10	40
Trematoda (Plathelminthes)	15	2	13
Rotatoria (''Nemathelminthes'')	52	n.a.	n.a.
Nematoda (''Nemathelminthes'')	24	3	13
Oligochaeta (Annelida)	27	9	33
Hirudinea (Annelida)	26	14	54
Acari (Arachnida)	43	1	2
Cladocera (Crustacea)	31	1	3
Ostracoda (Crustacea)	52	33	63
Copepoda (Crustacea)	36	6	17
Decapoda (Crustacea)	2	0	0
Isopoda (Crustacea)	4	3	75
Amphipoda (Crustacea)	10	9	90
Chironomidae (Insecta)	49	0	0
Ephemeroptera (Insecta)	6	0	0
Odonata (Insecta)	26	0	0
Trichoptera (Insecta)	22	0	0
Gastropoda (Mollusca)	72	56	78
Bivalvia (Mollusca)	13	1	8
''Osteichthyes'' (Chordata)	17	7	41
Total number (Animalia)	~1,489 (586)	329 (182)	36[a] (34[a])

Adapted from Albrecht and Wilke (2008); total values for native animals (Metazoa) are given in parentheses; n.a. – information not available; [a] – adjusted rate based on only those groups for which the number of endemic species is known; [b] – data following Levkov and William (2012).

Table 2 Numbers of taxa recorded from both Lake Ohrid and Lake Prespa and their watersheds (source: Levkov & Williams, 2012)

Total	919
Lake Ohrid	**789**
Lake Prespa	**244**
Watershed	**80**
Lake Ohrid (Endemic)	**117**
Lake Prespa (Endemic)	**33**
Total endemic	**124**
Relict species	**15**

Table 3 Comparison of numbers of diatom taxa in ancient or large lakes (source: Levkov & Williams, 2012)

	Nº of Taxa	Nº of Endemic Taxa	% endemism
Lake Ohrid	789	132	16.7
Lake Baikal	450	148	32.9
Lake Tanganyika	474	30	6.3
Lake Hövsgöl	373	1	0.3
Great Laurentian Lakes	1488	0	0

Currently there is no comprehensive and systematic review of the distribution of the endemic species in the Albanian part of Lake Ohrid and its watershed. Some of the available information has been compiled by Shumka in the preparation of this report and is presented in the following subsections

C.1.1.1 Endemic species in the Albanian part of the Lake Ohrid region

Porifera: According to Shumka (2015), there is very little contribution from Albanian sources towards knowledge of Spongia species of Lake Ohrid. Dhora (2011) in her register of invertebrates mentions records of five species, referring to Arndt (1937) and Hadzisce (1953). The lake is inhabited by five freshwater sponges, four of them (80%) endemic. The endemic genus Ochridospongia is represented with two species in Lake Ohrid. The rounded sponge Ochridospongia rotunda (Arndt, 1937) lives in deeper zone, lacking a gemmule stadium in its life cycle. That leaded the authors to propose its relictary status with a tertiary origin (Gilbert and Hadzisce, 1977). They also described *O. interlithonis* in (Gilbert and Hadzisce, 1984). In addition the *Ochridospongilla stankovici* and *Spongilla stankovici* ate two other endemic species. The only non-endemic species with lake Ohrid is Eunapius fragilis (Leidy, 1851), that can be found in other Balkan lakes.

Phylum Mollusca: based on recent publications and reviews for the Albanian side of the Lake Ohrid there is a list of 45 Gastropoda and 13 Bivalvia species (Dhora, 2012; 2014). According to Shumka (2015), there are no studies regarding terrestrial mollusks on Albanian side of the Lake Ohrid region. 31 species of gastropods are considered as endemic (68.8%), while the rate of endemicity among Bivalvia is 8%. 11 species in the European Red List are considered as Critically Endangered, 16 species as endangered and 19 species as vulnerable. The following aquatic gastropods are recognized as strict local endemics restricted to the Lake Ohrid littoral zone: Orientalina curta kicavica Radoman, 1973; Ohridohauffenia minuta Radoman, 1955; Gyraulus crenophilus Hubendick & Radoman, 1956; Ohridohoratia pygmaea Westerlund, 1902; Ohridohauffenia sanctinaumi Radoman, 1964; Polinskiola polinskii Radoman, 1960; Ohrigocea stankovici Hadziče, 1956; Pyrgohydrobia sanctinaumi Radoman, 1955; Ohridopyrgula macedonica macedonica Brusina, 1896; and Gyraulus fontinalis Hubendick & Radoman, 1956. The freshwater mollusks of Lake Ohrid 41.4 % of the national species list, making the region as one of the most important for the mollusks biodiversity and conservation needs.

Phylum Annelida: Berqiraj *et al.* (2013 in NIVA, 2013) in their report for macrozoobenthos list the endemic Eiseniella ochridana ochridana Cernosvitov, 1931.

Phylum Arthropoda: in the Check list of Albanian Fauna (Dhora, 2010; 2011) for the Lake Ohrid region are listed 52 species of Ostracoda (Crustacea). Among them there are 33 endemic species, making the group with highest rate of endemicity (63%). Species Paralymnocythere ochridense (Klie, 1934), Candona hartmanni Petkovski, 1969 and Candona sketi Petkovski (unpublished) are considered as hosts of springs areas including the Tushemisht and Driloni. According to Petkovski (2009), the species Paralymnocythere ochridense is not only a local endemic species, but also a living fossil, since fossil remnants of this species have been ascertained in the soil layers of the Metohija Valley (a former ancient lake). The Malacostraca Crustaceans that belong to the orders Amphipoda (Freshwater Shrimps) Isopoda (Water Lice) and Decapoda (Freshwater Crayfish) are represented by 16 species in the region. The order Amphipoda is represented by 10 species. The rate of edemicity is 90%, where can be mentioned the following species: Gammarus ochridensis ochridensis (Schaferna, 1925); Gammarus triacanthus prespensis (Karaman S et G., 1959); Niphargus maximus petkovskii Karaman, 1963; Niphargus ohridanus fontophilus Karaman, 1943; Niphargus sanctinaumi Karaman, 1943 and Niphargus

stankoi Karaman, 1973 are local endemics, with distribution range restricted to the Ohrid Lake watershed. The Decapoda group according to Petkovski (2009) is represented by the freshwater shrimps: Gammarus rambouseki (Karaman, 1931) and Niphargus pancici pancici Karaman, 1929. These species are not reported as common for the Albanian part of the watershed. The Iispoda is represented with 4 species out of wish 3 are endemic to lake Ohrid (75%).

Fish fauna: an exact estimate of the actual fish diversity and degree of endemism in Lake Ohrid is difficult, partly due to unresolved taxonomic status of many of the native species. Most often a total number of 17 native fish species (2 species of Salmonidae, 12 species of Cyprinida, 2 species of Cobitidae, and 1 species of Angullidae) are given with 10 of them being endemic (Albrecht and Wilke, 2008). Following the recent general and molecular data (Sanda, 2007; 2008; Talevski *et al.*, 2009; Snoj *et al.*, 2009; Markova *et al.*, 2010), currently it is estimated that 20 native and 4 introduced fish species live in Lake Ohrid and the following 7 (33.3%) are considered endemic: Salmo ohridanus (Steindachner, 1892), Salmo aphelios (Kottelat, 1997), Salmo balcanicus (Karaman, 1928), Salmo letnica (Karaman, 1924), Salmo lumi (Poljakov, Filip & Basho 1958), Barbatula sturanyi (Steindachner, 1892), and Gobio ohridanus, (Karaman, 1924). Five other species Alburnus ohridanus, Rutilus ohridanus and Chondrostoma ohridanus, Scardinius knezevici, Cobitis ohridana are already considered as sub-endemic species to the Ohrid Drin sytem, whereas. Alburnus scoranza and Barbus rebeli are considered as Balkan endemics. According to the most recent research, there are 21 native and 7 introduced fish species in Lake Ohrid. Among these are included 7 endemic species (33,3%): S. ohridanus Steindachner 1892, S. aphelios, Kottelat,1997, S. balcanicus Karaman, 1928, S. letnica Karaman, 1924, Salmo lumi Poljakov, Filip & Basho 1958, Barbatula sturanyi (Steindachner, 1892), and G. ohridanus, Karaman, 1924 (Talevski *et al.* 2015).

In conclusion, following the current knowledge on biodiversity of Lake Ohrid it can be concluded that it represents a superlative natural phenomenon, providing refuge for numerous endemic and relict freshwater species of flora and fauna dating from the tertiary period. As a deep and ancient lake of tectonic origin, Lake Ohrid has existed continuously for approximately two to three million years. Its oligotrophic waters conserve over 330 species of plants and animals unique to the lake, including algae, sponges, turbellarians, flatworms, snails, crustaceans and fish. The analysis presented here reveals that Lake Ohrid can be objectively identified as a superlative natural phenomenon. Following the 2011 edition of Preparing World Heritage Nominations resource manual: "…'superlative natural phenomena', can often be objectively measured and assessed (e.g. deepest canyon, highest mountain, largest cave system, highest waterfall). In that sense, Albrecht and Wilke's (2008) statement that Lake Ohrid is probably by far the most diverse lake in the world taking surface area into account is providing such an objective measure.

C.1.2 Other natural value of the Lake Ohrid region

The identification of other natural values of the Lake Ohrid Region in Albania was aided by the following set of criteria:

- Outstanding examples of natural, scenic, geological, scientific, ecological, floral, faunal and recreational/nature-based tourism values, including short justification for each attribute identified;
- Areas essential for protecting the ecological integrity of Lake Ohrid, including areas critical for maintaining water flow and quality, including short justification for each attribute identified;
- Areas and resources that are valuable to local communities (economically, culturally or in other ways) using the ecosystem services approach, including short justification for each attribute identified;
- Habitat types of conservation interest (globally, nationally and at the European level, as identified by the EU Habitats Directive and the Bern Convention);
- Rare and endemic plants and animals (relict species, stenoendemic species, species endemic to Albania or the Balkans), including comments on their uniqueness (e.g. unique ecological adaptations, distinct spatial and taxonomic patterns, distinct phylogenetic position, etc.);
- Threatened species at local, national, regional and global levels identified against a set of criteria, including the IUCN Red List of Threatened Species (Global, European, and regional), annexes to the

Birds Directive and Habitats Directive of the EU, the Bern Convention, relevant national legislation and other relevant criteria (e.g., draft national red lists).

Following the above mentioned criteria it can be mentioned that Lake Ohrid also provides invaluable archives of tectonic, climate, environmental, and evolutionary histories (Albrecht *et al.* 2010). Recently, Lake Ohrid has been recognized as a site of global importance for longterm palaeoclimate reconstruction. With its long sediment record and key geographic location between the Mediterranean and Western Europe it is increasingly used to test hypotheses concerning biodiversity and the evolution of endemism in ancient lakes (Reed *et al.* 2010).

Following the variety of criteria for species of international and national conservation values, Shumka (2015) identified 44 taxa of invertebrates (see Annex VIII), 21 fish species (see Annex IX), 6 amphibians (see Annex X), 13 reptiles (see Annex X), 137 birds (see Annex XI), 21 mammals (see Annex XII), and 61 vascular plants of conservation importance (see Annex XIII) at global, international (EU) and national level (Albania). An overview of the total number of species conservation importance is given in the Table 4 (see below). Furthermore, according to Shumka (2015), Lake Ohrid is considered as a Wetland of international importance due to the high number of wintering palaearctic water birds on the lake. In addition, there is a number of terrestrial habitat types in the Lake Ohrid region which are considered threatened in the European Union (see Annex XIV).

The rich and exceptional diversity of Lake Ohrid also has significant value for the local communities both instrumental and intrinsic. These values are best explored by the concept of ecosystem services. There are several contemporary conceptual frameworks that link biodiversity and the ecosystems they support and human well-being through the concept of the use-value of ecosystem services. For instance, the conceptual framework (see Figure 4) elaborated by the Millennium Ecosystem Assessment project team (MEA; Alcamo and Bennett 2003, Hassan *et al.* 2005) links ecosystem services to human well-being through four major constituents: (1) security (personal safety, secure resource access, and security from disasters); (2) basic material for a good life (adequate livelihoods, sufficient nutritious food, shelter, and access to goods); (3) health (strength, feeling well, and access to clean air and water); and (4) good social relations (social cohesion, mutual respect, and the ability to help others). The relationships between ecosystem services and human well-being in the MEA model are mediated by socioeconomic factors; the greater the opportunity to purchase a substitute for degraded ecosystem service the higher the potential for mediation (see Figure 4).

Table 4 Overview of the total number of species conservation importance in the Lake Ohrid region

Taxonomic group	HD Annex II	HD Annex IV	Birds Directive	Bern (III)	IUCN Red List	Albanian Red List	Endemism
Invertebrates	17	18			CR: 11; EN:17; VU: 27		68 (local)
Fishes	1	1		2	5		10 Lake Ohrid; 2 Ohrid-Drin-Skadar system; 2 Balkan
Amphibia		6			1		4 Balkan endemics
Reptiles	5	7			3	CR: 1	5 Balkan
Birds			57		4	CR: 3: EN: 5; NT: 1	
Mammals	11	18			1		4 Balkan
Plants	6	6		1			6

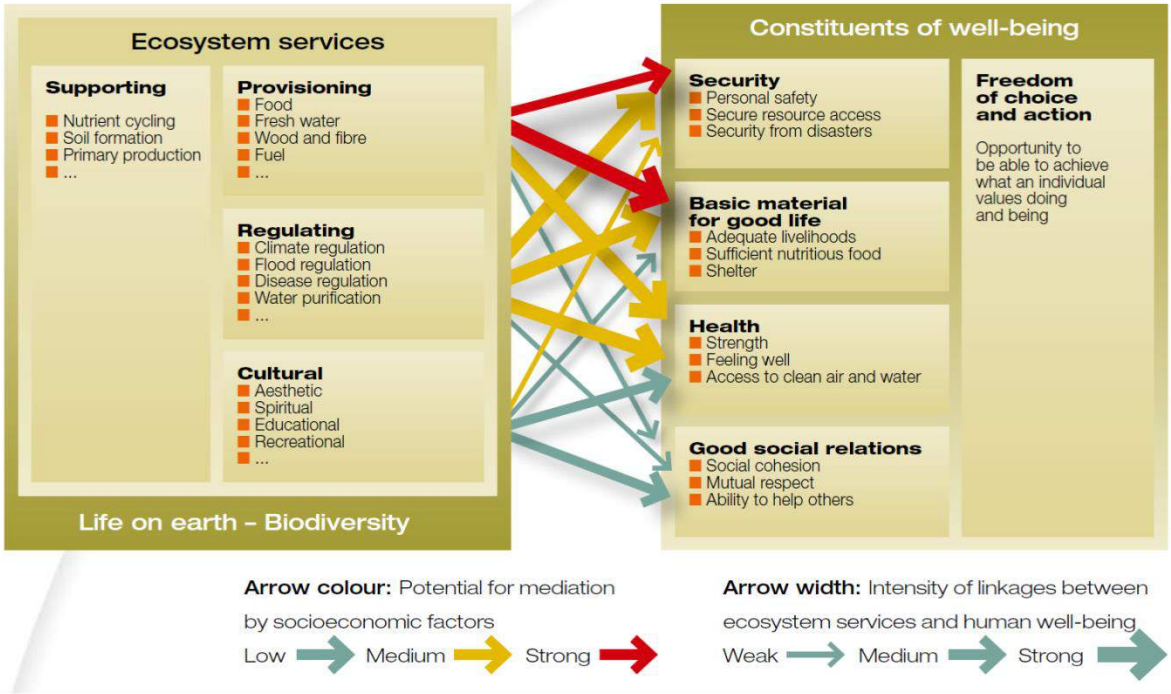

Figure 4 The Linkages between Ecosystem Services and Human Well-being (*source*: Hassan *et al.* 2005)

Shumka (2015) estimated that the annual value of ecosystem goods and services in the Albanian part of the Lake Ohrid region at LOR is currently €. 1.97 million (see Table 5). Shumka (2015) also assessed the value of a number of geological and geomorphological features in the Albanian part of Lake Ohrid watershed against a set of criteria, such as Scientific & educational values, Ecological & aesthetic values, cultural and economic values (see Annex XV).

Table 5 The present annual economic value of ecosystem services in the Albanian part of Lake Ohrid region (*source*: Shumka, 2015)

Type of value	Ecosystem Service	Approach	Annual value (€)
Direct use	Fishing	Market values, simplified travel cost	1,004,129.39
	Hay	Official values	16,417.92
	Sand	Market value	65,412.00
	Wood and Timber	Official values	67,311.83
	Medicinal plants	Market value	359,856.63
	NTFP	Market value	256,380.65
	Research possibilities	Simplified travel costs	3,024
Non direct use	Spawining habitats	Replacement cost,	202,365.00
Non use	National and Global biodiversity significance	n.a.	n.a.
		TOTAL	1974897,42

C.2 Cultural heritage values and resources

If it seems acknowledged that the whole Lake Ohrid Region features the same sets of natural values, from a historic –cultural perspective, while the region is likely to have experienced similar patterns of development of human occupation and cultural influences in different epochs, ascertaining whether it could be considered one single homogenous region may lead to more nuanced responses, in relation to the subsequent epochs and the aspects considered (e.g., administrative, political, socio -economic, religious, ethnic, linguistic, etc.).

A clearer idea of the specificity of this region as a whole, beyond the boundaries of present-day nation –states, would require an exercise of 'total history' in which the Lake Ohrid Region becomes the object of the study and

in which all aspects of human activities, their interaction with the environment and with other human communities / societies is examined throughout the centuries.

So far, it seems that historic and archaeological studies have been carried out within the boundaries of nation – states which border each other in this region - only recently transboundary programmes in archaeological investigations (e.g., transboundary archaeological campaigns in southern Albania and northern Greece); comparative studies on archaeological findings have been initiated and these are yielding interesting results as evidence of phenomena of human occupation and migration waves in prehistoric epochs concerning areas well beyond the current nation-state boundaries have been brought to light.

However, it is exactly this type of studies that could assist in assessing to what extent the LOR could be considered one region and its Macedonian and Albanian parts share the same set of cultural values and which could be the attributes that would make this intelligible.

This assessment represents in fact the core moment in any proposal for World Heritage property extension. The process implies assessing whether and to what extent an area proposed for extension –in this case the Albanian side of the Lake Ohrid Region –shares common/ comparable sets of values that make up the Outstanding Universal Value of the property already inscribed on the World Heritage List. This evaluation is accompanied by the identification of the relevant attributes that convey these values, make them evident and understandable and could complement attributes of the World Heritage property in extending, amplifying, or exemplifying the Outstanding Universal Value in a specific manner. Density of attributes, conditions of integrity and authenticity are crucial benchmarks for the delineation of the boundaries of the proposed extension.

In case of extensions, the proposed area should justify the criteria that were used for the inscription of the original nomination and explanation of how they might apply to the proposed extension should be provided.

In case of limited extensions, the proposed area might amplify or exemplify specific aspects of the Outstanding Universal Value and of the criteria although criteria may be held anyway valid.

Therefore, the first exercise to be done is the careful analysis of the Justification for inscription of the property already inscribed on the World Heritage list and, in this specific case, the Retrospective Statement of Outstanding Universal Value, adopted by the World Heritage Committee at its 39th session (Bonn, 2015), is of crucial importance. Below are quoted excerpts from the Retrospective Statement of Outstanding Universal Value of the World Heritage property "Natural and cultural heritage of the Ohrid region" which are relevant for framing the extension proposal. Some parts of the text have been highlighted (in italics) to indicate aspects of OUV which find expression through tangible attributes also on the Albanian side of Lake Ohrid.

Extract of the Statement of Outstanding Universal Value:
NATURAL AND CULTURAL HERITAGE OF THE OHRID REGION, The former Yugoslav Republic of Macedonia (N/C 99)

Brief Synthesis

The Lake Ohrid region, a mixed World Heritage property covering 83,350 ha, was inscribed for its natural values in 1979 and for its cultural values a year later. Lake Ohrid is a superlative natural phenomenon, providing refuge for numerous endemic and relict freshwater species of flora and fauna dating from the tertiary period. As a deep and ancient lake of tectonic origin, Lake Ohrid has existed continuously for approximately two to three million years. Its oligotrophic waters conserve over 200 species of plants and animals unique to the lake, including algae, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish including two species of trout, as well as a rich birdlife.

Situated on the shores of Lake Ohrid, the town of Ohrid is one of the oldest human settlements in Europe. Built mostly between the 7th and 19th centuries, Ohrid is home to the oldest Slav monastery (dedicated to St. Pantelejmon) and more than 800 Byzantine-style icons of worldwide fame dating from the 11th century to the end of the 14th century. Ohrid's architecture represents the best preserved and most complete ensemble of

ancient urban architecture of this part of Europe. Slav culture spread from Ohrid to other parts of Europe. *Seven basilicas have thus far been discovered in archaeological excavations in the old part of Ohrid. These basilicas were built during the 4th, 5th and beginning of the 6th centuries and contain architectural and decorative characteristics* that indisputably point to a strong ascent and glory of Lychnidos, the former name of the town. The structure of the city nucleus is also enriched by a large number of *archaeological sites, with an emphasis on early Christian basilicas, which are also known for their mosaic floors*. Special emphasis regarding Ohrid's old urban architecture must be given to the town's masonry heritage. In particular, Ohrid's traditional local influence can be seen among its well-preserved late-Ottoman urban residential architecture dating from the 18th and 19th centuries. *The limited space for construction activities has led to the formation of a very narrow network of streets*.

Although the town of Struga is located along the shores of Lake Ohrid, town life is concentrated along the banks of the Crn Drim River, which flows out of the lake. The existence of Struga is connected with *several fishermen settlements on wooden piles situated along the lake shore. A great number of archaeological sites testify to origins from the Neolithic period, the Bronze Age*, the Macedonian Hellenistic period, the Roman and the early Middle Age period.

The convergence of well-conserved natural values with the quality and diversity of its cultural, material and spiritual heritage makes this region truly unique.

Criterion (i): The town of Ohrid is one of the oldest human settlements in Europe. As *one of the best preserved complete ensembles encompassing archaeological remains from the Bronze Age up to the Middle Ages*, Ohrid boasts exemplary religious architecture dating from the 7th to 19th centuries as well as an urban structure showcasing vernacular architecture from the 18th and 19th centuries. All of them possess real historic, architectural, cultural and artistic values. The concentration of the archaeological remains and urban structures within the old urban centre of Ohrid, along the coast of Lake Ohrid as well as the surrounding area *creates an exceptional harmonious ensemble, which is one of the key features that make this region truly unique.*

Criterion (iii): The property is a testimony of Byzantine arts, displayed by more than 2,500 square metres of frescoes and more than 800 icons of worldwide fame. The churches of St. Sophia (11th century), Holy Mother of God Perivleptos and St. John Kaneo notably display a high level of artistic achievements in their frescoes and theological representations, executed by local as well as foreign artists. Ancient architects erected immense basilicas, which were to serve as models for other basilicas for centuries. *The development of ecclesiastical life along the shores of the lake, along with its own religious architecture*, frescoes and icons, *testifies to the significance of this region as a religious and cultural centre over the centuries*.

Criterion (iv): The Lake Ohrid region boasts the most ancient Slavonic monastery and the first Slavonic University in the Balkans – the Ohrid literary school that spread writing, education and culture throughout the old Slavonic world. The old centre of Ohrid is a uniquely preserved, authentic ancient urban entity, adjusted to its coastal lake position and terrain, which is characterised by exceptional sacred and profane architecture. The architectural remains comprising a forum, public buildings, housing and sacred buildings with their infrastructure date back to the ancient town of Lychnidos (the former name of the town). *The presence of early Christian architecture with the lofty basilicas from 4th to 6th centuries*, together with the Byzantine architecture with a

great number of preserved sacred buildings of different types from 9th to 14th centuries, is of paramount importance and contributes to the unity of the urban architecture of the city.

Criterion (vii): *The preservation of Lake Ohrid dating from pre-glacial times is a superlative natural phenomenon. As a result of its geographic isolation and uninterrupted biological activity, Lake Ohrid provides a unique refuge for numerous endemic and relict freshwater species of flora and fauna. Its oligotrophic waters contain over 200 endemic species with high levels of endemism for benthic species in particular, including algae, diatoms, turbellarian flatworms, snails, crustaceans and 17 endemic species of fish. The Lake Ohrid region also harbours a rich birdlife.*

Integrity

Despite a minor modification in 2009, the current boundary of the property still does not fully encompass all of the features that convey the property's Outstanding Universal Value. Most notably in relation to its natural values, the integrity of the property is limited since only two-thirds of Lake Ohrid located in the former Yugoslav Republic of Macedonia as well as a small part of the lake's basin have been inscribed. The integrity of the property could be strengthened by extending it to the remaining one-third of Lake Ohrid located in Albania and including other areas essential to the protection of the lake's watershed, in order to adequately protect the lake's exceptional biodiversity. Main threats to the integrity of the property include uncoordinated urban development, increasing population, inadequate treatment of wastewater and solid waste, and tourism pressure. In addition, pollution from increased traffic influences the quality of the water, which leads to the depletion of natural resources.

The integrity of the property suffered to some extent, as several houses built at the end of 19th century were demolished in order to exhibit the excavated remains of the Roman Theatre. The overall coherence of the property, and particularly the relationship between urban buildings and the landscape, is vulnerable to the lack of adequate control of new development.

Authenticity

The town of Ohrid is reasonably well preserved, although uncontrolled incremental interventions have impacted the overall form of the monumental urban ensemble as well as the lakeshore and wider landscape. These are also vulnerable to major infrastructure projects and other developments.

Concerning the religious buildings, important conservation and restoration works have been carried out since the 1990s. Conservation works on the monuments in the region have been thoroughly researched and documented, but some have impacted the property's authenticity. The icons and frescoes are in good condition and kept in the churches.

The originally residential function of some buildings has changed over time, as have some of the interior outfitting of residential buildings, which were altered to improve living conditions. While reconstructions often used materials identical to those used at the time of construction, new materials have also been used on occasion, which presents a threat for the authenticity of the property.

D. Current state of conservation of heritage values and resources

D.1 Natural values and resources

The ancient Lake Ohrid is threatened by a wide variety of human impacts. Following the information collected during the implementation of the first transboundary project on the conservation of Lake Ohrid and its watershed, Watzin *et al.* (2003) observed that population growth and development have impacted the lake in many ways. The most significant threats according to these authors include fishing pressures, destruction of the reed beds and other natural habitats around the shoreline of the lake, and the introduction of pollutants, especially phosphorus, into the lake water (Watzin *et al.*, 2003).

Phosphorus is stimulating algae growth that threatens the oligotrophic conditions in the lake which in turn is important for the conservation and evolution of the lake's unique biodiversity. Matzinger *et al.* (2004) conducted chemical analysis of lake sediments and found out that eutrophication of Lake Ohrid is progressing; households were identified as the main anthropogenic source of phosphorus, followed by agriculture. In another paper Matzinger *et al.* (2007) conclude that although the lake is still oligotrophic the global warming may exacerbate the negative effects of eutrophication. It is expected that with the rising temperature the vertical mixing of water will decrease and that complete deep convection will be less frequent. According to these authors, the changes in the vertical mixing may affect the levels of dissolved oxygen at greater depths and subsequently affect the unique endemic bottom fauna. Given the predicted atmospheric warming of 0.04 $^{o}C\ yr^{-1}$ they have calculated that the phosphorus load must decrease by 50% in coming decades in order to keep the concentrations of dissolved oxygen falling below currently observed minimal levels. They expect that even with such a reduction in phosphorus load, anoxic conditions would nonetheless start to develop toward the end of the century if the rate of warming follows predictions (Matzinger *et al.*, 2007).

More recently, Kostovski *et al.* (2010) used field surveys, monitoring data, publications, and expert interview data to assess threats to biodiversity of Lake Ohrid. They have compiled information on threats to both specific taxa and the ecosystem of Lake Ohrid, and assessed them using the classification of direct threats to biodiversity developed by IUCN and Conservation Measures Partnership. More specifically, they used the scoring scheme developed by the Global International Waters Assessment (GIWA) in which there are four impact scores ranging from 0 (no impact) through 1 (low impact), 2 (moderate impact) to 3 (significant impact). Following this system, the authors have also produced scores for each of the 11 threat classes by averaging the scores for the individual threats. According to this system, the authors have identified seven threat classes to have moderate and three to have severe impact on the biodiversity of the lake. The latter included "energy production and mining," "biological resource use," and "pollution" (see Table 6 below). Following their assessment of threats, the authors identified the following major conservation concerns for Lake Ohrid: (1) watershed impacts, (2) agriculture and forestry, (3) tourism and population growth, (4) non-indigenous species, (5) habitat alteration or loss, (6) unsustainable exploitation of fisheries, and (7) global climate change (for details see Annex XVI).

With respect to tourism and population growth Kostovski *et al.* (2010) consider that the growing number of both permanent residents and tourists is a major problem in the Lake Ohrid region. A rapid expansion of settlements and an explosion of the population have been observed on the Albanian side, in particular in Pogradec. Across the border, in particular around the towns of Ohrid and Struga Also, the number of weekend houses, hotels, beaches with tourist facilities, sports recreational areas, campsites, and resorts is rising rapidly. The authors conclude that "these developments are not controlled by any western European standards and many impacts on the lake ecosystem will only become evident at a later date" (Kostovski *et al.*, 2010). The uncontrolled urban development is alarming in particular due to the increased population density on the slopes in the catchment and that the pristine coastal areas are increasingly under pressure due to the construction of often illegal residential facilities.

Kostovski *et al.* (2010) conclude that although Lake Ohrid has experienced major natural environmental changes and fluctuations throughout its history, the magnitude of anthropogenic impact seen in the past years is a source of concern. The authors see evidence for a "creeping biodiversity crisis" due to the anthropogenic impacts that have accumulated over the last decades.

Table 6 Assessment of threats to Lake Ohrid using the IUCN-CMP classification of threats (source: Kostovski *et al.*, 2010)

Threat Class	Threat	Impact	Average Impact
1 Residential & Commercial Development	1.1 Housing & Urban Areas	3	2 (2.33)
	1.2 Commercial & Industrial Areas	1	
	1.3 Tourism & Recreation Areas	3	
2 Agriculture & Aquaculture	2.1 Annual & Perennial Non-Timber Crops	2	2 (1.75)
	2.2 Wood & Pulp Plantations	1	
	2.3 Livestock Farming & Ranching	2	
	2.4 Marine & Freshwater Aquaculture	2	
3 Energy Production & Mining	3.1 Oil & Gas Drilling	0	3
	3.2 Mining & Quarrying	3	
	3.3 Renewable Energy	0	
4 Transportation & Service Corridors	4.1 Roads & Railroads	2	2
	4.2 Utility & Service Lines	0	
	4.3 Shipping Lanes	0	
	4.4 Flight Paths	0	
5 Biological Resource Use	5.1 Hunting & Collecting Terrestrial Animals	0	3
	5.2 Gathering Terrestrial Plants	0	
	5.3 Logging & Wood Harvesting	0	
	5.4 Fishing & Harvesting Aquatic Resources	3	
6 Human Intrusions & Disturbance	6.1 Recreational Activities	3	2
	6.2 War, Civil Unrest & Military Exercises	0	
	6.3 Work & Other Activities	1	
7 Natural System Modifications	7.1 Fire & Fire Suppression	2	2 (2.33)
	7.2 Dams & Water Management/Use	2	
	7.3 Other Ecosystem Modifications	3	
8 Invasive & Other Problematic Species & Genes	8.1 Invasive Non-Native/Alien Species	2	2
	8.2 Problematic Native Species	0	
	8.3 Introduced Genetic Material	2	
9 Pollution	9.1 Household Sewage & Urban Waste Water	3	3 (2.6)
	9.2 Industrial & Military Effluents	3	
	9.3 Agricultural & Forestry Effluents	3	
	9.4 Garbage & Solid Waste	3	
	9.5 Air-Borne Pollutants	1	
	9.6 Excess Energy	0	
10 Geological Events	10.1 Volcanoes	0	0
	10.2 Earthquakes/Tsunamis	0	
	10.3 Avalanches/Landslides	0	
11 Climate Change & Severe Weather	11.1 Habitat Shifting & Alteration	3	2 (2.25)
	11.2 Droughts	3	
	11.3 Temperature Extremes	2	
	11.4 Storms & Flooding	1	
	11.5 Other impacts	0	

More recently, based on the results of their analysis of ostracode valves and ostracode diversity in Lake Ohrid, Lorenschat *et al.* (2014) conclude that the "living conditions for the endemic species in Lake Ohrid have become less favourable in the northern part of the lake, which might threaten the unique flora and fauna of Lake Ohrid."

In his report on Baseline Assessment of Natural Attributes of the Lake Ohrid Region – Albania, Shumka (2015) analysed the constraints to effective conservation and management of natural resources in Albania. This analysis gives additional information concerning the conservation status of the natural values in the Albanian part of Lake Ohrid and is presented below integrally.

Fungi are under the biggest threat due to habitat loss and pollution. At the present time there is no definitive scientific attitude about the exact consequences of collecting mushrooms for commercial purposes. They may be under threat in some areas due to over collecting. The long-term effects of removing such large quantities of fruit bodies of a small selection of species are as yet unknown. But some experts believe this will eventually lead to a reduction of fruit body productivity by the species concerned, restriction of the colonization of new areas, genetic impoverishment, and shifts in the species composition of forests, resulting in edible species being replaced by inedible species. The methods of harvesting frequently appear to involve picking of very young fruit bodies, raking of litter and soil, intensive trampling and soil erosion. These methods may damage the habitats of the edible fungi, perhaps in an irreversible way. Intensive harvesting has many other negative side effects, such as damage to populations of other, inedible mushrooms and of higher plants, the deposition of waste and disturbance to wild life. Intense trampling and raking of soil litter destroy and hamper mycelial development and may locally be fatal. These effects are threatening other species of plants and animals native to the forest. The most intensively harvested mushrooms in LOR (including Prespa NP) are Boletes and Chanterelles. All of these belong to the group of mycorrhizal fungi, which live in obligate symbiosis with the trees - to the benefit of tree growth and, hence, timber production. Most forest trees will not survive without their specific mycorrhizal mushrooms. As a consequence, sustainable forest management should include appropriate management of the mushrooms.

Forest resources in Albania are in a very vulnerable condition. A considerable loss of forest area already took place before ’90, due to agricultural expansion, but also industrial and demographic expansion. Forest depletion has continued since then, mainly because of persistent poverty in rural areas (Naka *et al.*, 2000) and lack of alternatives, mainly concerning energy. In entire LOR, especially in the mountainous zones, forest serves as a source of livelihood, goods and income. First, the firewood collected by villagers, without mentioning a good part of the population in urban areas which are supplied with firewood, is vital for heating and cooking almost year round. Firewood is an important commodity for the area (with particular heavy winter) because it is used for heating by a majority of households, and in both rural and urban areas it is also used for cooking. Nationally it accounts today 36% of energy demands for heating and 12% of energy for cooking (REC, 2012). This means that firewood is still a very important energy source and it will continue to be so for many decades ahead. In case of PAs it is not only used by the locals, but the illegal trading to urban centres and illegal cuttings from the residents outside PAs increases the pressure to integrity of the forest ecosystems. The management of forest resources in the country has been weakened by the poor legal enforcement, frequent changes in the organization of the forestry service, and contested use and ownership rights.

Mollusks: the distributional data records for mollusks (both gastropods and bivalves) appeals on the importance of coastal diverse habitats including vegetation. Not only should such vegetation management include specific structural features, but it should also provide vegetation at the air–water interface (in case of wetlands on the southwestern reach) to allow livings to reach the surface in ditches that appear typically to have low oxygen concentrations. Some of the conflicts in effectiveness conservation are as follows:

- Environmental degradation: the environmental threat caused by the coastal degradation (due to road extension, solid waste, sewages, agriculture run-off etc). The loss of specific habitat due to siltation is common and is a natural threat to the open part of the water ecosystem. In case of Albanian side of the lake, extension of the road lead to serious damage of the eulittoral (defined as the area between the highest and the lowest water level and is thus subjected to natural water level fluctuations) and the infralittoral (the area containing emerged macrophytes, and the sublittoral that is characterized by the occurrence of floating or submerged vegetation). These sections are

vital for conservation of mollusks. Construction and Sand excavation at the southwestern side is leading to alteration of habitats.

- Aquaculture, livestock and agriculture farming: the accelerated aquaculture within basin (including very important wetland complex in Driloni springs), expansion of agriculture and manures discharge are affecting the water quality.

Lakes fisheries policy and practice in Albanian side of the Lake is the subject of considerable debate, reflecting the great importance of these fisheries. There are several concerns that can be identified. Over-fishing: The fisheries are seen to be at risk from over-fishing. This is a natural inference from the reduction in total catches when there is no sign of reduced fishing effort. In addition, there is particular concern that the stock of important trout fish has been depleted. The National fishery policy has two approaches (stocking and conservation) and these two approaches are interrelated; the stocking of Ohrid trout increases arguments to reduce early stage fishing, in order to let more of the trout grow to a reasonable size before capture. Environmental degradation: Additional environmental threat to the capture fisheries is thought to be coastal degradation (due to road extension, solid waste, sewages, agriculture run-off etc.). The loss of fish habitat due to siltation is common and is a natural threat to the open part of the water ecosystem. Poverty and employment effects: In the long transitional period (more than two decades) with a considerable rate of unemployment, fishery has been considered as an easiest option and that led to enormously increase of fishermen number (both registered and non-registered). The fishery inspectorate in Pogradec and FMO indicate that concern.

Birds: The objectives for an effective bird conservation and management (both water and terrestrial) in the period before moratorium (March, 2014) has been affected by different conflicting issues. Unsustainable hunting and poaching: Within region there are different motivations for illegal hunting and poaching: economic, food source, recreation, trophy, thrill, culture and disagreement over conservation regulations. However, these have never been applied to the issue of illegal killing, trapping and trade of birds (easily recognizable before March 2014 in the lakeside, particularly in Lin).

Lack of awareness and consideration of human attitudes: While there has been considerable biological and legal work focused on bird conservation, there has been a lack of addressing the same issue from a human perspective. Land abandonment hampers terrestrial bird communities: In the last two decades due to movements of population from rural to urban centres, considerable land areas have been abandoned. Beside that, this issue has been poorly studied within the region, it is believed that this will threaten significant bird species. The causes of conflicts can be divided into four categories: (i) Demographic change; (ii) Natural resources competition; (iii) Developmental pressures and (iv) Structural injustices. The combination of demographic change and the limits to sustainable harvesting of renewable natural resources (forests, water bodies, fish, grazing areas, freshwater resources, wildlife and agricultural land) are often cited as the underlying cause of conflict over natural resources, both among community groups, and between community groups and outside public and private companies.

Additional information on the threats to Lake Ohrid was gathered during a SWOT Analysis workshop that was organized with local stakeholders in the Albanian part of the Lake Ohrid region, on 21 August 2015, in Pogradec, under the project Towards Strengthened Governance of the Shared Transboundary Natural and Cultural Heritage of the Lake Ohrid Region. The results of the SWOT analysis conducted by three working groups of participants are presented in Annex XVII. The most frequently mentioned threats by the participants of the working groups include:

- Agriculture: fragmentation, unsustainable practices, use of agro-chemicals, conversion of the riverbed in the region (river Çërravë); conversion of agricultural land for construction purpose;
- Fishery: overfishing and illegal fishing;
- Aquaculture: improper development of aquaculture, in particular at Drilon karst springs, that affects life cycle and reproduction of many endemic species;
- Forestry: illegal and unsustainable harvesting of wood fuel, forest fires and lack of alternatives for fuel energy;

- Waste management: lack of sewage water treatment in rural areas from Memlisht to Lin; there is no adequate collection, disposal and treatment of solid waste; contaminated of groundwater;
- Mining: continued and uncontrolled exploitation of quarries and mines; lack of mine reclamation measures;
- Erosion: high levels of erosion due to improper agricultural practices, unsustainable forestry;
- Unsustainable use of natural resources: quarries, mines, Illegal fishing, uncontrolled collection of medicinal plants, poor enforcement of laws and regulations;
- Urban planning: lack of development and urban plans; lack of integration of rural development and nature conservation, illegal and inappropriate construction, and uncontrolled population growth;
- Poverty and unemployment.

D.2 State of conservation of cultural heritage

Overall the cultural values and heritage on the Albanian side of the Lake Ohrid Region could be considered vulnerable and its state of conservation uneven.

This is due to different factors; primarily the lack of or low shared knowledge, understanding and recognition of the specificity of this Region, which is the result of geographic, historic, cultural and political factors that have shaped it throughout the ages.

This process of investigation, documentation and recognition, also through formal designations, and conservation intervention has been recently revived in the area, especially in the Korça district, and more recently also in Pogradec municipal territory. Despite recent efforts, that could be undertaken also thanks to financial resources that have been made available through EU or other donors' funding, to rehabilitate and to bring back to use historic neighbourhoods, in general built or archaeological heritage in public ownership suffers from poor maintenance and neglect, due to the lack of funds and sufficient numbers of professional staff. Built heritage in private ownership may be vulnerable to neglect but also to excessive care, resulting in inappropriate or fancy interventions, as well as to demolition, when land plots where heritage properties stand have development potential. This applies to buildings with historic or landscape value not formally designated as well as to archaeological resources not known or mapped.

The rural landscape is prone to urban encroachment in the vicinity of towns or more developed villages, while in more remote areas, poverty and lack of prospects favour emigration of the younger generations and prepare the ground for the abandonment of villages and farming activities, which ensure the maintenance of the territory.

The mission held in June did not allow the visit a number of formally protected properties in the Pogradec area, due to the difficult accessibility to the sites, therefore it has not been possible to ascertain the current conditions of these heritage places. However the schedules prepared by the ministry of culture provide information on recent conservation works and, in most cases, no intervention is mentioned either carried out or planned. In some cases these include photographs which make possible an indirect appraisal of their state and, in a number of cases, they appear in urgent need of maintenance and of interpretation strategy and infrastructure.

A systematic updated assessment of the state of conservation of the cultural heritage resources, especially of those already formally protected and of those inventoried is necessary in order to identify priority of intervention and define the most urgent needs to be addressed.

E. Legal & institutional framework/Protection and legislative designations

E.1 Natural heritage protection legislation and policy and responsible institutions

E.1.2 Institutional arrangement for natural resource management in Albania at national, regional and local leve

Natural resource management issues in Albania are dealt by the Ministry of Environment (MoE) and the Ministry of Agriculture, Rural Development and Water Administration (MARDWA), which are the main ministries responsible for the implementation of the environmental legal framework in Albania. These ministries, in close co-operation with related institutions are working to integrate the conventions and EU requirements into environmental legislation and policy. The organigram of the MoE is available at the following link: http://www.mjedisi.gov.al/al/ministria/organigrama. For the organizational structure of the MARDWA please visit: http://www.bujqesia.gov.al/al/ministria/struktura-e-ministrise.

The Ministry of Environment through the Directorate of Biodiversity and Protected Areas within the General Directorate of Environmental Policy is responsible for the formulation of policies on nature protection and development of strategic documents in the field. The cooperation is extended with other departments of the Ministry and the implementing institutions:

- National Environment Agency
- The Regional Forest Service Directorates
- State Inspectorate of the Environment
- National Agency of Protected Areas

In the field of nature protection, the Ministry of Environment cooperates with the Ministry of Agriculture, Rural Development and Water Management for agricultural biodiversity; the Ministry of Urban Development and Tourism related to decision-making on land use; the Ministry of Interior coordinates work on the management of game activities (recreational and touristic ones); the State Minister for Local Government and Decentralization in case of local management of natural resources in municipal ownership, as well as the General Directorate of Customs for international customs control on trade of endangered species of wild fauna and flora.

Through the Decision of Council of Ministers N^{o} 102Dt of 2 April 2015, the National Agency of Protected Areas and its regional agencies were created. NAPA aims to preserve and care for nature and biodiversity through management of protected areas network with national and international interest, collection and dissemination of information, environmental education and public awareness for protected areas and supporting the sustainable economic activities within these areas.

NAPA is a public legal body, under the Ministry of Environment. The operation of NAPA and the regional agencies of PAs will be implemented on the basis of internal regulations for the operation and organization of these institutions, approved by the Ministry of Environment, while their structure is approved by Order of the Prime Minister under the legislation in force. The agency has its own budget, which is approved by the MoE. Also, this institution may generate and administer incomes as a result of the private and recreational activities on site, or as a result of foreign or domestic donation. NAPA's activity lie on the entire territory of the Republic of Albania, according to the network of protected areas approved and those set to be adopted in the future. Its main tasks include:

- Management of the network of protected areas, natural habitats and species of semi-natural conservation interest under national laws and international conventions and agreements.
- Promote and support the collection and dissemination of information, environmental education and public awareness on protected areas.

- Support the development of sustainable economic activities within protected areas.

E.1.2 Protected areas

This section provides an overview of relevant national, regional and local-level policies and plans for natural resource management in the Lake Ohrid region. Most of the area within the watershed of Lake Ohrid in Albania is included in the Terrestrial/Aquatic Territory of Pogradec Protected Landscape (see Figure 2 above). The protected area was established on 18 February 1999 by DCM nr.80, and it includes the entire area covering the municipality of Pogradec. The area's land is state, communal and privatly owned. The DCM does not divide the protected area into zones therefore according to the Law "On protected areas" article 10, the following applies:

- Territories larger than 1000 ha, with harmonic landscape of well formed, with a developed characteristic relief, a variety of ecosystems, marine or terrestrial, with historical monuments, declared protected landscape
- In the protected landscape category the fourth level of protection is applied:
- Planting monoculture forests;
- Neutralization of waste and light fires outside designated points
- Distribution of animals and plants are not authentic;
- Hunting with poisoned food;
- Construction of highways, sailing canals and urban areas;
- Movement of transport means out roads and areas. This rule does not apply to state vehicles and agricultural and forestry, firemen, ambulances, veterinary services machinery and those of water management;
- Organization of racing cars, motorbikes and bicycles
- Activities that change land use, constructions, use of chemicals and pesticides, sewage treatment farms for areas larger than 2 ha and other activities not expressly prohibited by paragraph 2 of this Article may be exercised only after obtaining environmental permit and approved by the Council of Territory of the Republic of Albania.

The protected landscape is considered as one of the most important tourist sites, considering the natural and cultural values it has, as well as the combination of terrestrial and aquatic landscape. The protected landscape area encompasses 7 Nature Monuments:

- Biological Monuments
    - Cypress of Saint Mary Church
    - Sallkeni i Tushemishtit
- Geo Monument
    - Kamja Stone
    - Najazma Cave
    - Tectonic detachment fragment of Ohrid
    - Memlishti Cave
    - Hydro Monument
    - Driloni Springs

The law on protected areas introduces the concept of a management plan of the PA. Under Article 15/1 of the law of the PA, the Ministry of Environment, other state agencies and local government authorities in collaboration with third parties, prepare the management plans for each protected area. Article 17/3 of the Law on PAs, states that implementation of management plans can engage public and private institutions, legal entities, domestic or foreign, environmental nongovernmental organizations (applying the rules and procedures of tendering competition). While Article 20 of the same law, provides that the Ministry of Environment prepares the monitoring objectives for protected areas, governing the organization and the implementation of monitoring programs. The Ministry engages public or private institutions (in accordance with the rules of procedures of competing tenders). Therefore the law on PAs introduces the concept of the implementation of the management plans and monitoring programs also by private entities, not only from governmental institutions.

However it cannot be said that the conservation and management of a PA can be performed by private entities, since Article 3 point 15 of the Law on PAs in its definition for the administration of the protected area, cites that they are "state bodys in charge for storage and administration of a concrete protected area " which means that only governmental bodies can store and manage a PA. Despite the above limitations, certain elements of the environment can be delegated under Article 12/2 of the Law on PAs : "The management of the forest and forest resources, water and water resources, as well as other assets owned by the state, that is within a protected area, are executed by the administration of the conservation area. The administration performs these activities directly by its own or through an entity authorized by it." This law creates opportunities for supplying areas or protected areas administered by private entities, such as: breeding of wildlife within protected areas, as is the case of some activities in the PA as Rrushkull, Levan, etc. These entities are subject to the applicable legislation and tariffs for the use of state-owned land.

The first management plan, approved in 2014 (Order of Minister Nr. 2026, dated 31 December 2014), sets the following as the long-term management objectives for the protected landscape:

- Strengthen the protected area management system. Ensure that the protected area is managed in a correct way, involving the local stakeholders in a sustainable participatory process to contribute to the sustainable management of the area's resources maintaining a compatible equilibrium between nature conservation and human activities development.
- Increase habitats and biodiversity protection and conservation. Maintain the diverse habitats of the protected area, maintain the variety of fauna and the combination of aquatic and terrestrial ecosystems, ensure good water quality in the Pogradec Lake, clear water in rivers and streams and preserve the unique natural and biological processes and life support systems.
- Develop recreational and touristic uses. Provide for and manage recreational and cultural uses of the area, ensuring the coexistence of nature protection objectives and the development of various types of touristic activities.
- Develop sustainable agriculture and socio-economic activities. Ensure environmental health, economic profitability, and social and economic equity with the landscape area.
- Promote scientific research and education. Promote education, nature appreciation and scientific research on the biological, geophysical and cultural values of the protected areas.

Based on the vision and the long-term objectives, and taking into account the factors influencing the achievement of those objectives, the management efforts during period 2014- 2019 is to be focused on the following short-term objectives:

Strengthen the protected area management system

- Enforce the provisions of any existing national regulation and law to visitors and users of the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area.
- Increase the effectiveness of protected area management system by strengthening relevant institutions towards an effective law enforcement and prosecution service for violation of environmental requirements.
- Strengthen the co-operation among fishery, forestry, and other local stakeholders. The Management Committee should be the major forum for regular formal liaison between the relevant government and non-governmental agencies.
- Improve the existing legal framework.

Increase habitats and biodiversity protection and conservation

- Ensure that the diversity of species and the ecosystems processes in the protected area are not adversely affected by human activities.
- Promote the maintenance of high water quality to sustain the lake's habitat, prevent the degradation and deterioration of lake's shores and wetland ecosystems, terrestrial habitats, forests and grasslands.
- Foster broad community stewardship, and commitment to the conservation of species of specific level of protection.

Develop the recreational and touristic uses

- Provide for the operation of low impact tourism activities which add to the recreational and educational experience of protected area users.
- Ensure that tourist operations do not negatively impact on the ecological and cultural heritage values of the protected area.
- Ensure that tourism is carried out in an ecologically sustainable manner.

Develop sustainable agriculture and socio-economic activities

- Promote sustainable agriculture and farming.
- Promote ecologically and economically sound management of all grazing lands.
- Promote beekeeping, medical plant cultivation and sustainable livelihood.
- Support sustainable forestry.

Promote scientific research and education

- Encourage research that will provide knowledge of the values of the protected area and inform its management. Ensure that information from research is made available to managers of the Pogradec Terrestrial/Aquatic Territory Protected Landscape Area.
- Improve public awareness, understanding and appreciation of the environments of the protected area and the potential impacts of human activities on these environments.

The management plan also develops a proposal for the zoning of the Protected Landscape Area formulated in line with the Albanian legal framework requirements for protected areas zoning (see Annex XVIII). The specific features of the protected area and socio — economic activities of local protected area residents have been also taken into account in formulating the zoning proposal.

According to Decision no. 86, dated 11 May 2005 Management committees are organized at the local level and follow the implementation of management plans for areas that they cover. The management committee is composed of representatives of public and private institutions, where the protected areas is located, specifically by:

- representative of the Ministry of Environment;
- representative of the Ministry of Territory and Tourism;
- the representative of the municipality or municipalities in whose territory extends the protected areas;
- mayors in whose territory extends the protected areas;
- the representative of the district or districts, where lies the protected area;
- representative of the prefecture or the prefecture, which lies protected areas;
- the representative of the Regional Environmental Agency district, where lies the bulk of the area;
- Director of the Forest Service in the area;
- the representative of landowners when the territory of the protected area is private land;
- representatives of non-profit organizations, national or local level, active protection zone problems;
- members.

The Chairman of the management committee is representative of the Ministry of Environment. The administration of the PA plays the role of the technical secretariat of the management committee and is responsible for:

- preparation of the materials for the meeting of the management committee;
- notify the members for the next meeting;
- maintain the protocol of the meeting;
- prepare a report on the state of the protected area twice a year.

The Management Committee shall meet not less than twice a year, its meetings are open and they are valid when attended by no less than 2/3 of the members.

The entire territory within the boundaries of the Lake Ohrid watershed in Albania is included in the Transboundary Biosphere Reserve Ohrid-Prespa Watershed.

E.1.3 Forestry and hunting

According to the Decentralisation Startegy of the government of Albania, starting from September 2016, the forest fund will be transferred to the newly established municipalities. The strategy states that municipalities will be the main actor for managing their economic and environmental asset. The transfer of forest and pasture will be completed in 2019. The local government will be involved in implementing a new national forestation program and a national day of planting forests will be organized. It will increase cooperation between the agricultural extension service and LGUs, in order to ensure the participation of local government in the relevant policy-making and management of forest areas. It will approve a new investment program to rehabilitate as soon as possible of forest areas that are of national importance.

The hunting moratorium has banned hunting until March 2016, however with the amendment in the proposed hunting law, hunting will be excluded in any category of PAs, and therefore no hunting activity is foreseen in the Protected Landscape of Pogradec.

E.1.4 Fisheries and Aquaculture

Aquaculture in watershed is forbidden by the Law on Transboundary Lakes. Also the repopulation, and the release of non-indigenous fish species and/or other aquatic organisms, fish species genetically modified or other organisms at sea and inland waters without prior authorization by the competent authority are prohibited. In order to protect the fish stock an Order of Minister banned fishing in Pogradec Lake until March 2014. The national fisheries and aquaculture strategy 2007-2015 developed by the Ministry of Environment identified the following measures that need to be taken for the Lake Ohird:

- Collaborate with neighboring countries regarding the initiatives of regional fisheries management organizations for research and management of joint surface water and aquatic resources.
- To take part in regional and bilateral research and fisheries management forums to strengthen sustainable fisheries and to ensure sufficient time for Albania in the context of our socio-economic situation
- To facilitate the rapid development of the respective units to facilitate bilateral fishery cooperation of Lake Shkodra, Ohrid and Prespa.
- To support the exchange of information relating to the common fisheries through a combination of attitudes in collecting data and monitoring the joint aquatic sources.
- Adopt rules and procedures to allow the implementation of international obligations of state duties.

E.1.5 Water management

The first steps to ensure a sustainable and integrated management of the transboundary water resources were made with the approval of DCM no. 635, on 21 November 2001 “On Establishment of a Government Commission for Water Problems with Neighbouring Countries”, and strengthen by the Memorandum of Understanding between Government of Albania and Government of the former Yugoslav Republic of Macedonia “For Protection and Sustainable Development of Ohrid Lake and its water catchment” was signed on 17 June 2004.

E.2 Legislation for the protection of cultural heritage

The Cultural Heritage Act No 9048 approved on 7 April 2003 is the most important legal framework which includes all the activities in relation to the preserving, promoting and managing the Albanian national heritage. On 27 July 2006 in Albania, certain amendments were made by Act No 9592, which introduced the National Committee of National Heritage as an advisory body. This amendment of the law also established the National Committee for the Intangible Cultural Heritage. The Committee supervises the ativities of the institutions responsible for the immaterial cultural heritage, prepares and approve strategies and developement

programs in this field; it is composed of a series of senior officials who are directly responsible for the promotion of cultural heritage in Albania.

Article 17 of the Law provides for the establishment of a National Council for Restorations, chaired by the Minister of Culture (NCR) which assumed the right to grant permission for any restoration of cultural heritage buildings or monuments. NCR is a collegial decision making body consisted of representatives from the specialised state institutions and personalities of the field. Restoration, conservation and rehabilitation works are carried out by entities licensed for this purpose, supervised and tested by state institutions, specialised and legally assigned for the protection and preservation of cultural heritage assets.

The National Councilfor **Archaeology** (NCA) is the second collegial decision-making body established in 2008 and chaired by the Minister of Culture. The NAC approves in principle the research criteria, documentation and archiving of data and archaeological materials, driven by developments, defines the criteria for the exercise of archaeologists'profession, approves permits of private entities and individuals involved in archaeological excavations and archaeologica lactivities in general, as well as the approval of all projects of intervention in archaeological areas, in accordance with article 30 of Law No.9048, dated 7 April 2003 "On Cultural Heritage", as amended.

Taking into account the valuable experience and visible results of good management of the National Park of Butrinti, the Ministry established eight other Archaeological Parks in Albania in Apolonia, Antigonea-Adrianopol, Amantia, Shkodra, Lezha, Bylis, Finiq and Orikum. The National Parks in Butrint, Apollonia and Bylis are managed through the Offices for Management and Coordination of the Archaological Parks, while the archaeological parks of Shkodra, Lezha, Antigone-Adrianopol, Amantia-Orikum and Finiq are under the management responsibility of Regional Directorate of National Culture (RDNC) in Shkodra, Gjirokastra and Vlora.

The law in force protects movable and immovable objects having historic, cultural, technological, ethnographic value. The Act also covers intangible manifestations of cultural heritage, from processes of production of tradition products along with the instruments used for this purpose, to the use of language, performing arts, traditional customs and records of traditional cultural expressions in oral or written forms. The main actors for the protection of cultural heritage are: the Ministry of Culture and its subordinate national institutions central and regional (19), the Centre for Albanian Studies, the General Directorate of State Archives, the Universities and the local governing bodies, in accordance to their respective roles and competencies. The law identifies four levels of protection for the immovable heritage: watching, preliminary protection, cultural monument of 2nd category, cultural monument of 1st category. The 'watching' status is permanent, while preliminary protection status acts as a form of temporary protection needed to prepare the documentation to achieve one of the other protection status. Monuments of 2nd category are protected mainly for the architectural values of their outer envelope, while monuments of 1st category are protected in their entire substance and appearance.

Protection tasks are a responsibility of the Ministry of Culture through its central and regional state institutions: Institute of Cultural Monuments, Archaeological Service Agency, six regional directorates of national culture and three Offices for Management and Coordination of the Archaological Parks However the Law provides for cooperation with regional and local administrations, the forms this cooperation should assume is defined by the Ministry of Culture. Mechanisms are in place to provide funds for heritage conservation / restoration and percentages vary according to the grading of the protection and the type of works. For large projects a report is requested to the relevant institutions (Institute of Archaeology and Institute of cultural Monuments). In case projects have negative impacts on cultural heritage, they should be modified and modifications should be proposed by the relevant institutions that have made the assessments with their expenses covered by the developers.

More specifically, according to articles 47 and 48 of the Law:

"In cases of major constructions within the territories under state or private ownership, such as roads, highways, airports, ports, industrial works, new residential areas, investors are required to obtain the written consent of the National Restoration Council and the National Archaeological Council during the process of project design and implementation. The experts carry out the inspection of the area and prepare the respective documentation. When the area contains key archaeological, ethnographic values or traces of ancient or traditional architecture, changes may be required to the project design, "proposals for changes are made by the institutions which have carried out the inspection."

"Additionally, when works have commenced and traces or objects of archaeological-ethnological values are accidentally discovered, the works are immediately suspended. The administrators and investors in the works are required, within three days, to inform the local government bodies, the Institute of Archaeology and the Institute of Cultural Monuments, which carry out the respective inspection, report about the identified values and make respective proposals whether to continue works or not. If evidence of significant values is found, the commenced works have to be subject to changes or can be indefinitely suspended."

The Cultural Heritage Act is currently under revision and since 2014, a consultation process on the draft of the "Law on Cultural Heritage in Albania" has been initiated by the Ministry of Culture. Receiving updated information on the major modifications which are being proposed in the new Act would be important to complete the baseline assessment.

In order to have a better understanding of the institutional arrangements and policies that affect the Lake Ohrid region in Albania, the main stakeholders have been identified starting with the central government to the local governments and public society and are summarized in the table presented in Annex XIX.

In transboundary context, the management of the Lake Ohrid region is regulated by the Agreement on the Protection and Sustainable Development of Lake Ohrid and its watershed that was signed in June 17th, 2004 in Skopje and Ratified by the Parliaments of Albania and the former Yugoslav Republic Macedonia in 2005.

E.3 Spatial planning legislation and policy and responsible institutions

Since the transition of the early 1990s, urban development in Albanian was not guided by planned approach, but by emerging private demand. This happened as a consequence of the demographic and economic transformation. The largely unplanned process by which Albanian cities absorbed new residents and businesses, formally and informally, led to a dramatic increase in dwelling space and created pressure on infrastructure. There are three phases through which the urbanization in Albania has undergone. The first phase (1993-1998) was completely dominated by the informal sector. The second phase (1998-2011) saw the consolidation of the informal and the emergence of a formal sector. The third phase (2011- present) found Albania following a steady and recognizable urbanization trend, further development of the formal sector, new policies for regulating informal development and the continuation of the informal sector.

These phases were accompanied by changes in the legal framework. They were a response to the developments in the sector from one stage to the other, aiming to the improvement of the framework and a better division of tasks and responsibilities of the structures and authorities at central and local level. From 1 October 2014 the Law No. 107/2014 "On Territorial Planning and Development", has come into effect. It is an amendment of the Law No. 10119, from 23 April 2009 "On Territorial Planning". The Territorial Planning Law introduced principles, terms and procedures that characterise the current mainstream contemporary planning and land management systems. The law aims to guide spatial development and to implement the concept of sustainable development by considering all components of the territory.

According to this law, planning is seen as an inter-disciplinary field, aiming at promoting development and the protection of natural assets, and setting the formal rules and regulations for any development in the territory. The scope of planning activity was changed from only urban areas towards planning the entire territory. Planning was based on principles such as proportionality, subsidiary, transparency, horizontal and vertical coordination, sustainable development etc. One of the new initiatives that the law has brought was also the National Register of the Territory, an online GIS source where all planning activity and territorial control could be enacted.

The law defines the following planning instruments: policies, plans and regulations.

- Policies are defined as the highest level interventions that represent strategic priorities, development objectives and the expected outcomes for orienting, directing and encouraging further territorial planning.
- Plans are based on the approved policies and implement them in a given territory for a predefined timeframe (usually 10 years at local level, 15 at higher level).
- Regulation is the instrument which contains the implementing rules for the current and future development of land. The regulation defines the norms and standards for the development and the procedures that ensure that the proposals for development of public and private sectors fulfill the objectives of territorial plans.

These instruments are used by all general plans. The General National Plan and the General Integrated Plan are adopted at the national level. The Strategic Territorial Plan is adopted at the regional level, whereas the General Local Plan is adopted at the local level.

The purpose of the Territorial Planning Law was not only to plan for a more sustainable territorial development but also to decentralize the decision-making process: it transfers the decision making (which includes the drafting and the approval of the local planning instruments) from the central government to local governments. Under the new law, local governments can issue development permits only if they have planning instruments stipulated in accordance with the planning law. Without such planning instruments, they cannot approve any urban development initiative. According to the Law, competences of territorial planning are shared between national and local planning authorities. The national authorities exercise their planning authority on issues of national importance, and the local authorities exercise their planning authority across the entire territory under their jurisdiction. Following the law, the planning authorities are:

National level:

- The Council of Ministers is responsible for approving national planning instruments, binding conditions and norms on building, uniform development control regulations and model development control regulations.
- The National Territorial Council (NTC) is responsible for: (i) Adopting national planning instruments (plans and policies; (ii) Ensuring that interests in planning and development are balanced and sustainable development is achieved and (iii) Approving specific land development instruments. Also, Ministries and other national public bodies are involved in aspects of planning that are relevant to their sector.
- Ministry for Territorial planning: is the primary ministry dealing with territorial planning. It is responsible for preparing policies and strategies related to territorial planning and monitoring the activities of the depending institutions.
- National Territorial Planning Agency (NTPA) competent for developing spatial policies, implementing spatial legal framework, coordinating national and local authorities, guiding and

controlling territorial planning, acting as a spatial planning observatory and act as Secretariat of the NTC.

District/regional level:

- It is the primary duty of the Districts to draft Strategic Territorial Plans. District Councils: responsible for the coordination of planning process at District level; approve the documents of sectorial planning.

Local level:

- Municipalities and the Mayor are the main planning institutions/authority. In addition, local level authorities are also allowed to join capacities and plan their territories through a cross-jurisdictional plan. The Municipality Council approves local planning documents and supervises their implementation. The Mayor is responsible for the development of the local territory, through preparing and implementation of the territory planning documents, in accordance with the General National plan.

The basic principles and the legal framework on territorial (spatial) planning in Albania are presented in Annex XX.

E.4 Agriculture

E.4.1 Legal framework

The Law on Agriculture and Rural Development No. 9817 dt. 22 October 2007 defines the objectives of agricultural policies and rural development programmes and sets out rules to regulate the whole sectors, with provisions on agricultural public services, research and training. It consists of the following Chapters: (I) General provisions; (II) Programming, implementation and financing of agricultural and rural development policies; (III) Measures on agricultural policies; (IV) Measures on rural development policies; (V) Institutional framework; (VI) Databases and information systems; (VII) Producers'organizations; (VIII) Public services in agriculture and rural development; (IX) Support for research, education and training; (X) Offences and penalties; (XI) Final provisions.

Further relevant pieces of legislation include:

- Food Law Nr. 9863 dt. 28.01.2008 defines the requirements for all the food business operators (except primary one) to have in place a self-control system based on HACCP methodology;
- Regulation No. 10 on support to agricultural production. - 04 January 2008 [LEX-FAOC088559]
- Regulation No. 18 laying down the criteria for selecting the sectors to be supported and the measures for benefiting from the agricultural and rural development fund. - 07 January 2009 [LEX-FAOC088560]
- Regulation No. 18 laying down criteria for determining the sectors eligible for receiving support from the Rural Development and Agriculture Development Fund. - 07 January 2009 [LEX-FAOC099643]
- Law on Business licensing Nr.9723 (2009). This Law establishes the procedures for business registration, as well as regulates the operations of the National Registration Center (NRC) and the Commercial Register.

E.4.2 Strategy documents and programmes

The main documents that define strategies and policies directly or indirectly affecting the agricultural and rural development sectors so far collected are listed and, where possible, shortly described below.

The Green Strategy (Government Strategy for the Development of Agriculture in Albania) is the official fundamental act of the MARDWA. It is the Government policy for agricultural development and in this framework for assessing and fighting erosion and land degradation. The priorities outlined by the GoA include:

drafting appropriate legislation, creation of permanent structures for the management of natural resources, stabilisation of a separate budget for agriculture, identification and localization of the most affected areas from erosion, preparation of a strategy for prevention of erosion.

The National Strategy for Development and Integration 2007-2014 (March 2008) was prepared in the framework of the Integrated Planning System as a coherent reflection of 38 sectors and crosscutting strategies. A new NSDI 2015-2020 – draft June 2013 - is under preparation process that was projected to be in place in November 2015.

The Agriculture and Food Sector Strategy 2007-2013 (AFSS) with Sectoral, Sub-Sectoral and Crosscutting Strategies, which details medium and long-term policy objectives, the main interventions, the monitoring tools and the costs of implementation of policies and interventions and the expenditure programmes prepared in the framework of the Medium-Term Budget Programme (which ensure the coherence of policies and the long–term orientation of the development of the agriculture and food sector in order to clarify the reform and development process taking place in the public and private sectors and outline the needs for technical and financial support to agriculture).

Further relevant sectorial strategy documents include:

- the Cross-Sectorial Strategy for Rural Development, adopted in DCM No. 924, dated 14 November 2007 (date of approval 14 November 2007, Official Journal 192, p.6149);
- the Cross-Sectorial Strategy for Regional Development, adopted in DCM No. 773, dated 14 November 2007 (date of approval 14 November .2007, Official Journal 161, p. 4715);
- the Inter-sectoral Rural Development Strategy 2013-2017;
- the Strategic Programme for Development of Innovation and Technology of SMEs 2011-2016; (iv) the Strategy on Consumer Protection and Market Surveillance 2013-2017 that was prepared by the Ministry of Agriculture, Food and Consumer Protection; the Ministry of Economy, the Ministry of Trade and Technology, and the Ministry of Health;the National Strategy for Science, Technology and Innovation 2009-2015, in which agriculture and agro-industry are of the priorities sectors.

F.1 Socio-economic analysis of current situation

F.1.1 Population

The political and social changes during the 1990s triggered significant demographic changes in the Municipality of Pogradec and the neighbouring communes (see the figure below). The main factors contributing to these demographic developments are related to the economic transition: the closure of many state-owned enterprises and the unemployment that followed it. Currently there are about 50.000 residents in the Lake Ohrid region in Albania, most of which live in the city of Pogradec (20,848 - 42%) and in Buçimas (15,687 - 32%). The Pogradec Municipality and its communes have a young population. Pogradec has a very high population density, (9182 inhabitants/km^2), whereas population density in other settlements is much lower: Hudënisht, i.e 89 inhabitants/km^2; Çërravë 198 inhabitants/km^2; and Buçimas 326 inhabitants/km^2. The average density of the area is 59 residents km^2. In 2014 males constituted 51.4% of the population in the city of Pogradec. The Pogradec Municipality and its communes have a young population. In Pogradec Municipality, the group of age able to work accounts for 69% of the population, 19% are children 12% are people of age at 65 and above. For Pogradec city, female and male shares are equal, i.e. 50% in the city and in the communes until 2011. After 2011 there has been a moderated increase in the number of male compared to female.

There are four major religious groups in the Lake Ohrid region in Albania: Muslims, Christian Orthodox, Bektashi and Catholics. The Muslims constitute 68% of the population, Christian Orthodox 8%, and others are Catholics and Bektashi.

In the city of Pogradec the illiteracy rate for the population 10 years and over is about 2.6%, being lower than the country average. In the communes (new administrative units) it is higher. The highest level is in Çërravë (3.8%) and the lowest in Hudënisht (3.6%). But the level of illiteracy in communes is much higher than the average of the country. In the city of Pogradec operates a comprehensive system of preschool education, primary education, lower secondary school education, upper secondary school education. The educational system is composed of the following levels: Preschool Education, Primary education and Lower Secondary Education; Upper Secondary Education. In Pogradec, operate six secondary schools, three of which are public and three non-public schools. There are 2,120 pupils 926 of whom are female.

F.1.2 Economic profile

The major economic sectors in the Lake Ohrid region in Albania before the 1990s included mining, trade, light food industry, handcrafts, construction and tourism. Almost all state owned companies were closed down in early 90s that was accompanied by high unemployment and poverty rates. Currently the economy in the area is dominated by small size enterprises, mostly operating in trade and services sector. Industrial activities are mainly confined in the city of Pogradec and include food, textile, metal and wood processing, and other light industries. There are about 1300 companies in the area, according to 2011 census data, of which 56.6% are trading companies, 6.7% are active in the industrial sector and 2.2% in the construction sector. Trade enterprises compose about 30%of the total number of large businesses in the Municipality, followed by 16% in construction and 14 % in services. The same structure is reflected for small businesses. About 60% of the businesses are represented by small shops (trade) and 21% by services. The increase in business number and activities was accompanied by a development of the banking sector. In 2011 there were 10 banks, 5 credit funds, and 6 insurance companies operating in the area.

The working force accounts for 69% of the total population in the area, 19% are children 12% are people of age at 65 and above. According to the 2011 Census data, the unemployment rate is about 39.9% of the working force; at country level it is 29.3%. Unemployment among young people is 64.8% and 42.2% among women; among men the unemployment rate is 37.7 %. Most of the population is employed in the services sector (60%), 24.7% are employed in the agricultural sector and only 16% in industry. Of the employed people 50.1% are self-employed or family contributing workers, where the rest are paid workers. Self-employment or employment in the family business is more common in the communes and work part time due to the seasonal

character of the work in agriculture. Most of the employees have secondary general and secondary vocational school education (42%); 22.2 % of the employees have higher education.

F.1.3 Services and infrastructure

Pogradec is located about 139 km from Tirana, the capital city of Albania, 40 km from Korça, and 5 km from the former Yugoslav Republic of Macedonia. Pogradec is the last railway station: Tirana - Durrës -Elbasan - Librazhd - Pogradec and located along SH3 road that passes through Devoll and continues to Greece. A boat connection between Pogradec and Ohrid started on 15 June, but the service is irregular and unreliable.

The road network connecting Pogradec and the other settlements in the municipality is 140 km in length. The average distance from Pogradec centre to constituent units is 17,5km (Buçimas is closest, at 1.2 km from the city. Road section Qafe Thane-Lin-Pogradec is being reconstructed and the 16.5 km can now be crossed in 13 minutes. Most of the villages within the protected area can be reached by paved roads, especially along the national highway between Tirana and Korce (south eastern Albania). In the south of the lake lies the paved road connecting Pogradec with the Macedonian border.

The rail line of Elbasan-Qaf Thana-Lin is a part of the rail line Tirana-Durres-Elbasan Lin part of the 8th pan European corridor Albania-FYR of Macedonia-Bulgaria. The line is 64 km long and has 6 rail stations. At the national perspective this segment makes the linking of Tirana city and Durres to the touristic city of Pogradec whilst at the perspective of freight transportation such a segment makes an access to the extracting and processing industries for the minerals in terms of their productions transportation toward the Durres city harbour, aiming at their exports abroad Albania. In June last year, was inaugurated the transport line for passengers Pogradec - Lake – Ohrid. In the period July - September 2014 it served 1,114 passengers.

The Water Service of the Water and Sanitation Company (UK JSC) in Pogradec serves 100% of the total population and in 2011 it had 9,722 customers. Among these customers, about 8,794 are households, 865 commercial units and 63 are institutions. The distribution network extends for 109 km of which 12 km is the main network and 89 km the distribution network. Over 90% of the system has been rehabilitated. The entity responsible for the operation and management of the water and sewerage system is UK JSC. 71.1% of shares of UK JSC are owned by the Municipality of Pogradec. The waste water collection system covers 74% of the population in the District of Pogradec. A project financed by the German Financial Cooperation is underway to provide reliable and safe drinking water and environmentally sound disposal of waste water. The project aims to provide continuous supply of safe drinking water to all inhabitants of the city of Pogradec and to 95% of those in the area of Buçimas. The quality of drinking water should be in compliance with the parameters set by the WHO. The project aims at connecting 80% of the population in Pogradec, 70% in Buçimas and 100% in Tushemisht to the sewerage system. The current sewerage system covers the villages of Tushemisht, and partially Verdova village, while other villages use septic tanks. Solid waste is regularly collected in Pogradec and twice a week in seven villages.. The collection of urban waste is done twice a week in seven villages.

The health Service in Pogradec in 2011 was organized in one hospital (165 beds), 8 health centres, 1 maternity (35 beds) and 14 private pharmacies with state contract. There were also 17 licensed private dental clinics, 1 state dental clinic, 2 mother's consultancy centres and 2 baby's consultancy centres. Health services in communes are represented by health centres, one in each village. No persons affected by HIV/Aids have been registered in the Study Area.

F.1.4 Main Economic activities

F.1.4.1 Agriculture

In Pogradec district as in whole Albania dominate family farms. Average farm size in this district is about 0.8 ha, under the average of the country, which account for 1.2 ha. Farms in Buçimas and Hudënisht are among the smallest in the district with an average of only 0.3 ha. In average, one person is self-employed in the farm. The total agricultural land in Pogradec District is 38,421.2 ha, out of which 21,896 ha (57%) is occupied by

forests and pastures and the rest of 16.525, 2ha (43%) is arable land. About 51% of the arable is not used due to bad quality of land, difficulties in accessing, etc. Considering this fact the surface of arable land per household is even lower than referred above. In communes of Buçimas and Hudënisht and Cerrava is located 44% of the total surface of arable land and about 40% of the forests and pastures of the district. In these communes 370 ha are planted with fruit trees and vineyards. Only in Cerrava the total area planted with these products categories constitute 55% of the total area of orchards. In Buçimas and Hudënishte dominate vineyards while in Cerrava fruit trees.

The small farms are characterized by self-subsistence and their little market surplus is sold through informal channels. 96.7 % of current farms are small family farms and local producers with low incomes: farms with field crops (36 %), farms with livestock (31 %), orchards (17 %), farms with fallow land (10%) and only (6 %) were farms with crop without livestock. The most important agricultural production is represented by fresh vegetables with a wide range of products that are grown throughout the year. Beekeeping is a popular and growing in the Lake Ohrid region despite the fact that beekeepers face many challenges including maintaining their hives, processing hive materials, and selling their products. A peculiarity of the District of Pogradec is the production of flowers (cut flower as well as whole plant) that is carried out in special cold greenhouses or tunnels. The flower production, mainly cornflower (Centaurea cyanus) is celebrated in a local festival of flower that takes place in August.

The area planted with field crops cover about 7.500 ha. The development of the livestock sector after '90s has increased the demand for forage crops in order to ensure livestock fodder. Hence, field crop production in Pogradec is dominated by forage, while cereals, vegetables and potatoes production have almost the same weight in the total field crop production of the district with 10 - 11 %. Wheat and maize represent respectively 67% and 27% of district cereals production while dried onions (43%), tomatoes (18%) and pepper (16%) dominate vegetable production. Permanent crop production is dominated by apples, plums and cherries which altogether constitute 82% of the total fruit trees production in Pogradec district. Greenhouse production of vegetables in the district is quite common. In Buçimas there are 20.000 m^2 greenhouses covered by plastics.

After a large reduction in their number during 1990– 1992, later on there have been a revitalization of the fruit tree sector. Farmers perceive that under a small–scale production, fruit trees have a higher profitability compared to arable crops (Çakalli, *et al.* 2012a). In 2014, in our study area, production of apples, plums and cherries has increased respectively with 38%, 44% and 65% compared to 2012. During the same period, vegetables and grape production has increased respectively 20% and 11% while that of wheat and maize has remained almost unchanged. By the end of 2014, grape production have risen over 3,600 ton. About 50% of this production is used for self-consumption and the other 50% is marketed but most of it (90%) goes for processing into raki (traditional spirit) and wine. It is expected that the surface and yields will increase in the future. Most of vineyard production of the district is concentrated in Cerrava Commune where the total area of vineyards constitutes about 40% of the total area of vineyard of the district.

The livestock production sector in Albania is a major component of the economic and social aspects of the country. There is a long tradition in livestock breeding, because of the strong domestic demand for livestock products since the Albanian diet is composed mainly of cereals, meat and dairy products (Doko *et al.* 2012). In Pogradec are located 268 stable, out which 220 (82%) for sheep & goat, 44 (16%) for cattle and the rest of 2% for pigs and poultry. In many cases, producers use old existing buildings, slightly adapted. All the work is done by hand – feeding, removing the manure and also milking. Few specialized farms have better premises, electricity and milking equipment. The milk is mainly provided to a dozen cheese factories that process them in fresh cheese, re-fermented cheese, cheese and cottage cheese from maturing.

Statistical data of the study area show that livestock production plays a more important role in the total respective production of region than the one of field and permanent crops. In 2014, Pogradec district meat production contributed to about 30% to the total production of the Korça region, while for milk production this contribution was at about 35%. It is worth mentioning that sheep & goat meat and cow milk dominate livestock

production in Pogradec district. In 2014, sheep & goat meat production consisted 50% (2515 tons) of the total meat production while cow milk 85% of the total (28,638 tons). Total meat production in Pogradec has increased by 56% between 2013 -2014. For Buçimas the increase is about 79%, for Hudënisht is 46%. Actually, meat, milk, cheese and yogurt are basic products of consumption in Albania and study area. Most of the farms produce only for self-consumption so quantities traded of these products into the market per farm are very low. These quantities are sold to informal markets (door to door, open markets on the main roads and small shops). There are only few cases of delivering cooled and quality–tested milk, close to the compliance with the Community's quality, hygiene and food safety standards to processing of dairies. Moreover, the organization of collection and processing of milk is still weak. A system with professional sampling, transport of samples to laboratories, laboratory analysis and reporting of results to farmers, processors and food safety authority is not in place.

Harvesting of wild medicinal and aromatic plants (MAPs) is an important economic factor in rural areas of the country. The study area is rich in medicinal and aromatic plants which has stimulated the development of this sector in it. However, over-harvesting and migration of rural population has both reduced the quantities of raw material use for export and increased its cost. The un-fulfilled demand has served as an incentive to cultivate some of these aromatic plants. Some 50 ha are used for cultivation of aromatic plants, producing 790 kg/ha. There exist 3 intermediate trade companies in the area. In general, one or more intermediate traders or wholesalers are involved in the chain of custody of MAPs. Direct marketing by individual collectors is pretty uncommon so the share of the export price earned by the individual collector is usually very low. Havining in mind the significant area of abandoned agricultural land, there is strong potential for this sector in the region (Dulja & Thoma 2011).

There have been several irrigation and rehabilitation projects mainly funded through World Bank (Implemented in stages from 1993–2009). At the current stage, the irrigation potential capability in the region is 30% compared to 74% before 1990. The majority of the farms in the region have outdated technologies and equipment. In general, in Pogradec district there exists all types of agricultural machineries one can find in all the territory of Albania, although such mechanization do not respond to the actual stage of Albanian agriculture development. Buçimas and Hudënishte and Cerrava are the most mechanized communes in the district. Details on the number of tractors per village are shown in the table in Annex XXII. A large part of these machineries have been purchased through a large subsidy scheme (2KR Project) around 2000.

Agribusiness sector in Pogradec is represented as follows: (a) Bread production/bakery (19 companies); b) Alcoholic beverages production (3 companies); Milk processing (15 companies); Milling mill (3 companies); and Fruit & vegetable processing (one company).

F.1.4.2 Forestry and hunting

According to the data provided by the Regional Directorate of Forest of Pogradec the region has about 28,834 ha of forests. Composition of forests resources is presented in Annex XXII. The forest has experienced heavy damages from cutting and fires. Most of the cutting is for fuel wood although lumber is also produced. In the hills above Pogradec, chestnuts are harvested from the remaining forests. Most of the oak forests in the protected landscape are intensively used especially for firewood and grazing. The forests are relatively young due to mainly illegal logging and limited management. The chestnut forests are also degraded mainly because of fires and illegal cutting.

Most of the forest is under communal ownership, i.e. 64%, 35% are under state ownership and only 1% is privatly owned. However, the state has kept the best quality forests and the low quality, degraded ones has been transferred to the communes, reducing the incomes that can be generated and services that can be offered. The communal forests are under the property and management of the respective Commune is within the protected area. However, management is limited; implementation of law and its enforcement is missing, especially related to illegal hunting and forests cutting activities. Compared to the needs, investments have been rather limited. Most of these investments have come from donors, especially the World Bank and only a small share of funds are covered by state budgets. As for the pasture the total surface is 5,363 ha, from which 2,882

ha (54%) are state owned and 2,481 ha (46%) are owned by the communes. As we can see, a large proportion of forests and pastures are still under state ownership.

The majority of households in the region use wood for heating. In the Municipality this figure reached 93%, while in the communes it is about 99%. About 60,000 – 70,000 m^3 are harvested each year and only about 100 ha are reforested each year. Eroding forestlands can be a significant source of sediment to the rivers and phosphorus to the lake. Deforestation which took place mainly after transition does not only affect forest but also fruit plantations being in large part already destroyed or endangered by erosion (Peçuli and Kullaj, 2005). There are 115 hunters in the region, but hunting has been banned in Albania since 2014.

F.1.4.3 Fisheries and aquaculture

Following the fishing activity privatisation, after the year 1992, the number of fishing boats was greatly increased. Over the years 1994-1996 there have been licensed 6 groups with about 120 fishermen and 60 boats. Over those years the fishing production was around 14-16 tons per year. Currently the fishery sector includes 158 companies with about 300 fishermen. The fishermen are organized in a Fish Managing Organization OMP-Pogradec approved under the Order No.17 dt. 15 March 2003 "On Status Approval of Fish Managing Organization". The OMP has actually 107 fishing subjects under supervision. The fishing subjects have one small boat and two fishermen each (fishing by nets) covering the lake from Tushemisht to Lin. The fishermen are distributed along the lake shore: at Lin 12 fishing boats, Piskupat 13, Hudënisht 44, Memelisht 13 and Pogradec 25. Besides the 107 members, there are also licensed fishermen. Together they approximately 220 active fishermen operating in the region. In addition, there are also large group of unlicensed fishermen currently active. Fishing licences apply to 17 fishes in 4 family: Salmonidae, Cyprinidae, Cobitidae, and Anguillidae. The average number of fishing days per year is 165. Based on the available catching data over the last 10 years and the number of fishing boats, it can be estimated that the fishing effort (CPUE) in total ranges from 4.64 kg/unit per day to about 7 kg/unit per day. For the Ohrid Trout the value ranges from 1.63 to 2.29 kg/unit per day. The fishery boats are typically 4 m long with wooden hulls and are operated by the owner and a family member, engines are 4-10 HP, and gears include blinkers and nets. The lack of ecological awareness and the low level of income among fishermen are some of the reasons hampering the introduction of new fishing techniques and practices, and more in general limiting the implementation of current legislation in the fishery sector.

Lake Ohrid is stocked through the Lini hatchery, where artificial reproduction of the Ohrid Trout has been carried out since 1965, and which currently stocks nearly one million of larvae and fingerlings every year. This centre has been modernized in 2005, with the financial support from the World Bank. The hatchery is operated by the Ministry of Agriculture, Rural Development and Water Administration.

The aquaculture activity in the region is based mainly on Ohrid Trout (Salmo letnica) and Rainbow Trout (Oncorhynchus mykis). There are 3 Rainbow Trout fish farms, 9 Ohrid Trout farms and 6 for carp, and other species. The farms have an average capacity of 4-5 thousand pieces and with an average weight of 250-400g, the total capacity of each of them equals to about 15 tons. The fish is traded in the area by middlemen between the fishermen and mainly the local market formed by restaurants and hotels.

F.1.4.4 Mining

This area is rich in minerals. We can mention as most important: iron-nickel, chromium and coal. Chromium reserves are limited, but there are still possibilities for future drilling explorations. Most of the raw materials of chrome are exported; also coal, while the rest is used for domestic purposes. Around the lake there are old and abandoned mines, but also more recently established and active mines. Table 7 shows the level of production until 2013. Within the protected landscape there are 11 quarry and mining companies operating with an environmental permit (2013). Seven companies are mine companies, one is operating as iron – nickel mineral quarry and mine, and the rest of licensed companies are operating as quarries within the protected landscape border. The production level is shown in the Table 7. In the district 21 licences have been issues, i.e. 6 for chromium, 4 limestones, 1 quartz and 10 iron-nickel.

Table 7 Extraction of minerals

SOURCES/ OBJECTS	Output							
	Period	**Quantity**	**2007**	**2008**	**2009**	**2010**	**2011**	**2013**
Cervenaka west.	1964-1981	1070000		22000	10000	30000		
Cervenake east	1959-1978	840000					2000	
Cervenake south	1979-1990	512400			7000	8500	59150	
GuriKuq	1976-1992	2861300						
Gradishte	1980-1990	375500						
Hudenisht	1976-1990	580000				25000	26750	
GuriPergjegjur	1979-1990	754900						
Debrove			135000	150000		22750	81781	**9792**
TOTAL		**6994100**	**135000**	**172000**	**17000**	**86250**	**169681**	**9792**

Source: Ministry of Energy and Industry

F.1.4.4 Tourism

The tourism department at the municipality in Pogradec estimated that there were 150,000 visitors in 2013 staying at its 27 hotels for weekends and in summer for 5 to 10 days (see figures 5 and 6 below). Foreigners only accounted for 10,000 visitors but a growing number of tourists were from Kosovo and Macedonia. Tourism is concentrated in the vicinity of the lake, along the shoreline between Tushemisht and Pogradec. In Buçimas 12.5% of families secure their incomes from tourism. As for the Hudënisht administrative unit, around 35 hotels/restaurants have been demolished in the shore as illegal construction. These have a substantial impact on the activity of the area. The level of income collected by the Commune was decreased by 30%, while the number of people who lost their job was estimated to be around 100. (Information gathered during the field visit in the administrative unit of Hudënisht).

Most visitors to the area are domestic, where a good part coming from Tirana. The number of tourist has increased from 2006 to 2010, while it has decreased slightly in 2011. Also, the area is visited by international visitors who visit the area through a number of tour operators based in Tirana. Tourists usually spend one to two nights in the area. There are a several locations which provide services for business meeting and seminars in the main cities; at hotels by Ohrid Lake larger gatherings such as conferences and conventions can be hosted in Pogradec. There are no figures for the number of business travellers to the region, however anecdotal evidence and hotel occupancy data would suggest that there is a substantial business market to the main centres of the region.

The area has great difficulty in developing tourism. Infrastructure development is a key issue. Marketing and promotion are still in the development stage and there are few official information centre where tourists can find information. Pogradec key tourism actors are limited to a few restaurant or hotel owners who provide local food and accommodation along the lakeshore. The majority of tourist operators work mostly during the summer time (June – August).

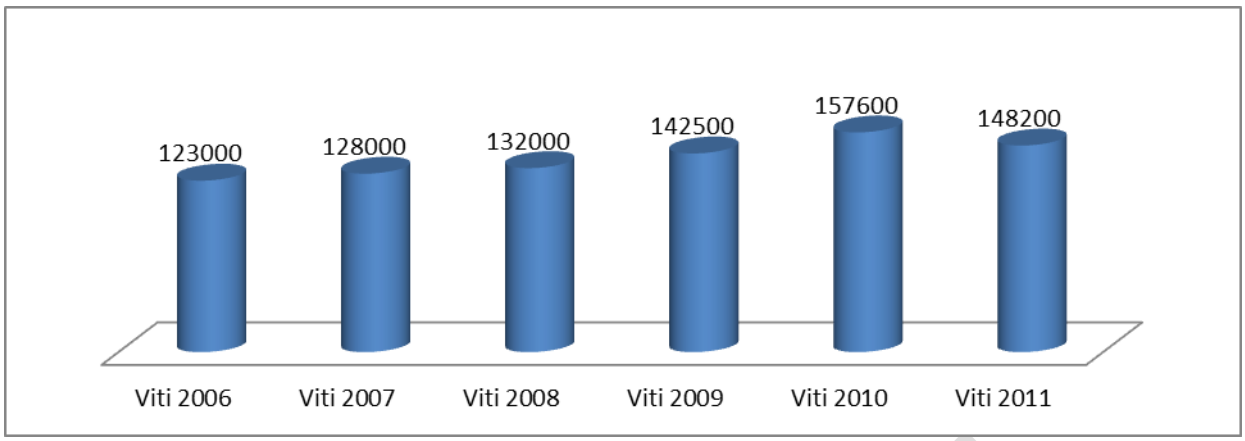

Figure 5 Number of nights, domestic tourists (*source*: Statistical Yearbook, Municipality of Pogradec)

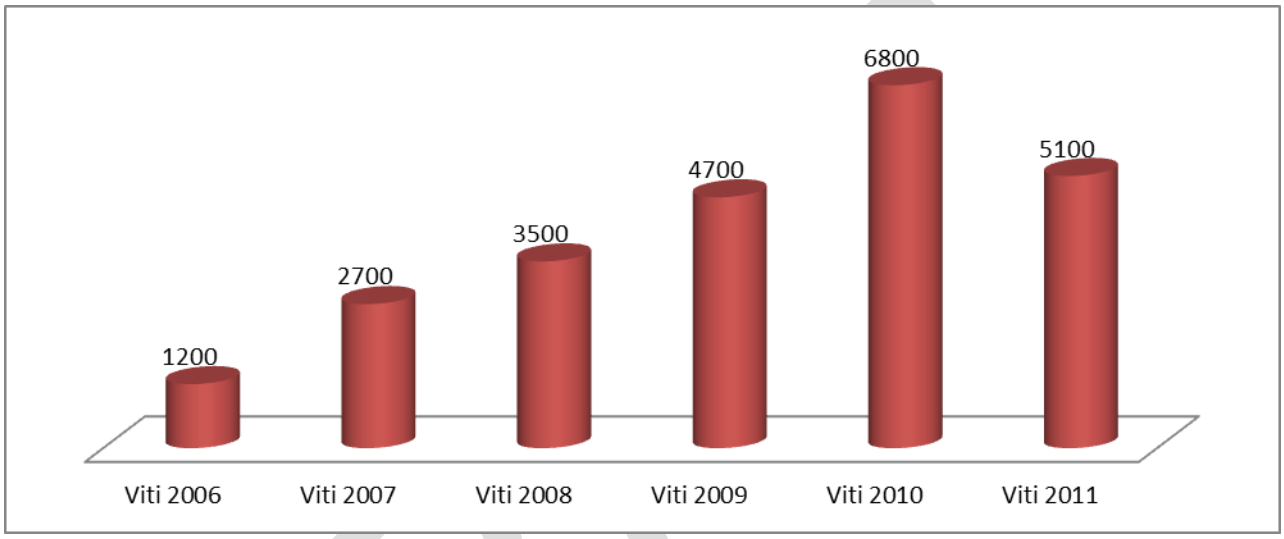

Figure 6 Number of nights, foreign tourists (*source*: Statistical Yearbook, Municipality of Pogradec)

F.2 Potentials and opportunities for future development

F.2.1 Agriculture

F.2.1.1 Traditional agricultural products (PDO, PGI and TSG)

The Pogradec District and the Region of Korcë offer a wide range of products that may bear the names (P.D.O., P.G.I. and T.S.G.). Typical products are the Protected Designation of Origin (PDO) and Protected Geographical Indication (P.G.I.); wines D.O.C., D.O.C.G. and I.G.T.; the products worthy of recognition from community for the realization of which is used raw materials of particular merit/value.

Traditional products (T.S.G.) are obtained through methods of processing, storage and curing the roots of which are consolidated over time (at least 25 years) and dig in the most ancient and traditional craft production of their particular geographical areas.

PDO, PGI, and TSGs products are subject of different EU Regulations and are labeled with appropriate logos (see Figure 7).

Figure 7 P.D.O. P.G.I. & T.S.G. trademarks

Protected Designation of Origin - PDO: covers agricultural products and food-related products which are produced, processed and prepared in a given geographical area using recognised know-how.

Protected Geographical Indication - PGI: covers agricultural products and food-related products closely linked to the geographical area. At least one of the stages of production, processing or preparation takes place in the area.

Traditional Speciality Guaranteed - TSG: highlights traditional character, either in the composition or means of production

The domestic policies and relevant instruments regarding the recognition and protection of geographical indications and traditional names on agricultural and food products are in their infancy in Albania. Elements of such policy are included in the Law no. 9863, "On Food", and dated 28 January 2008. By this law, geographical indications and traditional names of products are similarly protected through trademarks and in particular, the certified trademarks in accordance with the Law no. 9947, "On Industrial Property", dated 7 July 2008. This law sets out rules and basic components that may be used for the identification of origin and geographical indications of food-related products, necessary indications to be used for a product that is considered "a food traditional product", the method of registration of products with the indication "traditional food product", as well as the registration and de-registration of these products. Table 8 contains a list of Korça and Pogradec typical products, PDO and PGI potential products in order to designing the policy intervention framework in the future.

There are also a great number of grapevine like "Debine e bardhe " vine, "Debine e zeze " vine, "Kryqez " vine, "Mjaltez" vine, "Stambolleshe" vine and "Babasan" vine which are cultivated in Pogradec. These varieties of wine grapes provide interesting wines that are sold primarily in the production area or in Pogradec Restaurants and Hotels.

Deserve a special mention some dairy products that are recognized under the brand DPO in neighboring Balkan Countries as Kephalograviera, Feta, Bacos, Manuri, Anevato and Kaçkavall.

F.2.1.2 Growing demand and trends

Albania has a structural deficit on all of its major agricultural commodities; namely, cereals, fruits, oilseeds, poultry meat and sugar. These sectors are typically organized through traditional family farming systems, and in some cases the products require extensive processing. Total consumer expenditure on food and beverages accounts for more than half of total family expenditure but it is still low in terms of average annual per capita consumption. Agricultural production and incomes have followed a noticeably increasing trend

In recent years, livestock production accounts for about 46 % of total production in the sector, followed by 44 % of plant crops production and 11 % of fruit production.

Fruit and livestock production have had the highest growth rates and the production of citrus fruits and other fruits and vegetables is growing. In 2014, the top five products in terms of value were cow's milk (ranked by commodity in the world 67), grapes (ranked 40), beef, tomatoes (ranked 59) and olives (ranked 20).

Table 8 Typical primary products identified in Korcë region

Nr.	Name	Picture	Production area	Nr.	Name	Picture	Production area
1	earing form pepper		Korça	12	Lima bean-Pllaqi of Hoçisht		Pogradec - It was firstly cultivated in this region 80 years ago
2	belorta leek		Korça - It is firstly cultivated after World War I	13	Korça's garlic		Korça - It is cultivated about 100 years ago
3	Fara-shuk- wad-seed melon		Korça - The legend describes that it is firstly cultivated long time ago	14	Lettuce of Korça		Korça - cultivated long time ago
4	bio potato		Korça	15	Lin onion		Pogradec - It is confirmed that it is cultivated in antiquity from the archaeological excavations in this
5	Dishnica red onion		Korça - It is a multiyear plant cultivated in this region	14	Pumpkin of Korça		Korça - cultivated more than 200 years old
6	"korovec" melon		Korça. The legend says that it is firstly cultivated long time ago and its origin is from Istambu	15	Tushemisht onion		Pogradec - it is believed that it is cultivated in this village more than 200 years ago
7	Conical shape beet of korca		Korça	16	Voskop cabbage		Korça - cultivated more than 200 years old
8	Cultivated sage		Korça	17	Mishia Cabbage of Bilisht		Korça - This plant is firstly cultivated 70 years ago in Bilisht
9	The onion of Miras		Korça	18	The Tomato of Sanjollas		Korça and Pogradec
10	The Yellow Flat String Bean of Voskop		Korça	19	Cyani flowers		Pogradec
11	Gogozhare pepper of korca		Korça				

F.2.1.3 Marketing facilities (accessibility and availability)

Despite significant institutional changes in the rural sector, a sustainable and efficient development was not created in the Albanian rural sector. Besides structural and strategic reform and applications of national and international programmes, high rate of inequality exist in regional level and many social, economic and agri-environmental problems are present. Some remarks about problems and challenges are:

- reorganisation of agricultural production, needs for new orientation of agricultural market;
- agricultural market remains oriented to auto consumption and trade is underdeveloped;
- high prices of inputs and disorganized and inefficient systems of production and delivery have relevant cost for producers.

F.2.1.4 Final consumers and new trends

The Albanian diet is typically Balkan, characterized by many fresh fruits and vegetables (depending on the season), cereals, potatoes and vegetable oil (Berisha and Mara, 2005). Rural consumption is based on fresh farm products, while urban consumers are sometimes forced to rely on processed fruits and vegetables, including frozen and preserved products, particularly during the off-seasons (FAO, 2005). In all cases though, there is an undisputed preference for fresh products, as shown in the frequency of consumers' purchases: 33.3% of consumers surveyed in Tirana city markets buy food on a daily basis (Centre for Rural Studies, 2014).

During the last decade the household budget of Albanian consumers has expanded. The increase in income levels has created a structural change of family budget and a reduction in percentage of food expenditures component (See table n. 5). The immediate effect of the increase in income was dietary improvement, significant increase in the consumption of fresh fruits and vegetables, meat, eggs and dairy products (FAOSTAT, 2012), enabling domestic production growth.

Despite the diversity of food expenditures allocated for fruits and vegetables has been increasing, still the structure is more clustered toward tomatoes, cucumbers and peppers, which represent more than 30% of the expenditures on vegetables. Lower price compared with other products and the Mediterranean culture of vegetables consumption is an advantage for the sales of this product. However, potatoes and dried onions make also a high share (approximately 20% of the total expenditures on vegetables). Regarding cabbages, cauliflower and fresh onions that make no more than 7 % of the expenditures, still the price level is not attractive to consumers, as it is in other Western Balkan countries.

Despite the low proportion on expenditures going for vegetables, these products can be well oriented toward the high income inner urban markets as the price-expenditures ratio seems positively moving towards the high expenditures of the consumers.

Another important pattern of the Albanian consumers is the use of pickled vegetables, which are part of the Albanian traditional cuisine. Demand for pickled vegetables is consolidated and has remained stable during 2006-2014. As part of the old traditional cuisine, pickled vegetables are consumed more by the lower market segments of the population and less by the middle and higher segments. Concerning the products selected under this study there is higher demand and all year long demand in ranking order for pickled cabbage (labeled also as mixed salad). Pickled mixed salad consists mainly of pickled cabbage mixed with some carrots and pepperoni. Domestic product is present in small packaging, 500, 580 grams, and in larger packaging, 2,000 and 2,500 grams.

F.2.2 Tourism and heritage

F.2.2.1 Introduction

Tourism has been identified and prioritised across the major policy and strategy documents in Albania, as a sector with existing and future growth potential. Noteworthy and far reaching amongst these documents are:

- The Republic of Albania National Strategy for Development and Integration (NSDI) 2014-2020
- The European Commission Instruments for Pre-Accession Assistance (IPA II) Indicative strategy paper for Albania 2014-2020

The area around Lake Ohrid has consistently been identified by both multi-lateral and bilateral donors as a location to support projects and initiatives within the tourism sector. This is due both to its wealth of natural and cultural resources and through its strategic position bordering both Macedonia and Greece, which is an important factor not least in terms of transportation/connectivity for diverse tours or itineraries and tourist source markets.

This potential was raised in the recently drafted Strategy of Tourism Development in Albania 2014-2020. That document is still being finalised, but it already makes a crucial emphasis on the need for there to be a combination of products, locations and styles of tourism beyond the current over reliance on traditional large scale coastal tourism.

The proposed tourism vision statement for Albania, captures the priorities quite clearly;

"Albania will be recognised as an attractive, authentic and hospitable/welcoming tourism destination in Europe, based on sustainable use of natural, cultural and historic potentials, easily accessible from international markets. Tourism plays a key role in the Albanian economy, contributing to increase life quality and creating an attractive environment for investments."

The statement could almost have been thought up to capture the vision for the Lake Ohrid world heritage site. A sustainable mixture of nature and culture, along with a stress on the authentic rather than the mass produced.

The national tourism strategy proceeds further to stress the growing desire to enhance and expand the cultural tourism offer. However, it is important to note that growth in cultural tourism is not simply about building up numbers through access, awareness and marketing. The motivations and locations for cultural tourism are strongly linked to provision of quality experiences that relate to place and people.

The strategy goes on to highlight that there are four key products when looking at Albania as a destination as a whole. These are:

- culture and heritage tourism
- nature tourism
- rural tourism
- coastal tourism

Furthermore, it is highlighted that because of the general rather than the strong specific assets across the country, Albania should be promoted as one destination where it can offer a 'diverse combination of distinct tourism activities' within a compact geographical area. This stress on an overarching combination of culture and nature, shows that the Lake Ohrid region could be a perfect fit to this vision, with a history, style of life and natural landscape providing a combination of 3 out of those 4 priorities.

In order to place this assessment fully in context, subsequent observations and analysis will focus principally on the area covered by the Pogradec Terrestrial/Aquatic Protected Landscape, but additionally include elements of the wider Korça region. This approach is further justified through the recent political

boundary changes, whereby Pogradec and the entire Lake Ohrid coast will look to Korça for overall administration.

The current position of tourism development in the region, can be divided geographically in two principal areas:

- A strip of lakeside territory stretching between Pogradec and the village of Tushimisht already hosts a relatively mature form of tourism where the overarching emphasis is on lakeside leisure and beach opportunities. Closer detail regarding this area, is outlined in the section below on 'Leisure tourism'.
- The city of Korça is emerging or re-emerging as a hub, attracting visitors to its built heritage, festivals, cuisine and overall tradition as a centre for Albanian cultural expressions. Korça as the regional trade centre, is also showing potential as a location for business tourism.

In between those two core areas of development, smaller scale tourism has started to emerge around mostly historic villages such as Lin, Dardha or Voskopoja.

The following section will outline and expand upon the range of tourism products, segments or niches that have been identified as having the greatest potential in the Lake Ohrid Region, through the receipt of past or current donor funding or private investments.

F.2.2.2 Cultural tourism

Built heritage

The starting point, for many tourists and tourism developers/planners alike when considering cultural tourism, is the built or tangible components of cultural heritage. Buildings, monuments and sites in the Korça region are renowned locally and cover a broad range of historical periods. Stretching back to Illyrian archaeological sites, medieval and Byzantine churches and buildings, Ottoman bazaars and mosques, vernacular and traditional architecture and houses, to more recent monuments, memorials and museums (see Annex X from Regional Directorate of Cultural Heritage in Korça).

The renovation and restoration of some of these sites has been the focus of a number of donor aided projects, which impact either directly or indirectly for their use as cultural tourism assets. The most prominent of these has seen considerable investment in the rehabilitation of the Old Bazaar district of Korça. Support has been channelled through EU IPA funds in a programme titled 'Support to sustainable and integrated development of cultural and historical heritage'. The programme is partnered by the Albanian Ministry of Culture and explicitly states that the actions were initiated to "attract more tourists encouraging the development of local businesses and leading to better use of resources". The programme was due to run from 2011-2013 and has seen the inner streets and lighting of the bazaar repaired.

The restoration of other structures such as the Han Elbasan is being further supported by the German agency GIZ.

Further bilateral support for improvements has been conducted through the Albanian-American Development Foundation (AADF). The AADF is partnering with the Government of Albania, Municipality of Korça and the local business community to revitalize the Old traditional Bazaar.

This project is expected to be completed by the end of 2015 and forms what is described as a Tourism Improvement District (TID). See: http://www.aadf.org/project/tourism-improvements-districts/korca/

However, Korça has only recently begun to consider itself as a tourism destination. For it and other towns in the region to reach their full potential as cultural tourism destinations, there is a need to move beyond solely infrastructural changes, and become what the regional council report of 2014, describes as more 'tourist friendly'.

This would include amongst other actions:

- the opening of easily accessible tourist information offices;
- provision of signage for the principle attractions and amenities;
- encouragement for printing of menus in English as well as Albanian in restaurants and cafes;
- Further support for training of guides, plus practical maps and information in a number of languages.

The prompt need for such changes was raised during the ICOMOS study visit. In Pogradec the location with the greatest experience of managing tourism, where we found that at midday on a weekday the tourism information point in the municipality was closed. Other static tourist information was found outside, but was not translated from Albanian, whilst what looked like a digital tourist information point that was funded through UNDP, remained locked up and unusable.

Within the immediate vicinity of the Lake and the town of Pogradec a few built structures of importance do exist. Most noteworthy amongst these is the 6th century church of Lin. Although not much of the fabric of the building exists today, some impressive mosaics do survive. Although, to exploit in full the potential of the site in terms of visitors, improvements are needed for its accessibility, with regards both to infrastructure (e.g. stable protection for the mosaics to remain visible but protected) and to management (e.g., visiting hours, ticketing and guiding staff).

Some positive aspects already in place however are:

- its proximity to the principle highway between Pogradec and Elbasan;
- existing food and accommodation facilities in Lin village;
- The panoramic and serene position of the Lin peninsular facing Lake Ohrid.

The Monumental Tombs of Selca form a further important site connected to the deeper traces of human settlement around Lake Ohrid. Access to this remote site would be one of the biggest obstacles to direct visitation, for the time being. But this does not exclude it being incorporated and included on walking or hiking routes, provided guides and local villagers are made aware of its significance and access to some basic information and materials. Equally, signage and furthermore interpretation through 'virtual' tools or the utilisation of archaeological artefacts may link that site with others more available to the heritage tourism trails. Connection with this and the church of Lin need to be made through local museums.

There are also further vernacular and traditional buildings in both Pogradec and the surrounding villages. A few structures date from the Ottoman period, with others from the more recent past. Given the appropriate renovation and conservation, some of these buildings and areas, particularly in Pogradec, could have a useful function with use transformed potentially as accommodation, restaurants or public information centres regarding heritage in the region. Similar steps have already taken place amongst the built environment in Korça.

The Castle of Pogradec appears interesting for its elevated position and for the views that can be enjoyed from there. The archaeological remains however are much limited and may need a substantial work in terms of interpretation and links to be established with other prehistoric and proto-historic fortifications in the Pogradec district and its surroundings. This however could be developed into an archaeological trail within the area.

Another component of the cultural tourism offer comes in the form of museums. Here again the focal point is around Korça. Within the city itself there are five museums:

- Medieval Art Museum (displaying 250 out of an overall collection of 7,000 icons that make it the largest icon museum in the Balkans
- Archaeological Museum
- Education Museum in the first Albanian language school
- House of landscape painter, Vangjush Mio

- Oriental Art Museum 'Bratko'

The subject matter of these museums means that some will mostly be of interest to a domestic market, whilst others could see development to attract international tourists. One of the key aspects if further steps were taken to draw that audience, would be for consideration to be made of a more interactive and less static style of curation and presentation, which is now commonly expected by cultural tourists.

Korça district is also rich in important archaeological sites that have yielded many information and artefacts and that could therefore be the object of an interpretation strategy for the overall region, in which sites and museums or interpretation centres are connected into one single system.

Intangible Cultural Heritage (ICH)

In addition to the built component of cultural heritage, possibly the greater emphasis and potential for contributing towards cultural tourism within Lake Ohrid region, lies around what should be described as intangible cultural heritage.

Southern Albania and particularly the region around Korça and Pogradec features rich cultural intangible manifestations and traditions. As a consequence, a number of these manifestations have received support and funding for further development, including the following:

- EU IPA cross-border cooperation programme: Project, 'Empowerment of women in touristic areas through handcrafting production': As seen in the title, the whole emphasis of this 18 month project was around handicraft production. Some of the results that had a close bearing to ICH included the establishment of two artisan incubators, a sequence of training and workshops around handicraft and cultural production and marketing
- EU IPA cross-border cooperation programme: Project, 'cross-border shared integrated alternative tourism' (municipalities of Krushevo and Pogradec): included training around traditional handicrafts and traditional food production amongst other activities
- EU IPA cross-border cooperation programme: Project, 'Women crossing borders for change' (municipalities of Struga and Pogradec): included exchanges and training relating to 'family run tourism' based around tradition and creativity
- GIZ ProSME programme: in Korça ran a souvenir design competition which engaged in handicrafts

Women's groups and NGOs have also received a range of funds that are linked in particular to training, production and promotion/marketing for traditional handicrafts. During the ICOMOS study trip, for instance we met up with colleagues from two women's organisations, 'Intellectual Women – Pogradec', and 'Help for Children Foundation', whose activities included transmission and support around the production of traditional handicrafts in the Pogradec area.

Also of note in the region, is the Pogradec based women's organisation Une Gruaja (http://unegruaja.org). In addition to actions relating to ICH, they were the lead partner in a 12 month EU IPA cross-border cooperation project called 'World Heritage in Young Hands – Together Protecting our Culture and Nature'. As the title suggests, this had a focus on UNESCO world heritage broadly, and the Lake Ohrid World Heritage Site in particular. The objective was to develop curriculum and activities to raise awareness and understanding amongst children of high school age, concerning the values of natural and cultural heritage (see IPA CBC MK-AL summary document in annexes).

These organisations should be invited in to the wider stakeholder cluster for the pilot upstream project.

For ICH to function, and in the language of the 2003 Convention, 'be viable', it has to be produced and placed within a context that is meaningful and desired by the practicing communities. Therefore, it is important for ICH expressions not to be demonstrated solely for tourist audiences as 'traditional' folkloric expressions, but for it to simultaneously have a meaning for the local population.

The further promotion of such integrated actions, assists in the implementation of the key objectives outlined in the draft tourism strategy plan (2014-2020), that is to 'encourage visitors to discover the many facets of Albania's culture and nature.

The Ministry of Culture, can offer financial support to the NGO's and individuals of the region, involved in ICH and cultural diversity issues through its grant scheme provided on a yearly basis. The grant can be awarded to NGO-s and inviduals upon the submissions of their project proposals in the open call the Ministry publishes in the beginning of the calendar year. The projects proposals are evaluated by a Board of Experts and qualified if the proposal meets the relevant criteria introduced in the open call.

Other funding possibilities should be considered by NGO-s to develop joint projects concerning promotion and development of ICH in the area, such as Creative Europe (http://ec.europa.eu/programmes/creative-europe); The International Fund of Cultural Diversity (http://en.unesco.org/creativity/ifcd/apply/ifcd-sixth-call-funding) ; The International Fund for ICH (http://www.unesco.org/culture/ich/index.php?pg=00013); etc.

Another important action initiated in 2014 and currently in process, is the digital inventorying of ICH practices with the community participation. The local community by itself or through NGO-s and/or Regional Directorate of Cultures, records with simple technology tools the practices they consider as part of their identity and ICH and submit the recordings to the Ministry of Culture, which publishes them in Youtube channel of the Ministry as well as in the digital interacive map in the official web page (www.kultura.gov.al). The whole practices of the region around Ohrid lake can be inventoried and promoted through this mediums.

F.2.2.3 Nature based and adventure tourism

Tourism based around the natural environment of Lake Ohrid and the Korça region is possibly the clearest opportunity when it comes to sustainable developmental options. The mixture of lakes, rivers, mountains, caves, forests, an appealing climate and clean fresh air provide the ingredients for numerous types of activity and itinerary. So much so in fact that one of the challenges is considering how to define and shape the eventual products and niches.

The term Ecotourism partially covers the forms of activity that are currently present in the Lake Ohrid region. It is defined by the International Ecotourism Society as being, "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education" (http://www.ecotourism.org/what-is-ecotourism).

Another category that is growing in prominence and mirrors much of interest around Lake Ohrid, is 'Adventure Tourism'. This is defined by the Adventure Travel Trade Association (ATTA), as being "a trip that includes at least two of the following three elements: physical activity, natural environment, and cultural immersion" ATTA outlines that adventure tourism activities can be considered as either hard adventure or soft adventure in physical terms. Observing the opportunities starting to be presented and promoted in Lake Ohrid region the following are those that ATTA considers being a soft or hard adventure tourism activity:

- Archaeological expedition (soft)
- Backpacking (soft)
- Birdwatching (soft)
- Camping (soft)
- Canoeing (soft)
- Caving / Speleology (hard)
- Climbing (hard)
- Educational programmes (soft)
- Fishing (soft)
- Hiking (soft)
- Horse riding (soft)
- Trekking (hard)

When grouped together as adventure tourism, the UNWTO global report on adventure tourism outlines it as being a major and growing trend within world tourism (https://s3-eu-west-1.amazonaws.com/staticunwto/Affiliate-members/1-GLOBAL+REPORT+ON+ADVENTURE+TOURISM_online.pdf). That position is backed up by the Korça Regional Council's tourism report of 2014. They conducted a 'Product / Market Fit' analysis of the products that tourists visiting a destination enjoy. Amongst the category of products they listed, 'Villages'; 'Mountains/Nature'; 'Lakes/beaches', all featured very highly. However, for these opportunities to flourish standards and good practice have to be established. Safety, security and sustainable management policies need to be devised.

- Korça Regional Council tourism report highlighted the great potential of this segment but stressed the need for improved practical information, accurate maps, guiding and service provision, and for international guests basic language skills beyond Albanian.

Nonetheless, adventure and eco-tourism opportunities are emerging. This has taken the form of private initiatives, such as the catering for small adventure groups by Albanian Mountain Team (http://climbingalbania.webs.com). Director Gerhard Duro outlined that the business takes groups to a variety of locations around Albania, including a number of excursions to Mali I Thate mountain and other sites in Lake Ohrid region.

Taking a slightly different angle to adventure tourism, the Hotel Akademia in Voskopoja village has now begun to offer activities for mostly educational groups that can include horse riding and skiing.

Supporting these type of initiative, funding support has again been sourced principally through the EU IPA programmes. A number of projects that involve partners from Korça region and financed through the Greece-Albania strand of the Cross-border Cooperation programme, have tackled aspects of nature/adventure tourism development, these include:

- Innovative Practices in Biotourism: activities included the creation of a transboundary network of cooperation and the development of common transboundary tourist packages of added value: "From Past to Future: The Promotion of All the Beauties of Natural & Cultural Heritage of the Prespes Lakes Area with the Use of Technology of the Future (Solar Powered Boats)", the principle objective being the promotion of the cultural & natural heritage of the Prespes Lakes area through solar boats trips.
- Differentiation of Tourist Product: Eco-Tourism Trails in the Cross-border Area for the Promotion of Alternative Tourism: creating eco trails in the areas between Nestorio in Greece and Korça district in Albania

Before opening up the countryside around Lake Ohrid to all eco-tourism / adventure tourism operations however, it would be prudent to conduct extensive and thorough analysis of the standards and capacity considered sustainable for the delicate ecosystems. A number of benchmark studies mapping out good practice for tourism in protected areas have emerged on the past decade. Amongst these the Europarcs 'European Charter for Sustainable Tourism in Protected Areas' is a stand out document (see attached in annexes).

Additionally the 'Ohrid-Prespa Watershed' Transboundary Biosphere Reserve has outlined sustainable tourism as a key development axis. Within its management plan is has pointed to a permanent working group on this matter to be established within the Secretariat of the Watershed Committee.

- That working group should operate in close liaison with Korça Regional Council and any additional structures working on utilising eco/adventure tourism in the Pogradec protecting landscape / World Heritage Site extension area.

It is important to remember at this point, that as one of the most ancient water masses in Europe, the entire Ohrid region and watershed owes its origins to geological or more specifically, tectonic rifting forces. Recognition and promotion of the geological heritage provides an opportunity to introduce an important segment in the continuum of eco-adventure tourism namely geological tourism.

In the past decade, the structure most used to bring geotourism to wider audiences, has been the network of European & Global Geoparks (see: http://www.europeangeoparks.org). Although the geoparks model has yet to directly reach Albania, it does have a strong foothold in the Balkan region more widely, and in Greece in particular which is home to 5 geoparks.

Geoparks have flourished partly because they aren't 'just about rocks' or a narrow wish to popularise scientific knowledge. Instead they represent a holistic way of viewing the human connection and inspiration drawn from landscapes, and the diverse interactions between natural, cultural and geological forms of heritage. At this stage it is almost certainly not the correct timing to look at establishing a geopark in the Ohrid region. But some of the lessons in sustainable rural development, and ways of conveying the humanisation of geology and the environment, can be taken from the model.

Amongst the features of the Lake Ohrid region, the unique 'plumbing system' shared through the Karstic and tectonic nature of the Ohrid-Prespa watershed, are certainly a gap in what is presented as a touristic feature or point of interest. The remarkable and visible story of the relationship between rock and water, surface and underground, is one that can be expressed and developed in a number of ways and further assist the intermeshing of the cultural and natural facets in the Lake Ohrid world heritage site.

F.2.2.4 Rural or village tourism

Scattered across the rural landscapes in the Korça region, a number of historic and picturesque villages have attracted touristic attention. Some have retained appealing stone built buildings and bring the calm environment of rural life, whilst maintaining good communications with nearby urban centres such as Korça and Pogradec. Often added to the simple lure of a relaxing break are further services related to the rural backdrop. Working farms and guesthouses have the possibility of providing walking, cycling or riding routes in the surrounding countryside.

This approach has already been tested in several village centres close to Korça:

- Voskopoja: this small town in past epochs and until the 18th century had established itself as an important centre for culture and education with direct links with Ohrid and a European breath of connections. Today it is home to five Byzantine Churches and a monastery out of the 22 that existed in the 18th century. With surroundings of accessible forest walks, this town can already offer accommodation in several small hotels and guesthouses. A larger hotel called the Academia can also accommodate larger groups. Also it has horse rentals and the provision for guided tours, walks and cycling.
- Dardha: A mountain village some 20km from Korça, with traditional vernacular architecture using local stone and slate roofs. The folkloric and ICH traditions around are particularly strong. The

village has featured in another EU IPA CBC project titled "Working in the Rural, Investing in the Future". Dardha also has plans for further accommodation to be constructed.

- Lin: Situated directly on the shore of Lake Ohrid at the most northerly point still within Albanian territory. The village is home to an important archaeological find in the form of a 6th to 7th Century mosaic. At present the mosaic is covered up for protection, but represents an opportunity to be showcased if conditions for its preservation can be ensured through protective structures. Within the village itself a number of accommodations, small hotels and bed & breakfasts have opened.

One further consideration regarding the development of village tourism in Lake Ohrid region, is the emergence of peer to peer internet based services such as the accommodation sites like AirBnBetc. This innovation allows small service providers such as guesthouse owners, or even home owners with a spare room, to reach a global audience. Quality, cleanliness and accurate descriptions of accommodation are monitored through a thorough and compulsory reviewing system for both the host and the guest. The system allows sites or businesses that couldn't otherwise afford marketing and promotion, to tap in to what is rapidly becoming a trusted global brand.

- AirBnB is already emerging in the Korça region:

Pogradec = 6 properties listed
Voskopoja = 4 properties listed
Dardhe = 1 property listed
Lin = 1 property listed
Tushemisht = 7 properties listed
Korça = 3 properties listed
Memëlisht = 1 property listed

The full potential of this approach to finding accommodation however, can be seen if one searches for properties on the Macedonian side of Lake Ohrid:

Dolno Konjsko = 14 properties listed
Ohrid town = 364 properties listed

Other similar forms of internet-based accommodation services can be found: e.g., Housetrip, http://www.housetrip.it, bed and breakfast – Bed & Breakfast Europe, https://www.bedandbreakfast.eu/ , etc. however it is clear that these are much more developed and used in Ohrid.

F.2.2.5 Leisure tourism (existing beach / lakeside)

In all of the policy, strategy and project documents addressing opportunities for tourism development around Lake Ohrid region, the only forms or niches mentioned are those deemed to have a sustainable profile. Little is mentioned about the most prolific development of tourism in the whole of Korça region, which is in and around Pogradec city. The population of over 30,000 is said to more than double during the summer tourist season. Accurate figures are unavailable because of the lack of statistics gathered in the region, and because of a large 'grey economy' of home owners renting out their properties undeclared so as to avoid taxes. What is known is that as of 2014, there were 27 hotels, 900 beds, 10 guesthouses and unknown number of 'rented apartments' (this grey economy). The last available figures from 2013 estimate there were 150,000 visitors staying at its 27 hotels. Non-Albanians accounted for just 10,000 of those visits.

The mode of tourism in Pogradec is that of a relatively mature lakeside destination, with an overriding emphasis on leisure around the lake and city beach. The city has a range of leisure entertainments (fun fair, rides, swimming), a tree lined lakeside promenade and numerous restaurants and bars. Local cuisine is well known and regarded. There are also a number of cultural attractions in the shape of festivals and events. The

current upgrading of the main Tirana – Pogradec highway along Lake Ohrid, will ensure that the growth potential of tourism around Pogradec will increase significantly.

If Pogradec and the lake shore are to retain their character, the strict implementation of access on to the lake itself is crucial. The lack of noisy leisure craft or excessive fishing boats, brings a special and calm ambiance to the region that is unique in such an accessible locality. This must be protected both for the good of biodiversity and sustainable economic development.

G Conclusions and recommendations

G.1 Natural values

Lake Ohrid is a deep, oligotrophic lake of tectonic origin and amongst the few ancient lakes in the world. This long existence of the lake allowed the independent development of an extraordinary ecosystem that harbours an outstanding degree of endemic biodiversity. Objectively, Lake Ohrid represents a superlative natural phenomenon in the sense of the Criterion VII of the Operational Guidelines for the Implementation of the World Heritage Convention. Harbouring about 1,500 species, and more than 300 endemic species, Lake Ohrid is probably by far the most diverse lake in the world taking surface area into account. It is likely that even this high rate of endemicity is underestimate as there remain a number of taxa which are poorly studies or even unstudied, particularly within the Protista, Coelenterata, Trematoda, Cestoda, Nemertina, Tardigrades, and Insecta.

Within the Ohrid watershed, endemism occurs at different spatial scales with some species being endemic to the lake proper and other restricted to its adjacent and surrounding springs or only certain locations isolated by horizontal and vertical barriers. The most important locations for the conservation of the endemic aquatic biodiversity within Lake Ohrid include Veli Dab, the littoral near zone near Saint Zaum monastery and the feeder spring complex at Saint Naum, in the former Yugoslav Republic of Macedonia and the feeder spring complex at Tushemisht/Zagorican (Drilon) in Albania. Currently there is no comprehensive and systematic review of the distribution of the endemic species in Lake Ohrid and its watershed, but probably a high number of endemic species are distributed throughout the lake, including four endemic species of sponges and several endemic fish. Other endemic species have been described from locations in the Albanian part of the lake, such as several endemic diatom species that have been published recently as new to science. A very high number of Palaearctic water birds regularly winter at Lake Ohrid, rendering it an internationally important wetland. The watershed of Lake Ohrid also harbours rich and important biodiversity. Based on a number of species of international and national conservation values have been identified in the Albanian part of the watershed: 44 taxa of invertebrates, 21 fish species, 6 amphibians, 13 reptiles, 137 birds, and 21 mammals.

The evolution of the exceptionally rich biodiversity of Lake Ohrid is closely related to its specific ecology. Like for most other lakes, the ecology of Lake Ohrid is a mirror of its catchment and its eco-climatological setting. The presence and evolution of the rich biodiversity of the lake was supported by the subaquatic inflow of cool, clean and oxygen rich water into the lake. The subaquatic springs contribute to the establishment of specific habitats for endemic species as they supply oxygen, nutrients, and ions and by creating distinctly different, but constant boundary conditions. The occurrence of a number of endemic taxa is exclusively linked to the springs and this seems to indicate that the spring water may have been important for the evolution of the unique ecosystem of Lake Ohrid. Due to the long hydraulic residence time in Lake Ohrid the water through-flow is weak and the subaquatic springs contribute a significant portion of the water budget. The dilution of regular lake waters with pure spring waters is important for the oligotrophic status of Lake Ohrid and its subsequent low algae productivity. The lake is still highly oligotrophic, with a transparency of 14m, but the mean total phosphorus concentration has risen to 4.5 mg m^{-3}.

Lake Ohrid also provides invaluable archives of tectonic, climate, environmental, and evolutionary histories (Albrecht *et al.* 2010). Recently, Lake Ohrid has been recognized as a site of global importance for long-term palaeoclimate reconstruction. With its long sediment record and key geographic location between the Mediterranean and Western Europe it is increasingly used to test hypotheses concerning biodiversity and the evolution of endemism in ancient lakes (Reed *et al.* 2010).

Although Lake Ohrid has experienced major natural environmental changes and fluctuations throughout its history, the magnitude of anthropogenic impact seen in the past years is a source of concern. There is some evidence for a “creeping biodiversity crisis” due to the human impacts that have accumulated over the last decades. Currently the major conservation concerns for Lake Ohrid include various impacts

originating in its watershed, pressures from unsustainable activities in agriculture and forestry, pressures from tourism activities and the growing human population in the watershed, introduction of alien species, degradation of natural habitats and global climate change. Although the lake is still oligotrophic the global warming may exacerbate the negative effects of eutrophication. It is expected that with the rising temperature the vertical mixing of water will decrease and that complete deep convection will be less frequent.

A concerted action is needed across the state border and encompassing the entire watershed, including the part in Albania in order to reduce the negative impacts to the vulnerable and ancient ecosystem of Lake Ohrid.

G.2 Cultural heritage values

The very centre of the property is the lake Ohrid which acts as a unifying element and the major natural feature, which also exhibits significant aesthetic values, reinforced by the Mount Galičica and Mali i Thatë, which visually dominate the lake-scape and are reflected by the lake waters and provide ever changing views and impressions.

If it seems acknowledged that the whole Lake Ohrid Region features the same sets of natural values, from a historic–cultural perspective, while the region is likely to have experienced similar patterns of development of human occupation and cultural influences in different epochs, ascertaining whether it could be considered one single homogenous region may lead to more nuanced responses, in relation to the different epochs and aspects considered (e.g., administrative, political, socio -economic, religious, ethnic, linguistic, etc.).

The investigations that have been carried out over the last months and that still continue suggest that a certain imbalance exists between the knowledge and understanding of the natural values and history of the region and that of the cultural values, its historic development over the centuries and the current landscape and settlement structure/ pattern/ features.

The complex history of the region could only be appreciated and understood through a thorough investigation of the political, administrative, cultural and religious continuities and discontinuities that characterised this area throughout several centuries. A comprehensive research approach in the historic, geographic and socio-cultural fields which goes beyond current national boundaries apparently has yet to be carried out but it is necessary to achieve a better understanding of the evolution of human occupation in the region.

The limited understanding of the heritage values and specificity of the Albanian side of the region, particularly in relation to the shared nature of these values, has consequences in terms of vulnerability of the heritage resources, be they formally protected under the existing provisions of law or not.

G.2.1 Factors currently impacting the Albanian side of the Lake Ohrid/ Pogradec region

The research and the field trips carried out in the area since 2012, along with desk research exercise, highlighted a number of issues and challenges that have to be fully understood in their possible negative consequences, in order to ensure the full exploitation of the potentials of the region. A number of weaknesses and factors that need be addressed urgently, as they may limit and, if not stopped, prevent from the possibility to enjoy the benefits of the rich natural and cultural resources of the area and eventually affect the final result for which this Pilot Project has been initiated. Below some of the most important among these factors are summarised.

G.2.1.1 Urban development pressures

For several years, building occurred frequently also in the absence of legal permits and, in the last year, the Government of Albania, has taken a decided position against illegal buildings and some were demolished.

Unfortunately still a number of edifices – possibly legally built but nonetheless negatively impacting on the landscape and on the exceptionally beautiful, evocative views towards the lake Ohrid/ Pogradec – stand close to the border of the lake and others are under construction. Building development along the lakeshore unfortunately continues and, despite improvement in architectural quality, their scale and volume far exceed what could be absorbed by the character of the area, particularly because this new development is now taking place in areas still undeveloped (e.g. near Tushemisht).

A moratorium on new construction should be envisaged, until urban planning and landscape protection regulations, in line with the values of the area and of the provisions of the related management plan, are established.

G.2.1.2 Inadequate building quality

Poor design of recent buildings, their inappropriate location in relation to the impacts that these new buildings have on the visual qualities of the landscape and their poor or inadequate materials cause visual disturbance and undermine the landscape values of the area and their enjoyment. In terms of cultural values, it creates an imbalance in what has been for centuries a harmonious relationship between humankind and the environment.

Elaboration of guidelines for architectural quality of new buildings elaborated would assist the process of improving the built environment, much important for ensuring a harmonious living environment to inhabitants but also to reinforce the potential for sustainable and heritage - oriented tourism development.

G.2.1.3 Infrastructure and lakeshore changes

The project for the enlargement of the road connecting Qafe Thane with Pogradec, currently under construction, is transforming the lake shore into an artificial environment, diminishing natural habitats for lacustrine fauna, altering the panoramic and evocative character of the route and eventually reducing the enjoyability of the lake environment for many visitors who are seeing its natural qualities.

Where possible the project should be downsized and revised, in order to give the promenade, that could have been developed with a much different and more nature –oriented approach, a more natural aspect.

G.2.1.4 Visual Impacts from quarrying and mining activities

Traces of quarrying activities could be found in different locations and particularly the area between Pogradec and Lin along the lake shore appears as the most impacted by mining and quarrying activity. Projects for the mitigation of these effects should be envisaged as part of an overall strategy for the enhancement of the visual quality of degraded areas with a view to repair locally the landscape, which is otherwise very pleasant and evocative and which represents an important asset also to sustain the tourism attractiveness of the region. As a matter of fact, the presence of the now abandoned mining infrastructure between Pogradec and Lin offers opportunities for its rehabilitation and for the creation of an information centre on the geology of the region and on the history of mining in the region and in Albania.

G.3 Agriculture

Trying to conclude a general examination of the agricultural situation in Albania with special reference to the Disctrict of Pogradec it is possible to formulate some final thoughts that could represent food for discussion and deepening of the issues in the later stages.

The analysis shows that the high quality and the wealth of biodiversity that characterizes the agricultural sector in Korca Region in Pogradec District ought to be maintained and preserved through a model of growth and well-balanced development. In a perspective of progress and improvement in production performance of the primary sector it is necessary to preserve the existing agricultural structure to pledge, in the the future too, its role of protecting local interests in favor of landscape value and nature.

In particular it highlights the opportunity to promote the vocation of local agriculture to horticolture, viticulture, fruit growing and floriculture. The hazelnut as well could be considered as a resource.

In terms of viticulture, fruit growing and floriculture, there is a group of species already identified and cultivated varieties that have some genetically recognisable features. , However in the horticulture sector - traditionally oriented production to self-consumption - it will be necessary to promote a project for the detection of references horticultural trying to fix some of the characteristics that will make them recognizable with a view of their commercialization even outside of the local market. At the same time it will be necessary to establish a chain of nursery production that allows the spread of species and varieties identified. This process will permit the certification of products, through the adoption of production rules, and allow them to be promoted commercially.

A separate treatment deserves, however, the introduction of organic farming methods that have currently not been introduced in the area. Downstream of the previously described actions the introduction of organic farming is the final stage with the aim to further characterize agricultural production in terms of quality.

The livestock farming emphasizes the need to identify forms of grazing consistent with the potential of grazing areas. In this respect, it will be strictly necessary to establish a programme to appoint grazing areas based on the capacity of each area. At the same time it will be required to encourage and to promote the breeding of native breeds.

In order to provide an increasingly comprehensive offer, a significant possibility lies in the development of beekeeping through the production of high-quality honey, its certification and its marketing.

It highlights, finally, significant potential of the cultivation of medicinal herbs from the traditional cultivation of Sideritis syriaca, Sideritis raeseri, Sideritis scardica. Even in this branch of the primary production sector you will need to locate production disciplines with the opportunity to certify their quality in response to market demands.

G.4 Forestry

In forestry to achieve a correct policy development, it is essential to safeguard, in regulatory terms, a portion of the entire area in order to create forests with natural and protective role. A real forestry management plan might come to life through a clear functional division of the territory imposing, for the portion of the surface subject to the planned use, precise shifts of forest exploitation in function of the needs of use (firewood or wood for building).

At the same time it will be necessary to equip a forest nursery born from the collection of the seed local plants matricine to support new programs of re-forestation.

Some actions have been identified to address the most relevant gaps and weaknesses in the fields:

- promote the vocation of local agriculture to horticolture, viticulture, fruit growing, floriculture and beekeeping;
- develop the organic farming methods that are currently not yet been introduced in the area;
- identify forms of grazing consistent with the potential of grazing areas for livestock production;
- create forests with natural and protective roles;
- plan the use of forestry resources in function of the needs of use (firewood or wood for building);
- preserve, in an active and proactive way, the plot of agriculture in the area actually equipped with a high degree of biodiversity.

Some gaps have also be identified in the current situation:

- improve and optimise the extension service already existing to fill the lack of preparation of the human factor;
- carry out a research and conservation and reproduction of genotypes of agricultural references that characterise the area;
- build a network of local markets which can spread and promote agricultural products.

G.5 Tourism

Below in the following phases are noted the main aspects and points that need to be addressed according to the findings.

Integration of tourism and heritage with other sectors, in particular the agricultural and forestry sectors. The mutually beneficial value chains should be merged together. Equally it is important to set clearly a vision for the development of the region and of the area which should assist in coordinating and prioritising development opportunities so as not to inhibit conditions for sustainable development opportunities. A deeper examination of the mining sector is recommended at this baseline stage. This should be conducted by an expert familiar with the economic, environmental and socio-political implications of development in the sector.

Integration with existing policy and planning both for Ohrid-Prespa watershed transboundary biosphere reserve and the national level tourism planning documents. It is critical to locate Lake Ohrid in a wider context. Albania is fortunate enough to have a significant stretch of coastline. If unregulated developments are allowed to occur, the tendency which has been observed extensively, is for both small and large businesses to follow a one-dimensional route and replicate a model of mass leisure tourism. The lake shore should never be considered as just another stretch of coastline to be exploited. Instead there is great potential to expand numerous forms of heritage in its tangible, intangible, biological, and geological forms. A holistic perspective on the entire landscape is shown to be more effective than fragmented diverse elements (especially see notes concerning geoparks model).

The resources are all there. A key element that has to evolve is the coordination of funding opportunities and subsequent actions. Because funding can be secured by a whole range of organisations, institutions and associations, there needs to be the opportunity to gather and share good practices and to steer away from overlap or duplication. An overarching strategic vision has to be generated and adhered to through directions in funding terms of reference. When it comes to many of the priorities set by the EU IPA programmes, it is clear that the two UNESCO designations - the World Heritage property “Cultural and Natural Heritage of the Ohrid region” and “Ohrid-Prespa Biosphere Reserve” - can become the focal points for future sustainable development and their status should be acknowledged and understood by all funded projects.

Cultural tourism development is distinct from coastal tourism. Cultural tourism requires increases in quality, interpretation, guiding and the feel of being an authentic local experience. Increasing numbers alone are not a sign of successful cultural tourism development.

Build upon the recent steps taken by the Ministry of Culture concerning ICH, there is an excellent opportunity to integrate ICH into a LOR sustainable development approach. ICH is also one of the strongest

means to bridge between cultural and natural heritage components,thus one of the core tools for ensuring a mixed WHS functions on both levels.

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The Bibliographic reference for cultural values and heritage, agriculture and tourism has been compiled as ANNEX XXIII in a separate document which has been made available on the World Heritage Centre website (http://whc.unesco.org/en/lake-ohrid-region/).

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ANNEX I: The vascular plants of Lake Ohrid

1. *Agrostis stolonifera* L.
2. *Alisma gramineum* Lej
3. *Alisma lanceolatum* With
4. *Alisma plantago-aquatica* L.
5. *Alnus glutinosa* (L.) Geartner .
6. *Apium nodiflorum* (L.) Lag.
7. *Asteriscus aquaticus* (L.) Less.
8. *Baldellia ranunculoides* (L.) Parl.
9. *Beckmania eruciformis* (L.) Host
10. *Berula erecta* (Hudson) Coville
11. *Butomus umbellatus* L.
12. *Alamagrostis pseudophragmites* Koeler
13. *Callitriche cophocarpa* Sendtner
14. *Callitriche stagnalis* Scop.
15. *Calystegia sepium* (L.) R.Br.
16. *Carex acutiformis* Ehrh.
17. *Carex brizoides* L.
18. *Carex echinata* Murray
19. *Carex paniculata* L.
20. *Carex pendula* Hudson
21. *Carex pseudocyperus* L.
22. *Catabrosa aquatica* (L.) Beauv.
23. *Centaurium pulchellum* (Swartz) Druce.
24. *Ceratophyllum demersum* L.
25. *Ceratophyllum submersum* L.
26. *Cirsium palustre* (L.) Willd.
27. *Cladium mariscus* (l.) Pohl.
28. *Crypsis schoenoides* (L.) Lam.
29. *Cyperus flavescens* L.
30. *Cyperus fuscus* L.
31. *Cyperus longus* L.
32. *Damasonium alisma* Miller I.
33. *Eleocharis acicularis* (L.)
34. Roemer et Schultes
35. *Elodea canadensis* Michx
36. *Epilobium hirsutum* L.
37. *Epilobium obscurum* Schreber
38. *Epilobium palustre* L.
39. *Epilobium parviflorum* Schreber.
40. *Epilobium roseum* Schreber.
41. *Eriophorum latifolium* Hoppe.
42. *Fimbristylis bisumbellata* (Forskal) Bub
43. *Galium palustre* L.
44. *Glechoma hederacea* L.
45. *Glyceria flutians* (L.) Br.
46. Glyceria plicata (Fries) Fries
47. *Gratiola officinalis* L.
48. *Groenlandia densa* (L.) Fourrr.
49. *Hippuris vulgaris* L.
50. *Hydrocharis morsus-ranae* L.
51. *Iris pseudacorus* L.
52. *Juncus compressus* Jacq.
53. *Juncus effuses* L.
54. *Juncus inflexus* L.
55. *Lemna minor* L.
56. *Lemna trisulca* L.
57. *Leucojum aestivum* L
58. *Lycopus europaeus* L.
59. *Lysimachia vulgaris* L.
60. *Lythrum hysoopifolia* L.
61. *Lythrum junceum* Banks et Solander.
62. *Lythrum portula* (L.) D.A.Webb.
63. *Lythrum salicaria* L.
64. *Lythrum virgatum* L.
65. *Mentha aquatica* L.
66. *Mentha pulegium* L.
67. *Myosotis scorpioides* L.
68. *Myriophyllum spicatum* L.
69. *Myriophyllum verticillatum* L.
70. *Najas marina* L.
71. *Najas minor* All.
72. *Nasturtium officinale* R. Br.
73. *Nymphoides peltata* (S.G.Gmel.) O.Kuntze.
74. *Oenanthe aquatica* (L.) Poiret.
75. *Oenanthe fistulosa* L.
76. *Oenanthe peucedanifolia* Pollich.
77. *Oenanthe pimpinelloides* L.
78. *Oenanthe silaifolia* Bieb.
79. *Paspalumj paspalodes* (Michx) Scribner.
80. *Phalaris arundinacea* L.
81. *Phragmites australis* (Cav.) Trin&St.
82. *Plantago major* L.
83. *Plantago lanceolata* L.
84. *Platanus orientalis* L.
85. *Polygonum amphibium* L.
86. *Polygonum hidropiper* L.
87. *Populus alba* L.
88. *Potamogeton berchtoldi* Fieber.
89. *Potamogeton crispus* L.
90. *Potamogeton gramineus* L.
91. *Potamogeton lucens* L.
92. *Potamogeton natans* L.
93. *Potamogeton nodosus* Poiret
94. *Potamogeton natans* L.
95. *Potamogeton pectinatus* L.
96. *Potamogeton perfoliatus* L.
97. *Potamogeton pusillus* L.
98. *Potentilla reptans* L.
99. *Ranunculus aquatilis* L.
100. *Ranunculus trichophyllus* Chaix
101. *Roripa amphibia* Scop.
102. *Rumex hydrolapathum* Hudson
103. *Salix amplexicaulis* Bory.
104. *Salix elaeagnus* Scop.
105. *Schoenus nigricans* L.
106. *Scirpus cernnus* Vahl

107. *Scirpus lacustris* L.
108. *Scirpus sylvaticus* L.
109. *Scutellaria galericulata* L.
110. *Scutellaria hastifolia* L.
111. *Senecio paludosus* L.
112. *Sium latifolium* L.
113. *Solanum dulcamara* L.
114. *Sparganium emersum* Rehmann
115. *Sparganium erectum* L.
116. *Tamarix parviflora* DC.
117. *Triglochin palustris* L.
118. *Typha angustifolia* L.
119. *Typha latifolia* L.
120. *Utricularia minor* L.
121. *Utricularia vulgaris* L.
122. *Veronica anagallis-aquatica* L.
123. *Veronica beccabunga* L.
124. *Veronica scutellata* L.
125. *Zannichellia palustris* L.

ANNEX II: List of fishes in the Lake Ohrid region in Albania

1. *Anguilla anguilla* Linnaeus, 1758
2. *Alburnoides ohridanus* Karaman, 1928
3. *Alburnus scoranza* Bonaparte, 1845
4. *Barbus rebeli* Koller, 1926
5. *Condrostoma ohridanus* Karaman, 1924
6. *Cobitis ohridana* Karaman, 1928
7. *Barbatula sturani* Sturany, 1923
8. *Cyprinus carpio* Linnaeus, 1758
9. *Gobio ohridanus* Karaman, 1924
10. *Pachychilon pictum* Heckel&Kner, 1858
11. *Pelasgus minutes* Karaman, 1924
12. *Phoxinus limarieus* Linnaeus, 1758
13. *Rhodeus amarus* Bloch, 1782
14. *Rutilus ohridanus* Karaman, 1924
15. *Pseudorasbora parva* Temminck & Schlegel, 1846
16. *Onchorhynchus mykiss* Walbaum, 1792
17. *Salmo afelios* Kottelat, 1997
18. *Salmo balcanicus* Karaman, 1928
19. *Salmo letnica* Karaman, 1924
20. *Salmo letnica lumi* Poljakov, Filip & Basho 1958
21. *Salmo ohridanus* Steindachner 1892
22. *Scardinus knezevici* Bianco & Kottelat, 2005
23. *Squalius squalius* Linnaeus, 1758
24. *Telestes montenegrinus* Vukovic, 1963

ANNEX III: List of amphibia and reptiles in the Lake Ohrid region in Albania

Amphibia

1. *Salamandra salamandra* Linnaeus, 1758
2. *Triturus carnifex* Laurenti, 1768
3. *Triturus vulgaris* (*Lissotriton vulgaris graecus*) Linnaeus, 1758
4. *Bombina variegata* Linnaeus, 1758
5. *Bufo bufo* Linnaeus, 1758
6. *Bufo* (*Pseudepidalea*) *viridis* Laurenti, 1768
7. *Hyla arborea* Linnaeus, 1758
8. *Rana graeca* Boulenger, 1891
9. *Rana dalmatina* Fitzinger, 1838
10. *Pelophylax* (*Rana*) *ridibunda* Palals, 1771

Reptilia

1. *Emys orbicularis* Linnaeus, 1758
2. *Eurotestudo (Testudo) hermanni* Gmelin, 1798
3. *Anguis fragilis* Dumeril et Bibron, 1839
4. *Lacerta viridis* Laurenti, 1768
5. *Lacerta trilineata* Bedriaga, 1886
6. *Algyroides nigropunctatus* Dumeril et Bibron, 1839
7. *Podarcis muralis* Laurenti, 1768
8. *Podarcis tauricus* Palals, 1814
9. *Dolichophis caspius* Gmelin, 1789
10. *Hierophis gemonensis* Laurenti, 1789
11. *Elaphe quadrolineata* Bonnattere, 1789
12. *Zameris (Elaphe) longissimi* Laurenti, 1768
13. *Natrix natrix* Linnaeus, 1758
14. *Natrix tessellate* Linnaeus, 1768
15. *Coluber caspius* Palals, 1814
16. *Vipera ammodytes* Linnaeus, 1758
17. *Vipera berus* Linnaeus, 1758

ANNEX IV: List of bird species in the Lake Ohrid region in Albania

1. *Tachibaptus ruficollis* (Little Grebe)
2. *Podiceps cristatus* (Crested Grebe)
3. *Pelecanus onocrotalus* (White Pelican)
4. *Phalacrocorax carbo* (Cormorant)
5. *Phalacrocorax pygmeus* (Pygmy Cormorant)
6. *Ixobrychus minutus* (Little Bittern)
7. *Nycticorax nycticorax* (Night Heron)
8. *Ardeola ralloides* (Squacco Heron)
9. *Egretta garzetta* (Little Egret)
10. *Egreta alba* (Great Egret)
11. *Ardea cinerea* (Grey Heron)
12. *Ciconia ciconia* (White Stork)
13. *Anas platyrhynchos* (Mallard)
14. *Mergus merganser* (Goosander)
15. *Circaetus gallicus* (Short-toed Eagle)
16. *Circus pygargus* (Montagu's Harrier)
17. *Buteo buteo* (Common Buzzard)
18. *Pernis apivorus* (Honey Buzzard)
19. *Accipiter nisus* (Sparrowhawk)
20. *Accipiter gentilis* (Goshawk)
21. *Falco tinnunculus* (Kestrel)
22. *Falco naumanni* (Lesser Kestrel)
23. *Falco subbuteo* (Hobby)
24. *Falco peregrinus* (Peregrine Falcon)
25. *Alectoris greaca* (Rock Partridge)
26. *Bonasa bonasia* (Hazel Grouse)
27. *Coturnix coturnix* (Quail)
28. *Perdix perdix* (Grey Partridge)
29. *Crex crex* (Corncrake)
30. *Galllinula chloropus* (Moorhen)
31. *Fulica atra* (Coot)
32. *Larus cachinans* (Yellow-legged Gull)
33. *Columba livia* (Rock Dove)
34. Columba palumbus (Wood Pigeon)
35. *Streptopelia decaocto* (Collared Dove)
36. *Streptopelia turtur* (Turtle Dove)
37. *Cuculus canorus* (Cuckoo)
38. *Bubo bubo* (Eagle Owl)
39. *Strix aluco* (Tawny Owl)
40. *Athene noctua* (Little Owl)
41. *Caprimulgus europaeus* (Nightjar)
42. *Apus melba* (Alpine Swift)
43. *Upupa epops* (Hoopoe)
44. *Merops apiaster* (Bee-eater)
45. *Dryocopus martius* (Black Woodpecker)
46. *Picus viridis* (Green Woodpecker)
47. *Dendrocopos major* (Great Spotted Woodpecker)
48. *Dendrocopos syriacus* (Syrian Woodpecker)
49. *Jinx torquilla* (Wryneck)
50. *Alauda arvensis* (Skylark)
51. *Galerida cristata* (Crested Lark)
52. *Lullula arborea* (Wood Lark)
53. *Calandrella brachydactyla* (Short-toed Lark)
54. *Eremophila alpestris* (Shore Lark)
55. *Riparia riparia* (Sand Martin)
56. *Ptyonoprogne rupestris* (Crag Martin)
57. *Hirundo rustica* (Barn Swallow)
58. *Hirundo daurica* (Red-rumped Swallow)
59. *Delichon urbica* (House Martin)
60. *Anthus campestris* (Tawny Pipit)
61. *Anthus spinoletta* (Water Pipit)
62. *Anthus trivialis* (Tree Pipit)
63. *Motacilla alba* (Pied Wagtail)
64. *Motacilla flava* (Yellow Wagtail)
65. *Troglodytes troglodytes* (Wren)
66. *Prunella modularis* (Dunnock)
67. *Prunella collaris* (Alpine Accentor)
68. *Erithacus rubecula* (Robin)
69. *Luscinia megarhynchos* (Nightingale)
70. *Phoenicurus ochruros* (Black Redstart)
71. *Oenanthe oenanthe* (Wheatear)
72. *Oenanthe hispanica* (Black-eared Wheatear)
73. *Saxicola rubetra* (Whinchat)
74. *Saxicola torquata* (Stonechat)
75. *Monticola solitarius* (Blue Rock Thrush)
76. *Monticola saxatilis* (Rock Thrush)
77. *Turdus philomelos* (Song Thrush)
78. *Turdus viscivorus* (Mistle Thrush)
79. *Turdus merula* (Blackbird)
80. *Sylvia atricapilla* (Blackcap)
81. *Sylvia crassirostris* (Orphean Warbler)
82. *Sylvia curruca* (Lesser Whitethroat)
83. *Sylvia melanocephala* (Sardinian Warbler)
84. *Sylvia communis* (Whitethroat)
85. *Sylvia cantillans* (Subalpine Warbler)
86. *Locustela luscinoides* (Savi's Warbler)
87. *Cettia cetti* (Cetti's Warbler)
88. *Acrocephalus scirpaceus* (Reed Warbler)
89. *Acrocephalus arundinaceus* (Great Reed Warbler)
90. *Phylloscopus bonelli* (Bonelli's Warbler)
91. *Phylloscopus collybita* (Chiffchaff)
92. *Phylloscopus sibilatrix* (Wood Warbler)
93. *Muscicapa striata* (Spotted Flycatcher)
94. *Ficedula semitorquata* (Semi-collared Flycatcher)
95. *Parus major* (Great Tit)
96. *Parus caeruleus* (Blue Tit)
97. *Parus montanus* (Willow Tit)
98. *Parus palustris* (Marsh Tit)
99. *Parus lugubris* (Sombre Tit)
100. *Aegithalos caudatus* (Long-tailed Tit)
101. *Panurus biarmicus* (Bearded Reedling)
102. *Remiz pendulinus* (Penduline Tit)
103. *Sitta europaea* (Nuthatch)
104. *Sitta neumayer* (Rock Nuthatch)
105. *Lanius collurio* (Red-backed Shrike)
106. *Lanius senator* (Woodchat Shrike)

107. *Lanius minor* (Lesser Grey Shrike)
108. *Pica pica* (Magpie)
109. *Garrulus glandarius* (Jay)
110. *Corvus monedula* (Jackdaw)
111. *Pyrrhocorax graculus* (Alpine Chough)
112. *Corvus cornix* (Hooded Crow)
113. *Corvus corax* (Raven)
114. *Sturnus vulgaris* (Starling)
115. *Oriolus oriolus* (Golden Oriole)
116. *Passer domesticus* (House Sparrow)
117. *Passer montanus* (Tree Sparrow)
118. *Passer hispaniolensis* (Spanish Sparrow)
119. *Fringilla coelebs* (Chaffinch)
120. *Carduelis* cannabina (Linnet)
121. *Carduelis carduelis* (Goldfinch)
122. *Carduelis chloris* (Greenfinch)
123. *Serinus serinus* (Serin)
124. *Coccothraustes coccothraustes* (Hawfinch)
125. *Emberiza schoeniclus* (Reed Bunting)
126. *Emberiza hortulana* (Ortolan Bunting)
127. *Emberiza caesia* (Cretzschmar's Bunting)
128. *Emberiza citrinella* (Yellowhammer)
129. *Emberiza cirlus* (Cirl Bunting)
130. *Miliaria calandra* (Corn Bunting)
131. *Emberiza melanocephala* (Black-headed Bunting)
132. *Emberiza cia* (Rock Bunting)

ANNEX V: Preliminary list of mammals in the Lake Ohrid region in Albania

1. *Erinaceus roumanicus* (Northern White-Breasted Hedgehog)
2. *Sorex minutus* (Pigmy Shrew)
3. *Crocidura suaveolens* (Lesser White-toothed Shrew)
4. *Talpa stankovici* (Balkan mole)
5. *Rhinolophus ferrumequinum* (Greater Horseshoe Bat)
6. *Rhinolophus hipposideros* (Lesser Horseshoe Bat)
7. *Rhinolophus euryale* (Mediterranean Horseshoe Bat)
8. *Rhinolophus blasii* (Blasius's Horseshoe Bat)
9. *Myotis myotis* (Mouse-eared Myotis)
10. *Myotis blythii* (Lesser-eared Myotis)
11. *Myotis capaccinnii* (Long-fingered Myotis)
12. *Myotis natereriii* (Natereri Bat)
13. *Myotis mystacinus* (Whiskered Myotis)
14. *Myotis emarginatus* (Geoffroy's Myotis)
15. *Pipistrellus pipistrellus* (Common Pipistrelle)
16. *Nyctalus leisleri* (Leisler's Noctule)
17. *Eptesicus serotinus* (Common Serotine)
18. *Plecotus austrailis* (Gray Long-eared Bat)
19. *Miniopterus schreibersii* (Long-fingered Bat)
20. *Tadarida teniotis* (European Free-tailed Bat)
21. *Sciurus vulgaris* (European Red Squirrel)
22. *Glis glis* (Fat Dormouse)
23. *Muscardinus avellanarius* (Common Dormouse)
24. *Apodemus flavicollis* (Yellow-necked Field Mouse)
25. *Apodemus sylvaticus* (Long-tailed Field Mouse)
26. *Apodemus epimelas* (Western Broad-toothed Field Mouse)
27. *Mus macedonicus* (Macedonian Mouse)
28. *Microtus subterraneus* (Common Pine Vole)
29. *Microtus felteni* (Balkan Pine Vole)
30. *Microtus levis* (East European Vole)
31. *Chionomys nivalis* (European Snow Vole)
32. *Lepus europeaus* (European Hare)
33. *Oryctolagus coniculus* (European Rabbit)
34. *Canis lupus* (Grey Wolf)
35. *Vulpes vulpes* (Red Fox)
36. *Mustela nivalis* (Weasel)
37. *Mustela putorius* (Western Polecat)
38. *Martes foina* (Stone Marten)
39. *Meles meles* (European Badger)
40. *Lutra lutra* (European Otter)
41. *Ursus arctos* (Brown Bear)
42. *Felis silvestris* (Wildcat)
43. *Sus scrofa* (Wildboar)
44. *Capreolus capreolus* (European Roe)
45. *Rupicapra rupicapra* (Alpine chamois)

ANNEX VI: List of endemic taxa in Lake Ohrid (source: MoEPP 2003)

Phylum Protozoa

Sarcodina – Rhizopoda

1. *Centropyxis ohridensis* Golemanski, 1967
2. *Psammonobiotus communis* Golemanski, 1967

Ciliophora

3. *Anoplophrya cavernosa* Georgevic, 1941
4. *Anoplophrya longinuclea* Georgevic, 1941
5. *Anoplophrya ochridensis* Georgevic, 1941
6. *Anoplophrya pelmatoida* Georgievic, 1941
7. *Anoplophrya pilosa* Georgevic, 1941
8. *Anoplophrya stromboides* Georgevic, 1941
9. *Anoplophrya tchadoi* de Puytorac, 1957
10. *Butschliella longicollis* Georgievic, 1941
11. *Butschliella subaculeata* Georgevic, 1941
12. *Cotylothigma heidenreichi* de Puytorac, 1957
13. *Cotylothigma limnodrili* Meier
14. *Georgevitchiella aculeata* Georgevic, 1941
15. *Hoplitophrya georgievitchi* de Puytorac, 1957
16. *Intoshellina macrogongylos* de Puytorac, 1957
17. *Intoshellina sapkarevi* de Puytorac, 1957
18. *Juxtaradiophrya ocevskii* de Puytorac, 1957
19. *Juxtaradiophrya ohridana* de Puytorac, 1957
20. *Maupasella criodrili* Heid
21. *Metalostomum ochridense* Georgevic, 1941
22. *Metaradiophrya criodrili* Georgevic, 1950
23. *Ochridanus kozarovi* de Puytorac, 1957
24. *Ochridanus ocellatus* Georgevic, 1950
25. *Protoradiophryopsis ochridensis* Georgievic, 1941
26. *Ptychostomum jirilomi* de Puytorac, 1957
27. *Ptychostomum meieri* de Puytorac, 1957
28. *Ptychostomum ochridanus* de Puytorac, 1957
29. *Ptychostomum stankovici* de Puytorac, 1957
30. *Radiophrya ohridana* de Puytorac, 1957
31. *Radiophrya pachycallima* Georgevic, 1941
32. *Radiophrya pachycallima* Georgievic, 1941

Phylum Porifera

Poriphera

33. *Ochridospongia interlithonis* Gilbert & Hadzisce, 1982
34. *Ochridospongia rotunda* Arndt, 1937
35. *Ochridospongilla stankovici* Gilbert & Hadzisce, 1982
36. *Spongilla stankovici* Arndt, 1939

Phylum Plathelminthes

Tricladida

37. *Dendrocoelum albidum* Kenk, 1978
38. *Dendrocoelum cruciferum* Stankovic, 1960
39. *Dendrocoelum decoratum* Kenk, 1978
40. *Dendrocoelum dorsivittatum* Kenk, 1978
41. *Dendrocoelum komareki* Stankovic, 1935
42. *Dendrocoelum lacustre* Stankovic, 1932
43. *Dendrocoelum lychnidicum* Stankovic, 1969
44. *Dendrocoelum maculatum* Stankovic & Komarek, 1927

45. *Dendrocoelum magnum* Stankovic, 1969
46. *Dendrocoelum minimum* Kenk, 1978
47. *Dendrocoelum ochridense* Stankovic & Komarek, 1927
48. *Dendrocoelum porfirevi* Krstanovski, 1994
49. *Dendrocoelum sanctinaumi* Stankovic & Komarek, 1927
50. *Dendrocoelum sapkarevi* Krstanovski, 1994
51. *Dendrocoelum sinisai* Kenk, 1978
52. *Dendrocoelum tockoi* Krstanovski, 1994
53. *Dendrocoelum translucidum* Stankovic, 1978
54. *Phagocata maculata* Stankovic, 1938
55. *Phagocata ochridana* Stankovic & Komarek, 1927
56. *Phagocata stankovici* Reisinger, 1960
57. *Phagocata undulata* Stankovic, 1960

Rhabdocoela

58. *Castrada ochridense* An Der Lan, 1939
59. *Castradella unidentata* An Der Lan, 1939
60. *Dalyellia minima* An Der Lan, 1939
61. *Jovanella balcanica* An Der Lan, 1939
62. *Macrostomum leptos* An Der Lan, 1939
63. *Mesovortex stankovici* An Der Lan, 1939
64. *Opistomum macedonicum* An Der Lan, 1939
65. *Proamphibolella simplex* An Der Lan, 1939
66. *Proamphibolella st.naumi* An Der Lan, 1939
67. *Promacrostomum paradoxum* An Der Lan, 1939

Phylum Nemathelminthes

Nematoda (Nemathelminthes)

68. *Neochromadora trilineata* Schneider, 1940
69. *Punctodora ochridensis* Schneider, 1940
70. *Theristus subsetosus* Schneider, 1940

Phylum Mollusca

Gastropoda (Aquatic Gastropods)

71. *Acroloxus improvisus* Polinski, 1929
72. *Acroloxus macedonicus* Hadzisce, 1956
73. *Ancylus lapicidus* Hubendick, 1960
74. *Ancylus scalariformis* Stankovic & Radoman, 1953
75. *Ancylus tapirulus* Polinski, 1929
76. *Chilopyrgula sturanyi* Brusina, 1896
77. *Dolapia ornata* Radoman, 1956
78. *Ginaia munda munda* Sturany, 1894
79. *Ginaia munda sublitoralis* Radoman, 1978
80. *Gocea ohridana* Hadzisce, 1956
81. *Gyraulus (Gyraulus) albidus* Radoman, 1953
82. *Gyraulus (Gyraulus) crenophilus* Hubendick & Radoman, 1959
83. *Gyraulus (Gyraulus) fontinalis* Hubendick & Radoman, 1959
84. *Gyraulus (Gyraulus) lychnidicus* Hesse, 1928
85. *Gyraulus (Gyraulus) paradoxus* Sturany, 1928
86. *Gyraulus (Gyraulus) trapezoides* Polinski, 1929
87. *Lyhnidia gjorgjevici* Hadzisce, 1956
88. *Lyhnidia hadzii* Hadzisce, 1956
89. *Lyhnidia karamani* Hadzisce, 1956
90. *Lyhnidia stankovici* Hadzisce, 1956
91. *Lyhnidia sublitoralis* Radoman, 1967
92. *Lymnaea relicta* Polinski, 1929
93. *Macedopyrgula pavlovici* Polinski, 1929

94. *Macedopyrgula wagneri* Polinski, 1929
95. *Micropyrgula stankovici* Polinski, 1929
96. *Neofossarulus stankovici* Polinski, 1929
97. *Ohridohauffenia depressa* Radoman, 1965
98. *Ohridohauffenia minuta* Radoman, 1955
99. *Ohridohauffenia rotonda* Radoman, 1964
100. *Ohridohauffenia sanctinaumi* Radoman, 1964
101. *Ohridohauffenia sublitoralis* Radoman, 1962
102. *Ohridohoratia carinata* Radoman, 1956
103. *Ohridohoratia pygmaea* Westerlund, 1902
104. *Ohridopyrgula macedonica charensis* Radoman, 1978
105. *Ohridopyrgula macedonica macedonica* Brusina, 1896
106. *Ohrigocea karevi* Hadzisce, 1956
107. *Ohrigocea miladinovorum* Hadzisce, 1956
108. *Ohrigocea samuili* Hadzisce, 1956
109. *Ohrigocea stankovici* Hadzisce, 1956
110. *Planorbis (Planorbis) macedonicus* Sturany, 1894
111. *Polinskiola polinskii* Radoman, 1960
112. *Polinskiola sturanyi* Westerlund, 1902
113. *Pseudohoratia brusinae* Radoman, 1953
114. *Pseudohoratia lacustris* Radoman, 1964
115. *Pseudohoratia ohridana* Polinski, 1929
116. *Pyrgohydrobia grochmalickii* Polinski, 1929
117. *Pyrgohydrobia jablanicensis* Radoman, 1955
118. *Pyrgohydrobia sanctinaumi* Radoman, 1955
119. *Stankovicia baicaliformis* Polinski, 1939
120. *Strugia ohridana* Radoman, 1973
121. *Trachyohridia filocincta* Polinski, 1939
122. *Valvata (Cincinna) stenoterma* Polinski, 1929
123. *Valvata (Costovalvata) hirsutecostata* Polinski, 1929
124. *Valvata (Costovalvata) rhabdota* Sturany, 1894
125. *Valvata (Ohridotropidina) relicta* Polinski, 1929
126. *Xestopyrgula dybowskii* Polinski, 1929
127. *Zaumia kusceri* Hadzisce, 1956
128. *Zaumia sanctizaumi* Radoman, 1964

Bivalvia

129. *Pisidium edlaueri* Kuiper, 1960
130. *Pisidium subtruncatum recalvum* Kuiper, 1960
131. *Sphaerium parenzani* Gambetta, 1930

Phylum Annelida

Oligochaeta

132. *Criodrilus ochridensis* Gjorgjevic, 1949
133. *Eiseniella ochridana ochridana* Cernosvitov, 1931
134. *Eiseniella ochridana profunda* Cernosvitov, 1931
135. *Haplotaxis gordioides dubius* Hrabe, 1931
136. *Lamprodrilus pygmaeus intermedia* Hrabe, 1931
137. *Lamprodrilus pygmaeus ochridanus* Hrabe, 1931
138. *Peloscolex cernosvitovi* Hrabe, 1953
139. *Peloscolex stankovici litoralis* Sapkarev, 1953
140. *Peloscolex stankovici stankovici* Hrabe, 1931
141. *Peloscolex stankovici sublitoralis* Hrabe, 1931
142. *Potamothrix isochaetus* Hrabe, 1931
143. *Potamothrix ochridanus* Hrabe, 1931
144. *Rhynchelmis komareki breviristra* Hrabe, 1931

145. *Stylodrilus leucocephalus* Hrabe, 1931

Hirudinea

146. *Dina eturrshem* Sket, 1988
147. *Dina krilata* Sket, 1988
148. *Dina kuzmani* Sapkarev, 1990
149. *Dina lepinja* Sket & Sapkarev, 1986
150. *Dina lyhnida* Sapkarev, 1990
151. *Dina ohridana* Sket, 1968
152. *Dina profunda* Sapkarev, 1990
153. *Dina svilesta* Sket, 1988
154. *Glossiphonia complanata maculosa* Sket, 1968
155. *Glossiphonia pulchella* Sket, 1968
156. *Piscicola (Cystobranchus) pavlovskii* Sket, 1968

Phylum Arthropoda: Subphylum Chelicerata

Acarina (Chelicerata: Arachnida)

157. *Copidognathus tectiporus profundus* Viets, 1936

Phylum Arthropoda: Subphylum Branchiata

Cyclopoida (Crustacea: Copepoda)

158. *Cyclops ochridanus* Kiefer, 1932
159. *Diacyclops ichnusoides* Petkovski & Karanovic, 1997
160. *Ochridacyclops arndti* Kiefer, 1937

Harpactioida (Crustacea: Copepoda)

161. *Bryocamptus mirus* Petkovski & Karanovic, 1997

Ostracoda (Branchiata: Crustacea)

162. *Candona alta* Klie, 1939
163. *Candona dedelica* Petkovski, 1969
164. *Candona depressa* Klie, 1939
165. *Candona expansa* Mikulic, 1961
166. *Candona formosa* Mikulic, 1961
167. *Candona goricensis* Mikulic, 1961
168. *Candona hadzistei* Petkovski, Scharf & Keyser, 2002
169. *Candona hartmanni* Petkovski, 1969
170. *Candona holmesi* Petkovski, 1960
171. *Candona jordae* Petkovski, Scharf & Keyser, 2002
172. *Candona litoralis* Mikulic, 1961
173. *Candona lychnitis* Petkovski, 1969
174. *Candona macedonica* Mikulic, 1961
175. *Candona margaritana* Mikulic, 1961
176. *Candona marginata* Klie, 1942
177. *Candona media* Klie, 1939
178. *Candona ohrida* Holmes, 1937
179. *Candona ovalis* Mikulic, 1961
180. *Candona trapeziformis* Klie, 1939
181. *Candona triangulata* Klie, 1939
182. *Candona vidua* Klie, 1942
183. *Cypria obliqua* Klie, 1939
184. *Eucandona krstici* Petkovski, 1969
185. *Leptocythere proboscidea* Klie, 1939
186. *Paralimnocythere alata* Klie, 1939
187. *Paralimnocythere georgevitschi* Petkovski, 1960
188. *Paralimnocythere karamani* Petkovski, 1960
189. *Paralimnocythere ochridense* Klie, 1934
190. *Paralimnocythere slavei* Petkovski, 1969

191. *Paralimnocythere umbonata* Klie, 1939
192. *Pseudocandona slavei* Petkovski, 1969

Cladocera (Crustacea: Branchiopoda)

193. *Alona smirnovi* Petkovski & Flossner, 1972

Isopoda (Crustacea: Malacostraca)

194. *Asellus arnautovici arnautovici* Remy, 1932
195. *Asellus arnautovici elongatus* Karaman, 1953
196. *Asellus gjorgjevici gjorgevici* Karaman, 1933
197. *Asellus gjorgjevici litoralis* Karaman, 1933
198. *Asellus remyi acutangulus* Karaman, 1953
199. *Asellus remyi nudus* Karaman, 1953
200. *Asellus remyi remyi* Monod, 1932

Amphipoda (Crustacea: Malacostraca)

201. *Gammarus ochridensis abyssalis* Karaman S.1931
202. *Gammarus ochridensis ochridensis* Schaferna, 1925
203. *Niphragus ohridanus ohridanus* Karaman S., 1929
204. *Niphragus sanctinaumi* Karaman S., 1943
205. *Synurella longidactylus* Karaman S., 1929

Phylum Chordata

Pisces

206. *Acantholingua ohridana* Steindachner, 1892
207. *Phoxinellus epiroticus* Steindachner, 1896
208. *Rutilus ohridanus* Karaman, 1924
209. *Salmo aphelios* Kottelat, 1997
210. *Salmo balcanicus* Karaman, 1927
211. *Salmo letnica* Karaman, 1924
212. *Salmo lumi* Poljakov, Filipi & Basho, 1958

ANNEX VII: Endemic diatoms from Lake Ohrid (source: Levkov and Williams 2012)

1. *Cyclotella bifacialis* Jurilj 1954
2. *Cyclotella thienemanni* var. *minuscula* Jurilj 1954
3. *Cyclotella verrucosa* Jerković & Čado 1974
4. *Puncticulata thienemanni* (Jurilj) Levkov 2007
5. *Diatoma densicostata* Levkov & D.M. Williams 2006
6. *Diatoma ochridana* Lange-Bert. & Rumrich 1991
7. *Fragilaria micra* Levkov & D.M. Williams 2011
8. *Odontidium minuta* Levkov & D.M. Williams 2011
9. *Staurosirella lata* Levkov, D.M. Williams & Cvetkoska 2011
10. *Staurosirella pulchella* Levkov & D.M. Williams 2011
11. *Aneumastus albanicus* Lange-Bert. & Miho 2001
12. *Aneumastus humboldtianus* Lange-Bert. & Miho 2001
13. *Aneumastus juriljii* Levkov & Metzeltin 2007
14. *Aneumastus metzeltinii* Levkov 2007
15. *Aneumastus ochridanus* Levkov & Metzeltin 2007
16. *Aneumastus subapiculatus* Levkov & Nakov 2007
17. *Aneumastus rhombicus* Levkov & Metzeltin 2007
18. *Aneumastus rosettae* Lange-Bert. & Miho 2001
19. *Rhoicosphenia macedonica* Levkov & Krstic 2007
20. *Rhoicosphenia tenuis* Levkov & Nakov 2008
21. *Cymbella melovskii* Levkov & Krstic 2007
22. *Cymbella modica* Levkov & Nakov 2007
23. *Cymbella neoleptoceroides* Levkov 2007
24. *Cymbella ohridana* Levkov & Krstic 2007
25. *Encyonema macedonicum* Levkov, Metzeltin & Krstic 2006
26. *Encyonema ochridanum* Krammer 1997
27. *Encyonema pseudoceaspitosum* Levkov & Krstic 2007
28. *Encyonema silesiacum* (Bleisch) D.G. Mann 1990
29. *Placoneis macedonica* Levkov & Metzeltin 2007
30. *Placoneis ohridana* Levkov & Metzeltin 2007
31. *Placoneis signatoides* Metzeltin & Levkov 2007
32. *Placoneis subgastriformis* (Hust.) E.J. Cox 2003
33. *Placoneis subelegans* Levkov 2011
34. *Placoneis tumidula* Levkov 2007
35. *Cymbopleura juriljii* Levkov & Metzeltin 2007
36. *Cymbopleura macedonica* Levkov & Krstic 2007
37. *Cymbopleura pertruncata* Levkov & Metzeltin 2007
38. *Cymbopleura tumida* Levkov, Krstic & Nakov 2011
39. *Gomphoneis ohridana* Levkov 2007
40. *Gomphonema balcanicum* Levkov & Krstic 2007
41. *Gomphonema densistriatum* Levkov 2011
42. *Gomphonema fonticolum* (Hust.) Levkov & Krstic 2007
43. *Gomphonema irroratum* Hust. 1945
44. *Gomphonema linearoides* Levkov 2011*
45. *Gomphonema mihoii* Levkov 2011
46. *Gomphonema sancti-naumii* Metzeltin & Levkov 2007
47. *Gomphonema subaequale* Levkov 2011
48. *Gomphonema subolivaceum* Levkov & Nakov 2007
49. *Gomphosphenia tenuis* Levkov & D.M. Williams 2011
50. *Achnanthes jakovljevicii* Hust. 1945
51. *Cocconeis robusta* Jurilj 1954
52. *Neidium acutum* Levkov & Krstic 2007
53. *Neidium majus* (Jurilj) Levkov 2007
54. *Sellaphora krsticii* Levkov, Nakov & Metzeltin 2006
55. *Sellaphora macedonica* Levkov & Metzeltin 2007
56. *Sellaphora ohridana* Levkov & Krstic 2007
57. *Sellaphora pseudomutatoides* Levkov & Metzeltin 2007
58. *Fallacia frustulum* (Hust.) D.G. Mann 1990
59. *Fallacia lenzii* (Hust.) Lange-Bert. 2004
60. *Fallacia omissa* (Hust.) D.G. Mann 1990
61. *Fallacia subhamulata* (Grunow) D.G. Mann 1990
62. *Fallacia submitis* (Hust.) D.G. Mann 1990
63. *Diploneis budayana* var. *punctata* Jurilj 1954
64. *Diploneis heisingeriae* Jurilj 1954
65. *Diploneis ostracodarum* var. *elongata* Jurilj 1954
66. *Diploneis tavcharii* Jurilj 1954
67. *Caloneis acuta* Levkov & Metzeltin 2007

68. *Caloneis meridionalis* Levkov & Krstic 2007
69. *Geissleria ohridana* Levkov 2007
70. *Navicula demissa* Hust. 1945
71. *Navicula hastatula* Lange-Bert. & Miho 2001
72. *Navicula inclinata* Hust. 1945
73. *Navicula paraobesa* Metzeltin & Levkov 2007
74. *Navicula perturbata* Jurilj 1954
75. *Navicula perturbata* var. *lata* Levkov & Nakov 2007
76. *Navicula petrovskae* Levkov & Krstic
77. *Navicula pseudoppugnata* Lange-Bert. & Miho
78. *Navicula splendicula* VanLand. 1975
79. *Navicula subviridula* Levkov 2011
80. *Stauroneis lychnidis* Jurilj 1954
81. *Stauroneis smithii* var. *elliptica* Hust. 1945*
82. *Amphora crawfordii* Levkov 2009
83. *Amphora ohridana* Levkov 2007
84. *Amphora pseudoeximia* Levkov 2009
85. *Amphora pseudominutissima* Levkov 2009
86. *Amphora pura* Levkov 2009
87. *Amphora recens* Levkov & Nakov 2009
88. *Amphora sancti-naumii* Levkov & Metzeltin 2007
89. *Amphora vetula* Levkov 2009
90. *Halamphora coffeaeformis* (C. Agardh) Levkov 2009
91. *Halamphora parathumensis* Levkov, Pavlov & Jovanovska 2009
92. *Nitzschia macedonica* Hust. 1945
93. *Nitzschia sigmoidea* (Nitzsch) W.Sm. 1853
94. *Nitzschia speciosa* Hust. 1945
95. *Nitzschia spinifera* Levkov, Metzeltin & Krstic 2006
96. *Epithemia fracta* (Jurilj) Levkov 2007
97. *Epithemia lunata* Jurilj 1954
98. *Epithemia ohridana* Levkov & Metzeltin 2007
99. *Campylodiscus chadoi* Jerkovic 1971
100. *Campliodiscus echinatus* Jurilj 1949
101. *Campylodiscus juriljii* Jerkovic 1971
102. *Campylodiscus marginatus* var. *rudis* Jurilj 1949
103. *Campylodiscus marginatus* var. *tenuis* Jurilj 1949
104. *Cymatopleura solea* var. *obtusata* Jurilj 1949
105. *Surirella costata* Jurilj 1949
106. *Surirella helisela* (Jurilj) Jurilj 1954
107. *Surirella iconella* (Jurilj) Jurilj 1954
108. *Surirella imbuta* Jurilj 1949
109. *Surirella rotunda* Jurilj 1949
110. *Scoliodiscus echinatus* (Jurilj) Jurilj 1954
111. *Scoliodiscus glaber* (Jurilj) Jurilj 1954
112. *Klinodiscus obliquus* Jurilj 1949
113. *Krsticiella ohridana* Levkov 2007
114. *Prestauroneis tumida* Levkov 2011

***** species endemic to the Lake Ohrid watershed

ANNEX VIII: Invertebrate species of conservation importance in the Lake Ohrid region

No.	Species	IUCN	Habitats Directive	Bern Convention	Albanian Red List (2013)
Coleoptera - Carabidae					
1	*Calosoma sycophanta*	VU		II	EN
2	*Calosoma coriaceus*	VU		II	VU
Coleoptera-Rhysoidae					
1	*Rhysodes sulcatus*	LC	IV	II	
Coleoptera-Dytiscidae					
1	*Dytiscus latissimus*	VU	V	II	
Coleoptera-Buprestidae					
1	*Buprestis splendens*	EN	II/IV	II	
Coleoptera-Cerambicidae					
1	*Rosalia alpina*	VU	II/IV	II	CR
2	*Cerambyx cerdo*	VU	II/IV	II	EN
3	*Lucanus cervus*		II	III	LR
Otrhoptera					
1	*Saga pedo*	VU	IV	II	
Lepidoptera (butterflies and moths)					
1	*Coenagrion omatum*	LC	II		
2	*Libellula depresa*		II/IV		
3	*Lucanus cervus*		II	III	LR
4	*Lycanea dispar*	NT	II/IV	II	
5	*Paranassius apollo*	VU	IV	II	CR
6	*Maculinea arion*	NT	IV	II	
7	*Maculinea alcon*	NT			
Hymenoptera (Small Garden Humble-bee)					
1	*Bombus hortorum*	VU			
2	*Bombus teresstris*	LC			
3	*Bombus pamorum*	LC			
Mollusca					
1	*Pisidium edlaueri*	EN			
2	*Acroloxus improvisus*	VU			
3	*Acroloxus macedonicus*	CR			
4	*Ginaia munda*	VU			
5	*Gocea ohridata*	CR			
6	*Horatia macedonica*	VU			
7	*Horatia novoselensis*	VU			
8	*Lyhnidia gjorgjevici*	EN			
9	*Lyhnidia hadzii*	CR			
10	*Lyhnidia karamani*	CR			
11	*Lyhnidia stankovici*	CR			
12	*Micropyrgula stankovici*	VU			
13	*Neofossaurulus stankovici*	VU			
14	*Ohridohauffenia depresa*	VU			
15	*Ohridohauffenia minuta*	CR			
16	*Ohridohauffenia rotunda*	EN			
17	*Ohridohauffenia sanctinaumi*	EN			
18	*Ohridohoratia carinata*	EN			
19	*Ohridohoratia polinski*	VU			
20	*Ohridohoratia karevi*	EN			
21	*Ohrigoce miladinovor*	EN			
22	*Ohrigocea amata*	EN			
23	*Ohrigocea samuli*	EN			
24	*Ohrigocea stankovici*	EN			
25	*Pseudohoratia brusinae*	VU			
26	*Pseudohoratia lacustris*	VU			
27	*Pseudohoratia ochridana*	VU			
28	*Stancovicia baicaliiformis*	CR			

29	*Stancovicia pavlovici*	VU
30	*Stancovicia wagneri*	VU
31	*Strugia ohridana*	VU
32	*Trachiochridia filocincta*	CR
33	*Xestopyrgula dybowskii*	VU
34	*Zaumia kusceri*	CR
35	*Zaumia snactizaumi*	CR
36	*Ancylus lapicidus*	EN
37	*Ancylus scalariformis*	VU
38	*Ancylus tapirulus*	EN
39	*Gyraulus albidus*	VU
40	*Gyraulus crenophilus*	EN
41	*Gyraulus fontinalis*	EN
42	*Gyraulus trapezoides*	EN
43	*Planorbis macedonicus*	EN
44	*Valvata hirusutecostata*	VU

ANNEX IX: Fishes of conservation importance in the Lake Ohrid region

No	Species	IUCN European Red List	Bern Convention	Habitats Directive	Albanian Red List-2013
1.	*Anguilla anguilla*	CR			
2.	*Alburnoides ohridanus*	VU			
3.	*Alburnus scoranza*	LC			
4.	*Barbus rebeli*	LC		V	
5.	*Cobitis ohridana*	LC			LR
6.	*Barbatula sturany*	LC			
7.	*Cyprinus carpio*	VU			
8.	*Gobio ohridanus*	VU			
9.	*Pachychilon pictum*	LC	III		
10.	*Pelasgus minutus*	DD		III	
11.	*Phoxinus limarieus*	LC			
12.	*Rhodeus amarus*	LC	III	II	
13.	*Rutilus ohridanus*	LC			
14.	*Salmo afelios*	DD			
15.	*Salmo balcanicus*	DD			
16.	*Salmo letnica*	DD			VU
17.	*Salmo letnica lumi*	DD			EN
18.	*Salmo ohridanus*	VU			
19.	*Scardinus knezevici*	LC			
20.	*Squalius squalius*	LC			
21.	*Telestes montenegrinus*	LC			

ANNEX X: Amphibians and reptiles of conservation importance in the Lake Ohrid region

Amphibia

No.	Species	Habitats Directive	Bern Convention	IUCN Global Red List	Albanian Red List
1	Hyla arborea	IV	II	LC	**LR**
2	Rana dalmatina	IV	II	LC	**LR**
3	Rana graeca	IV		LC	**LR**
4	Buffo viridis	IV		LC	**LR**
5	Triturus carnifex	IV	II	LC	
6	**Pseudepidalea (Bufo) viridis**	**IV**			

Reptilia

No.	Species	Habitats Directive	Bern Convention	IUCN Global Red List	Albanian Red List
1	Emys orbicularis	II/IV	II	NT	LC
2	Testudo hermani	II/IV	II	NT	LC
3	Lacerta viridis	IV	II	LC	LC
4	Agroydes nigropunctatus	IV	II		
5	Podarcis muralis	IV	II	LC	LC
6	Podarcis tauricus	IV	II	LC	LC
7	Angulis fragilis				LC
8	Coluber caspius	II	IV		LC
9	Elaphe longissima			LC	RN
10	Elaphe quadrolineata	II	IV	NT	CR
11	Natrix natrix				NE
12	Natrix tessellata	IV	II		NE
13	Vipera ammodytes	II	IV		LC

ANNEX XI: Bird species of conservation importance in the Lake Ohrid region

No.	Species	Bird Directive	Birds of Europe (SPEC Category)	IUCN	Albanian Red List
1	*Gavia arctica*	I			
2	*Tachibaptus ruficollis*		Non-SPEC	LC	
3	*Podiceps cristatus*		Non-SPEC	LC	CR
4	*Podiceps nigricollis*	I	Non-SPEC	LC	VU
5	*Pelecanus onocrotalus*	I	SPEC 3	LC	
6	*Phalacrocorax carbo*		Non-SPEC	LC	
7	*Phalacrocorax pygmeus*	I	SPEC 1	NT	CR
8	*Ixobrychus minutus*	I	SPEC 3	LC	
9	*Nycticorax nycticorax*	I	SPEC 3	LC	VU
10	*Ardeola ralloides*	I	SPEC 3	LC	VU
11	*Egretta garzetta*	I	Non-SPEC	LC	VU
12	*Egreta alba*	I	Non-SPEC	LC	EN
13	*Ardea cinerea*		Non-SPEC	LC	VU
14	*Ciconia ciconia*	I	SPEC 2	LC	CR
15	*Anas platyrhynchos*	II/1; III/1	Non-SPEC	LC	
16	*Mergus merganser*	II/2	Non-SPEC	LC	VU
17	*Aythia nyroca*	I	Non-SPEC	NT	NT
18	*Aythia ferina*	I	Non-SPEC	LC	VU
19	*Aythia fuligula*	I	Non-SPEC	LC	VU
20	*Circaetus gallicus*	I	SPEC 3	LC	VU
21	*Circus pygargus*	I	Non-SPECe	LC	EN
22	*Buteo buteo*		Non-SPEC	LC	VU
23	*Pernis apivorus*	I	Non-SPECe	LC	EN
24	*Accipiter nisus*		Non-SPEC	LC	EN
25	*Accipiter gentilis*		Non-SPEC	LC	VU
26	*Falco tinnunculus*		SPEC 3	LC	VU
27	*Falco naumanni*	I	SPEC 1	VU	VU
28	*Falco subbuteo*		Non-SPEC	LC	VU
29	*Falco peregrinus*	I	Non-SPEC	LC	VU
30	*Alectoris greaca*		SPEC 2	LC	
31	*Bonasa bonasia*	I; II/2	Non-SPEC	LC	VU
32	*Coturnix coturnix*	II/2	SPEC 3	LC	
33	*Perdix perdix*	III/1	SPEC 3	LC	
34	*Crex crex*	I	SPEC 1	NT	VU
35	*Galllinula chloropus*	II/2	Non-SPEC	LC	
36	*Fulica atra*	II/1; III/2	Non-SPEC	LC	
37	*Larus cachinans*	II/2	Non-SPECe	LC	EN
38	*Columba livia*	II/1	Non-SPEC	LC	
39	*Columba palumbus*	III/1	Non-SPECe	LC	
40	*Streptopelia decaocto*	II/2	Non-SPEC	LC	
41	*Streptopelia turtur*	II/2	SPEC 3	LC	
42	*Cuculus canorus*	II/2	Non-SPEC	LC	
43	*Bubo bubo*	I	SPEC 3	LC	
44	*Strix aluco*		Non-SPECe	LC	
45	*Athene noctua*		SPEC 3	LC	
46	*Caprimulgus europaeus*	I	SPEC 2	LC	
47	*Apus melba*		Non-SPEC	LC	
48	*Upupa epops*	I	SPEC 3	LC	VU
49	*Merops apiaster*		SPEC 3	LC	
50	*Dryocopus martius*	I	Non-SPEC	LC	LR
51	*Picus viridis*		SPEC 2	LC	
52	*Dendrocopos major*		Non-SPEC	LC	
53	*Dendrocopos syriacus*	I	Non-SPECe	LC	
54	*Jinx torquilla*		SPEC 3	LC	LR
55	*Alauda arvensis*		SPEC 3	LC	
56	*Galerida cristata*		SPEC 3	LC	

57	*Lullula arborea*	I	SPEC 2	LC	
58	*Calandrella brachydactyla*	I	SPEC 3	LC	
59	*Eremophila alpestris*	II/2	Non-SPEC	LC	
60	*Riparia riparia*		SPEC 3	LC	
61	*Ptyonoprogne rupestris*		Non-SPEC	LC	
62	*Hirundo rustica*		SPEC 3	LC	
63	*Hirundo daurica*		Non-SPEC	LC	
64	*Delichon urbica*		SPEC 3	LC	
65	*Anthus campestris*		SPEC 3	LC	
66	*Anthus spinoletta*		Non-SPEC	LC	
67	*Anthus trivialis*		Non-SPEC	LC	
68	*Motacilla alba*		Non-SPEC	LC	
69	*Motacilla flava*		Non-SPEC	LC	
70	*Troglodytes troglodytes*		Non-SPEC	LC	
71	*Prunella modularis*		Non-SPECe	LC	
72	*Prunella collaris*		Non-SPEC	LC	
73	*Erithacus rubecula*		Non-SPECe	LC	
74	*Luscinia megarhynchos*		Non-SPECe	LC	
75	*Phoenicurus ochruros*		Non-SPEC	LC	
76	*Oenanthe oenanthe*		SPEC 3	LC	
77	*Oenanthe hispanica*		SPEC 2	LC	
78	*Saxicola rubetra*		Non-SPECe	LC	
79	*Saxicola torquata*		Non-SPEC	LC	
80	*Monticola solitarius*		SPEC 3	LC	
81	*Monticola saxatilis*		SPEC 3	LC	
82	*Turdus philomelos*	II/2	Non-SPECe	LC	
83	*Turdus viscivorus*	II/2	Non-SPECe	LC	
84	*Turdus merula*	II/2	Non-SPECe	LC	
85	*Sylvia atricapilla*		Non-SPECe	LC	
86	*Sylvia crassirostris*		SPEC 3	LC	
87	*Sylvia curruca*		Non-SPEC	LC	
8	*Sylvia melanocephala*		Non-SPECe	LC	
89	*Sylvia communis*		Non-SPECe	LC	
90	*Sylvia cantillans*		Non-SPECe	LC	
91	*Locustela luscinoides*		Non-SPECe	LC	DD
92	*Cettia cetti*		Non-SPEC	LC	
93	*Acrocephalus scirpaceus*		Non-SPECe	LC	
94	*Acrocephalus arundinaceus*		Non-SPEC	LC	
95	*Phylloscopus bonelli*		SPEC 2	LC	
96	*Phylloscopus collybita*		Non-SPEC	LC	
97	*Phylloscopus sibilatrix*		SPEC 2	LC	
98	*Muscicapa striata*	I	SPEC 3	LC	
99	*Ficedula semitorquata*	I	SPEC 2	LC	
100	*Parus major*		Non-SPEC	LC	
101	*Parus caeruleus*		Non-SPECe	LC	
102	*Parus montanus*		Non-SPEC	LC	
103	*Parus palustris*		SPEC 3	LC	
104	*Parus lugubris*		Non-SPECe	LC	
105	*Aegithalos caudatus*		Non-SPEC	LC	
106	*Panurus biarmicus*		Non-SPEC	LC	
107	*Remiz pendulinus*		Non-SPEC	LC	VU
108	*Sitta europaea*		Non-SPEC	LC	
109	*Sitta neumayer*		Non-SPECe	LC	
110	*Lanius collurio*	I	SPEC 3	LC	
111	*Lanius senator*		SPEC 2	LC	
112	*Lanius minor*	I	SPEC 2	LC	DD
113	*Pica pica*	II/2	Non-SPEC	LC	
114	*Garrulus glandarius*	II/2	Non-SPEC	LC	
115	*Corvus monedula*	II/2	Non-SPECe	LC	
116	*Pyrrhocorax graculus*		Non-SPEC	LC	
117	*Corvus cornix*	II/2	Non-SPEC	LC	

118	*Corvus corax*		Non-SPEC	LC	
119	*Sturnus vulgaris*	II/2	SPEC 3	LC	
120	*Oriolus oriolus*		Non-SPEC	LC	
121	*Passer domesticus*		SPEC 3	LC	
122	*Passer montanus*		SPEC 3	LC	
123	*Passer hispaniolensis*		Non-SPEC	LC	
124	*Fringilla coelebs*		Non-SPECe	LC	
125	*Carduelis cannabina*		SPEC 2	LC	
126	*Carduelis carduelis*		Non-SPEC	LC	
127	*Carduelis chloris*		Non-SPECe	LC	
128	*Serinus serinus*		Non-SPECe	LC	
129	*Coccothraustes coccothraustes*		Non-SPEC	LC	
130	*Emberiza schoeniclus*		Non-SPEC	LC	
131	*Emberiza hortulana*	I	SPEC 2	LC	DD
132	*Emberiza caesia*	I	Non-SPECe	LC	
133	*Emberiza citrinella*		Non-SPECe	LC	
134	*Emberiza cirlus*		Non-SPECe	LC	
135	*Miliaria calandra*		SPEC 2	LC	
136	*Emberiza melanocephala*		SPEC 2	LC	
137	*Emberiza cia*		SPEC 3	LC	

ANNEX XII: Mammals of conservation importance in the Lake Ohrid region

No.	Species	92/43/EEC	IUCN	Albanian Red List	Endemism
1	*Rhinolophus blasii*	II/IV	NT	VU	
2	*Rhinolohus euryale*	II/IV	VU	NT	
3	*Rhinolophus ferrumequinum*	II/IV	NT	LC	
4	*Rhinolophus hipposideros*	II/IV	NT	LC	
5	*Eptesicus serotinus*	IV			
6	*Nyctalus leisleri*	IV			
7	*Pipistrellus kuhlii*	IV			
8	*Pipistrellus pipistrellus*	IV			
9	*Myotis emarginatus*	II/IV			
10	*Myotis capaccinii*	II/IV	VU	LC	
11	*Myotis mystacinus*	IV			
12	*Myotis myotis*	II/IV			
13	*Tadarida teniotis*	IV			
14	*Talpa stankovici*				Balkan
15	*Canis lupus*	II/IV	NT		
16	*Felis silvestris*	IV	NT	EN	
17	*Lutra lutra*	II/IV	NT		
18	*Ursus arctos*	II/IV	NT	VU	
19	*Rupicapra rupicapra balcanica*	II/IV	NT		Balkan
20	*Microtus felteni*		NT		Balkan
21	*Mus macedonicus*				Balkan

ANNEX XIII: Vascular plants of conservation importance in the Lake Ohrid region

No.	Species	Habitats Directive	Bern	IUCN	Comments
Aceraceae					
	Acer heldreichii Orph. ex Boiss.				Balkan endemic species, and Corine Al
Adoxaceae					
	Sambucus nigra	II/IV		EN	
Alismatacea					
	Alisma lanceolatum			LC	
Alismatacea					
	Alisma lanceolatum			LC	
	Baldellia ranunculoides			LC	Critically endangered, considered in Albanian Red List
Amaryllidaceae					
	Allium amethystinum			LC	
	Allium flavum			LC	
	Allium hirtovaginatum			LC	
	Allium paniculatum			LC	
	Allium sphaerocephalon			LC	
	Allium strictum			LC	
	Allium vineale			LC	
	Galanthus nivalis	II/IV		NT	
	Leucojum aestivum			LC	
	Narcissus poeticus	II/IV		LC	
	Narcissus pseudonarcissus			LC	
	Sternbergia lutea			LC	
Apiaceae					
	Apium graveolens			LC	
	Apium nodifiourum			LC	
	Athamantha macedonica			VU	
	Berula erecta			LC	
	Daucus carota			LC	
	Oenanthe aquatica			LC	
	Oenanthe fistulosa			LC	
	Sium latifolium			LC	
Asteraceae					
	Artemisia campestris	II/IV		NT	
	Aster albanicus			VU	Endemic in serpentine rocks, in western side of catchment
	Bidens tripartita			LC	
	Centaurea jacea	II/IV		VU	
	Cichorium intybus			LC	
	Lactuca muralis			LC	
	Lactuca saligna			LC	
	Lactuca serriola			LC	
	Lactuca viminea			LC	
Betulaceae					
	Corylus avellana			NT	
Brassicaceae					
	Armoracia rusticana			LC	
	Barbarea vulgaris			LC	
	Brassica nigra			LC	
	Cardamine pratensis			LC	
	Lepidium campestre			LC	
	Lepidium graminifolium			LC	
	Lepidium latifolium			LC	
	Lepidium ruderale			LC	
Caryophyllaceae					

	Cerastium grandiflorum			VU	
	Herniaria parnassica			NT	
	Minuartia graminifolia			VU	
	Silene sendtneri			NT	
Cyperaceae					
	Carex acuta			VU	
	Carex paniculata				
	Carex pseudocyperus				
	Cladium mariscus				Considered as Vulnerable in Albanian Red List
Fabacee					
	Astragalus baldaccii Degen				Corine Al
	Genista hassertiana			NT	Endemic in serpentine rocks, in western side of catchment
Gesneriaceae					
	Ramonda serbica Pančid	IV	I	LC	
Guttiferae					
	Hypericum haplophylloides			VU	Endemic in Lake Ohrid region
Labiateae					
	Sideritis raeseri Boiss. et Heldr.			NT	Corine Al
Lemnaceae					
	Lemna gibba			LC	
	Lemna minor			LC	
Pineace					
	Pinus hedreichii			LC	
Poaceae					
	Festucopsis serpentini			NT	Endemic in Lake Ohrid region
Rosaceae					
	Prunus spinosa			LC	
Violaceae					
	Viola ducadjinica				Endemic in Albanin Alps, Korab and Lake Ohrid region

ANNEX XIV: Grassland habitat types of European conservation interes in the Albanian part of Lake Ohrid region

Habitat Code	Priority Habitat	EU Habitat Directive Classification
4060	No	Alpine and Boreal heaths
4090	No	Endemic oro-Mediterranean heaths with gorse
6170	No	Alpine and subalpine calcareous grasslands
6520	No	Mountain hay meadows
6210	No	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)
6220	Yes	Pseudo-steppe with grasses and annuals (Thero-Brachypodietea Br.-Bl. 1947)

ANNEX XV: Evaluation of most important geological and geomorphological features in the Albanian part of Lake Ohrid watershed (Shumka, 2015)

	Kamja stone	Najzma cave	Techtronic fragment detachment Pogradec	Memlisht cave	Memlisht softrock	Lini fault	Hudenisht fault
Status	NM, LPA, LAB	NM, LPA	NM, LPA	NM, LPA	NM, LPA	NM, LPA, LAB	NM,L PA
1. Scientific & educational values							
1.1. rarity	9	9	9	9	9	10	9
1.2. integrity	10	10	7	10	8	9	9
1.3. representativeness	8	8	8	8	8	9	8
2. Geodiversity	4	4	5	4	6	8	9
3. Ecological & aesthetic values	9	8	4	8	7	9	7
4. Cultural values	7	7	5	7	5	8	7
5. Potential threats & Protection needs							
5.1. legal protection	8	8	8	8	2	2	2
5.2. vulnerability	8	7	3	7	7	8	7
6. Potential for use							
6.1. recognizability	4	4	3	4	4	5	6
6.2. geographical distribution	3	3	3	3	5	5	9
6.3. economic potential	5	5	3	5	5	5	4
TOTAL	75	73	53	73	66	78	77

NM-nature monument; LPA-Landscape Protected Area; LAB-Landscape of Outstanding Beauty; 1-lower value-10 high value.

ANNEX XVI: Conservation concerns and associated major threats identified for Lake Ohrid (*source*: Kostovski *et al.*, 2010)

Conservation concern	Major threats	Example	Reference
Watershed impacts	Nutrient input Increased sediment load Waste water Metal contamination	Sateska River, Lake Prespa underground connection Tributaries to Lake Ohrid Domestic waste waters Industries and disposals Albania	Watzin et al. (2002); Matzinger et al. (2007) Vogel et al. (2010) Watzin et al. (2002) Vogel et al. (2010)
Agriculture and forestry	Intensified agriculture Irrigation Logging Water abstraction Fire events	Pesticides in fish Northern plains of the Ohrid basin Wood processing plants Albania Agribusinesses around Lake Prespa, thus affecting the water regime of Lake Ohrid Anthropogenic fires on Galicica Mountains	UNESCO ROSTE (2004) Watzin et al. (2002) Watzin et al. (2002) D. Georgiev, pers. comm, 2010 This study
Tourism and population growth	Construction of houses and facilities Speed boats water scooters etc. Pollution	Weekend houses on slopes E of Ohrid town Disturbance of spawning grounds of cyprinid fishes Bacterial pollution in front of Pogradec	This study Spirkovski et al. (2007)
Non-indigenous species	Competition for native species Community changes	Rainbow trout as competitor for Ohrid trout *Elodea canadensis* in macrophytic communities	
Habitat alteration or loss	Destruction of coastal habitat Fragmentation of macrophytic littoral communities Spring conversion and capture in Ohrid Basin Spring destruction Eutrophication	Wetland loss (e.g. Studencisko blato) Macrophyte belt near Pestani/Trpejca Sum Spring, partly Tusemisht/Zagorican complex Destruction Bej Bunar spring/Ohrid town Changing microfilm and algae communities on rocky shores	Trajanovska (2009) This study This study This study
Unsustainable exploitation of fisheries	Overfishing Release of non-native fish Seven species of non-native fish	Illegal fish catch	UNESCO ROSTE (2004) Talevski et al. (2010)
Global change	Increasing average temperatures	Amplification of eutrophication with subsequent anoxia in many parts of the lake	Matzinger et al. (2007)

ANNEX XVII: Results from the SWOT Analysis Workshop (21 August 2015, Pogradec)

WORKING GROUP 1

Strengths:

- Incomparable aquatic and terrestrial biodiversity (species, habitats, ecosystems)
- High number of endemic species
- Landscape variety
- The lake and its history: An open book for nature history
- Geomorphological and geological variety
- Hydrological characteristics of the region
- Cultural, archeological and spiritual treasure
- Intellectual and educational level (University and free working force)
- Hospitality and traditional culinary
- Legal and political documents (environmental laws, Management Plans)
- Transboundary Management Committee of the Watershed
- Transboundary Cooperation
- New Territorial System in place
- Lack of Industries
- Sewage water plants

Weaknesses

- Lack of integrative and holistic urban plans
- Lack of waste management
- Poverty and low level of employment
- Over exploitation of forests and lack of new alternatives for fuel energy
- Overfishing and illegal fishing
- Lack of Funds
- Mismanagement of land, high erosion
- Lack of law enforcement
- Low level of awareness and low culture of life in the community
- Fragmentation of agriculture and bad agriculture practices
- Lack of support for traditional products
- Lack of cooperation among Civil society and Local Government
- Lack of integration of rural development in the preservation of nature
- Lack of studies on ecosystem services

Opportunities

- EU integration processes
- Integrated approach of the new administrative division
- Waste management plans
- Hunting moratorium
- EU funds, IPARD II program
- approximation of legislation with that of the EU countries
- regional and trans-boundary cooperation, common projects and initiatives
- Emigrants' know-how
- Increase of touristic demands
- Medical plants
- Positive role of NGOs in awareness and decision-making
- New positive approach of the Albanian Government towards law enforcement
- Energetic infrastructure: TAP in the region

Threats

- Mines and quarries are a serious threat for the lake
- Current way of treating urban waste
- Lack of sewage water treatment in rural areas

- Agriculture, pesticides
- High level of erosion
- Population growth (From 15.000 to 45.000)
- Forest cutting and fires
- Improper development of aquaculture (Drilon, where a high number of endemic species are related in the life cycles of reproduction)
- Climate change- our behavior impacts the climate change on a cumulative basis

WORKING GROUP 2

Strengths

- Incomparable biological diversity (species, habitats, ecosystems), (aquatic + ecosystems).
- Diversity of landscapes.
- Lake origin - Open book on history of nature
- Geological and geomorphological diversity,
- Hydrological characteristics of the region
- Cultural, archaeological and spiritual heritage
- Education and intellectual level, university
- Traditional culinary, hospitality
- Development of civil society
- The management committee. (transboundary), watershed
- Transboundary cooperation
- New administrative division
- Wastewater treatment plant
- Endemic fauna in the lake
- The presence of the oldest lake in the Balkans
- Biodiversity of wetlands
- Awesome natural beauty combined with a healthy climate,
- Unique landscape and surrounding hills. Natural landmarks in the landscape
- chestnut forests as a natural wealth of rare and unique to this region,
- Protected water-terrestrial landscape status, guarantees for development in accordance with the intended status as world inheritance property.
- Geological history
- Archaeological wealth
- Building with protective status
- Castle of Pogradec
- Mosaic of Lin
- Integrated management of waste in the region of Korca provides a satisfactory standard of cleanliness
- The production of wine as tradition (traditional cooking)
- The long line during littoral, a good opportunity for the development of soft tourism
- Development of recycling industries (plastics, wood) in harmony with environmental protection
- Existence of tourism infrastructure
- Handcraft in wood products
- Cohabitation in religious beliefs
- Fishing tradition
- Human Capacities (literature, art)
- Seasonal and throughout the year tourist potential
- Family Tourism
- The short distance with the protected national park of Shebenik-Jabllanica

Weaknesses

- Overfishing
- The unplanned spontaneous development

- Inappropriate construction, cemented part-lake shore
- Pollution, discharge of sewage into the lake
- Deposition of waste in inappropriate places
- Anthropogenic factors, destruction, alteration of habitats, unfamiliarity, failure to protect natural resources, flora green damage, misuse, indiscriminate hunting, exploitation of forests for wood
- The occupation of agricultural land for construction purpose
- exploitation of quarries, mining (uncontrolled) and their not rehabilitation
- Non restoration or reconstruction of neighbourhood museum with cultural heritage
- Neighbourhood museum with cultural heritage
- Infrastructure not developed enough
- lack of economic development strategies
- high levels of unemployment
- lack of land-use plan for the region
- The small size of farms
- Lack of integrated urban plans
- Lack of plans (management) to MB urbane
- Poverty and low levels of employment
- Lack of funds
- Mismanagement of land, high erosion
- Non-application of the legislation in force
- Low level of awareness and weak culture of life in the community
- Agricultural fragmentation, not good agricultural practices (work, irrigation, treatment)
- Lack of support of traditional products
- Lack of cooperation between civil society local authority
- Lack of integration of rural development in the defence of nature
- Lack of studying of ecosystem services
- Lack of promotion of tourism values
- Non-recognition and the implementation of laws by community
- Hot spots
- Lack of maintenance of the lake shore
- Lack of cleaning plant

Opportunities

- thermal isolation of buildings increases the efficiency of electricity use, reduces the consumption of wood, reduces damage to forests
- setting quotas for fishing
- promotion of cultural and natural values
- Advertising of the region
- returnees
- politic in in aiming the growing of handcrafts
- Trading of traditional herbs
- The cooperation of local government with NGOs and businesses for economic growth
- Extending the existing project in cleaning the sewage even for the Guri I kuq-Lin area
- The possibility of using the landfill of Maliqi also for the region of Pogradec
- thermal isolation of buildings increases the efficiency of electricity use, reduces the consumption of wood, reduces damage to forests
- setting quotas for fishing
- promotion of cultural and natural values
- Advertising of the region
- returnees
- Increasing the interest of foreign tourists
- Medicinal Plants (nature, cultivation,)
- The positive role of NGOs in awareness and decision-making

- New approaches to government law enforcement
- Energetic Infrastructure, TAP in region

Threats

- Increasing the interest of foreign tourists
- Medicinal Plants (nature, cultivation,)
- The positive role of NGOs in awareness and decision-making
- New approaches to government law enforcement
- Energetic Infrastructure, TAP in region
- Wastewater
- Forests Damage
- Utilization of quarries and mines
- Solid waste streams in the lake
- Economic activities in the region (agricultural activities, livestock, etc.)
- Uncontrolled demographic movements
- The low economic development brings overexploitation of natural resources
- The division of functions between authorities
- Reactivation of Mining industry
- Mines and quarries serious threat for the lake
- Method of treatment of urban waste
- Agriculture, chemicals, working the land
- The population growth
- Harvesting of forest, fires
- Improper aquaculture development
- Climate change
- illegal use of natural resources
- Not using the riverbeds in the region (river Çërravë)

WORKING GROUP 3

Strengths

- geographical position
- beautiful and unique landscapes
- microclimate of the area
- biodiversity, very high level of endemism
- archaeological wealth
- infrastructure
- many natural monuments
- Proximity to Shebenik – Jabllanica National Park
- religious coexistence
- Fishing tradition
- human capacities on painting, literature and sculpture
- hospitality
- Rich CULINARY
- Perennial potential for tourism
- family tourism
- Community Awareness

Weaknesses

- Damage to ecosystems (Forest, lake, rivers)
- Contaminated of ground-waters
- Hot spots from Monism industry heritage
- Lack of maintenance of the lake shore
- Low level of awareness
- Lack of water plant for sewage waters from Memlisht to Lin village

- Lack of a regional landfill
- Illegal fishing
- Low infrastructure in the roads/signs
- Usage of firewood for heating
- Lack of promotion of touristic values
- Lack of cooperation among NGOs/CSOs, local communities and local government
- Lack of development and urban plans
- Low level of information for explaining lows to community

Opportunities

- Usage of alternative sources for heating (sun and natural gas- TAP)
- Tourism throughout the year
- Network of NGOs and potential for more common projects to link the CSOs, NGOs and local authorities
- Exchange of lessons learnt from Macedonia's experience and particularly Ohrid as WH property
- Urban plan
- Establishment of fishing centres to store and sell the fish/fruits/medical plants
- New territorial law increases the responsibilities

Threats

- Climate change: what we know find as a solution (landfills) may become a threat in the future
- Overexploitation of forests for Firewood
- Illegal exploitation of natural resources (quarries, mines) next to the settlements
- Uncontrolled urban development
- Change of natural habitats
- Overexploitation of river-banks (Cherava river)

ANNEX XVIII: Proposed zoning for the Terrestrial and Aquatic Territory of Pogradec Protected Landscape

Zone	Area (ha)	Commune	Natural Asset	Human Activity	Level of Protection
Core	1,211.47	Cerrave, Bucimas, Hudenisht.	Breeding areas for fish; Terrestrial area of high mountains with mountainous and alpine vegetation - bio-corridor among the three protected areas of: Galicica National Park, Prespa National Park and Pogradec Protected Landscape.	Scientific research are allowed	I
Sustainable use	20,763.33	Cerrave, Bucimas, Hudenisht, Trebinje.	Sustainable use area includes mainly forest and pastures: Oak forests with *buxus* shrub land, degraded beech forest with juniper shrub land and Chestnut forests: and aquatic territories.	Seasonal economic activities, grazing, medicinal plants collection, secondary forest production are permitted; activities that does not affect ecological integrity of ecosystem and can be applied only when environmental permit is issued	II
Traditional use	4,722.39	Cerrave, Bucimas, Hudenisht.	The traditional use zone includes agriculture, forestry land, territories close to the inhabited centres	Economic activities are permitted	IV
Recreational	33.54	Bucimas, Pogradec, Hudenisht.	Recreational zone includes area of recreation possibilities mainly touristic activities along the lake	Recreation possibilities in open nature, in accordance to protected area functions, ecological, touristic and cultural values of natural landscape	IV
Areas outside the zoning	592.43	Pogradec and Bucimas		The urban areas and the areas where intensive agricultural practices take place around the towns of Pogradec and Bucimas are proposed to be excluded by the zoning of the protected landscape.	None
Total	**27,323.1**				

ANNEX XIX: Assessment of the institutional arrangements and policy instruments for natural and cultural resources management in the Lake Ohrid region –Albania

Stakeholder	Main Duties
The Council of Ministers	Approve relevant legislation for Protected Areas, environment, biodiversity, fauna and flora, medicinal plants, forestry, fisheries, renewable resources etc; Design Protected Areas and its management institutions.
Ministry of Urban Development through the National Territorial Planning Agency	Support the coordination among different planning authorities at both national and local level
National Territorial Council	Check and approve the compliance of local instruments with national planning instruments in force. Approves large scale infrastructure projects. According to Article 19 of the Law on Protected Area, every private or public investment that changes the natural habitat of protected areas should be approved by the National Territorial Council that is led by the Prime Minister.
Ministry of Environment- Biodiversity and Protected Areas Directorate/ Forestry Directorate	Draft and approve relevant legislation for environmental protection, environmental permitting, environmental assesment; Draft and approve relevant legislation for Protected Areas; Prepare and present the necessary documents to the government for issuing the protection status of a certain area; Draft and approve relevant legislation for forestry and forestry services, wild fauna and flora including medicinal plants;
Pogradec Landscape Management Committee	Established by Order of Minister nr. 564 dated 5 November 2012, its main duties are to administrate and preserve the protected area through the supervision of management plans implementation, the enforcement of legislation by protected areas administrations and enterprises performing activities in the area, the maintenance of environmental quality, the promotion of ecological (sustainable) development and the implementation of requirements for sustainable use of natural resources;

Korca Region Administration of Protected Area	By Order nr.102 dated 04 April 2015 The National Agency of Protected Areas as well as the Regional Administration of Protected Areas. Pogradec Lanscape is under the management of the Korca unit with a total staff number of 18, which has the following structure: Director Management and administration sector • Head of Sector • Specialist Monitoring sector - Head of sector - Specialist - Rangers Supporting services sector - Archive/Protocol specialist - Building guard Administrate and preserve the Protected Landscape of Pogradec, Follow the implementation of the management plan of the area; Follow the implementation of annual programs on monitoring and bio monitoring; Promote the development of the site through guides on natural resource values Follow the project implementation of the site
Korce Directory of Forestry Services- Pogradec Session	Control the enforcement of legtslatìon in relation to forestry, pastures and hunting Manage forest and pastures in the surrounding area as well as the hunting sites Develop forest and pasture management plan Provide imput and report to the central government on the implementation of the forest policies Supervise the projects implemented on site through different foreign donnors as well as the Albanian Development Fund program on reforestration such as the Tushemisht Crown reforestration project.
National Environmental Agency	Issue environmental permits of Type A and B, which require deep study environmental assesments and include large scale investments of more than 2 hectares in a Protected Lanscape. Advise the local government unis for implementation of environmental policies; Enforce provisions of environmental legislation, environmental permitting, and coordination of monitoring actioities.
Regional Environmental Agency of Korca	Issue environmental permits of Type C, which are small scale activities and investments which require a pre-environmental impact assesment
Korca Region State Impectorate of Environment and Forests	Ensure the enforcement of legislation on environmental protection, forests and hunting. Issues fines in case of violations and collects the fines

Ministry of Culture **Institute of Cultural Monument and RegionalDirectorate of National Culture of Korça**	Responsible for the implementation of government cultural policy. A network of 29 state institutions under the Ministry, implements and supports projects, programs and activities related to preservation, restoration, management, valorisation and promotion of culture and cultural heritage in Albania.
Ministry of Transport	Invest in waste management facilities, water supply and sewerage. Invest in infrastructure development and national roads.
National Inspectorate of Construction	Control the compliance of development and construction with the approved planning instruments for the area.
Ministry of Agriculture, Rural Development and Water Administration	Administrate of Agricultural Program and Rural Development; Management and protection of fishery resources, water resources. Administrate and maintaining of drainage and irrigation systems.
Korca Regional Agricultural Directory	Regional Directorates of Agriculture, created by DCM. 95, dated 13 February 2003 "On establishment of the Regional Agriculture Directorates". Its main duties are: Protecting the health of animals, plants and safeguarding human health from diseases arising from animals and food quality. Provision of agricultural information. Support with technical assistance and technology of farmers. Giving guarantee on food quality and consumer protection. Providing support for the agro-industry, trade and marketing. Provision of statistical information in accordance with the EU model.
Fisheries and Acuaculture service Directorate	• Manages the fishing infrastructure, including ports and fishing centers. • Gathers fishing data. • Develops programs repopulation of water categories. • Manages and plants mussel center of Saranda. • Manages economies fish seedlings in Zvezda Korca of Koran in Lin Pogradec and other economies fish seedlings. • Ensures compliance with legal requirements on the protection of fisheries and aquaculture monitoring and inspection of fishing activity. Monitoring and inspection of fishing activity carried out by the sector of fisheries monitoring and control, part of the Department of Fisheries and Aquaculture Service

Ministry of Economic Development and Tourism	-Promote tourism development; -Develop tourism strategies and action plans for the main touristic sites -Provides support to the local government for the implementation of tourism policies and strategies
Ministry of Energy/ National Natural Resource Agency	Drafts the legislation on mining sector Issue permits for mining activities through the National Natural Resource Agency after conducting feasibility studies and providing a three to five year plan for the mining site Surveillance and monitoring of minïng activities, Take administrative measures through their inspectorate IQT
Ministry of Health through the Institute of Public Health	Monitor the quality of drinking water Provide data on air and water quality as well as policies on pest control
Pogradec Municipality	Approve planning instruments; Issue development and construction permits in accordance with the urban planning program in accordance with the zoning of the Protected Lanscape Area Approve planning and construction regulations at local level Provide and maintain public services including water supply and sewerage, integrated waste management, etc.
Korça Prefecture	Control legal compliance of decisions taken by the municipalities of Korca region, currently six: Pogradec, Maliq, Kolonje, Devoll, Pustec and Korce.
Local NGOs	Support initiatives in the interest of the local community induding sustainable development of agriculture and other local economic activities, preservation of biodiversity and awareness raising
Fishermen, including Fishery Management Organization (OMP), and Trout Aquaculture	Promote sustainable fishery Manage OMP facilities; Expand their business activity;
Local owners	Claim land ownership; Benefit from tourism and infrastructure development, Maintain their economic profits from different activities.
Private businesses (bars, restaurants and hotels any)	Increase number of tourists and visitors in the area; Pay taxes for community services incloding waste management; Expand their business activity.

ANNEX XX: Basic principles and the legal framework on territorial (spatial) planning in Albania

Territorial planning is based on the following principles:

- sustainable economic and social development, which is based on a methodology that includes studies and forecasting social, cultural, economic needs that defines a vision for the future development of the territory, considering the alternatives of strategic development and ensures the present and future generations for a high quality environment, balanced economic development and harmonized economic and social cohesion, rational use of natural resources, human and material resources, development and preservation of natural and cultural heritage;
- the coordination of horizontal and vertical national and local planning and stakeholders, which ensures that planning instruments are adopted in accordance with planning instruments by other authorities and for them to harmonize public and private interests, national and local;
- variety, which guarantees the drafting of planning instruments, based on the diversity of needs of human, material, economic activity, natural and cultural heritage;

Other crosscutting sectorial laws include:

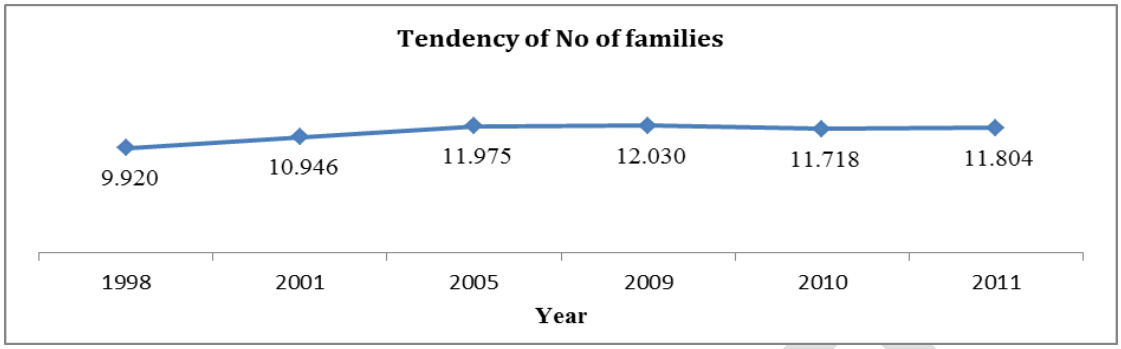
- Law No.115 / 2015 "On administrative-territorial division of the Republic of Albania" which approves the new territorial planning that came in place on June 2015, for the division of the country in 61 municipalities by merging all the communes into municipalities.
- Law No. 9780 dt.16 July 2007 "On inspection of the building activity in accordance with the by-laws". This law aims to ensure compliance with the norms, standards and legislation in the field of construction, urban planning and water resources throughout the country, in a decentralised manner and in accordance with the principle of subsidiarity, according to the administrative division.
- Law Nr.50/2014 “On some changes and adendums to the law on the legalization, urbanisation and integration of illegal constructions, as amended." This law focuses on:
    - Legalisation of constructions and facilities permit, with informal target extras
    - Transfer of ownership of the building, where construction is set up without permission, according to this law.
    - Urbanisation of informal zones, blocks and buildings, as well as their integration into the territorial and infrastructural development of the country, improve living conditions.
    - The procedures for carrying out the legalisation of informal buildings / facilities with permits, with additions and informal object the establishment and functioning of the structures responsible for their implementation.
- Law nr.8927 date: 25 July 2002 "On the Prefect". This law defines the mission of the prefect, as representative of the Council of Ministers in the region, the quality and conditions of their appointment and in particular the responsibilities, duties and his rights in relations with the state administration and local government bodies operating in the county/qark.
- Law No. 8652 dated: 31 July 2000 "On the organization of local government", the new organic law on local governance which is in its final draft form, will include for the first time the principle of asymmetric decentralisation based on the principle of subsidiarity. Those local governments that have human resources and financial resources may require devolution of certain powers within the joint or functions and other functions exercised by central government bodies aiming at offering services to a higher standard.
- Law No. 8402 dated: 10 September 1998 "On the discipline of construction works”. Design, supervision, implementation and commissioning works in the Republic of Albania are controlled and disciplined under the provisions of this law. Control for verification of compliance with the

legal requirements stipulated in this Law shall be made by the relevant structures in accordance with this Law and the Law. 10433 dated 16 June 2011 "On inspection" in Albania. This law applies to all plans and implementation of construction works performed by natural and legal persons, domestic or foreign, in the Republic of Albania.

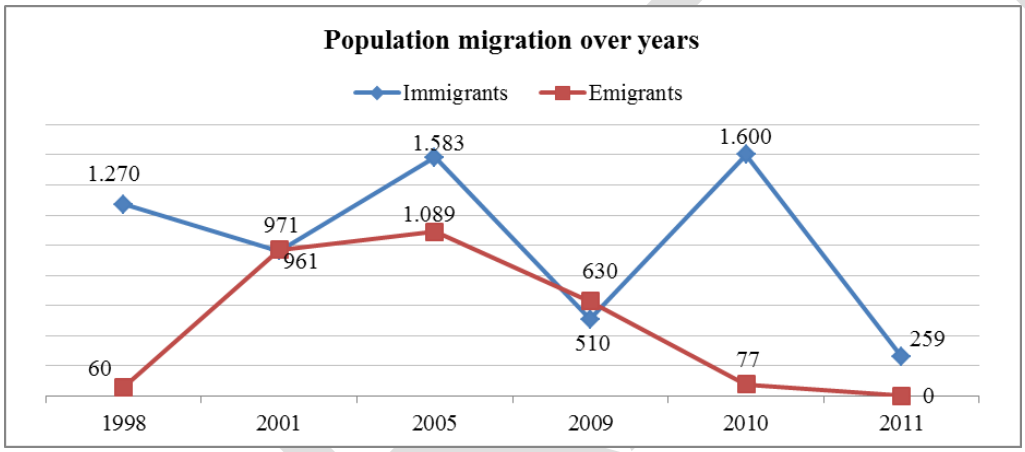
- Law nr.9734, dated: 14 May 2007 "On Tourism". This law regulates the relations between public institutions and private entities, juridical and physical persons, domestic or foreign, that conduct tourism activities, defines the rights and obligations of the subjects participating in these activities, in accordance with the standards established in this law, and other issues related to tourism.

ANNEX XXI: Basic demographic data on the Lake Ohrid region in Albania

Number of families over years in the Municipality of Pogradec (Source: Statistical yearbook, Municipality of Pogradec)



Population migration flows over the period 1998-2011 (Source: Statistical yearbook, Municipality of Pogradec)



Farms and population by communes in the study area (Source: Statistical yearbook, Municipality of Pogradec)

Communes	Population		Number of villages	Number of farms
	Total	Female		
Hudënishte	7852	3950	6	1225
Çërravë	9958	4932	9	1723
Buçimas	14649	8631	8	2740
Sub total	32459	17513	23	5688
Pogradec	43963	26017	70	9169

ANNEX XXII: Basic economic data on the Lake Ohrid region in Albania

Land structure according to administrative areas of interest in 2014 (Source: Regional Directorate of Agriculture)

Area	Total Ag. Land	Arable land		Forests & Pastures		Orcharding	
		Ha	%	Ha	%	Ha	%
Hudënisht	5217,2	963,2	6	4254	19	25,84	7
Cerrava	5869	3736	23	2133	10	208,74	55
Buçimas	4802	2497	15	2305	11	135,18	36
Subotal	10019,2	7196	44	8692	40	369,76	98
District	38421,2	16525,2	100	21896	100	378,485	100

Specification with regard to main crops of Pogradec district in 2014 (Source: Regional Directorate of Agriculture)

Crops	Area (ha)	Production (ton)	% over the total of the category (production)	Production growth
Cereals	3096,0	10322,1	100	NA
Wheat	2020,0	6940,2	67	5
Maize	810,0	2826,0	27	-0,7
Vegetables	385,0	9837,0	100	20
Onions	145,0	4298,3	43	NA
Tomatoes	72,0	1779,5	18	NA
Pepper	71,0	1566,2	16	NA
Permanent crops	378,5	4852,9	100	NA
Apples	186,15	2221,1	46	38
Plums	43,45	1017,9	21	44
Cherries	96,75	726,6	15	65
Grape	247,33	3607,6	100	11

Livestock production in 2014 (tons; source: INSTAT)

Product	Korça	Pogradec	% over the region
Meat	16,883	5,008.9	29.7
Cattle	7,300	2,149.8	29.4
Sheep&Goats	7,131	2,515.3	35.3
Pigs	1,037	222.2	21.4
Poultry	1,415	121.5	8.6
Milk	97,412	33,541.9	34.4
Cows	75,928	28,637.7	37.7
Sheep	12,463	2,437.5	19.6
Goat	9,021	2,466.6	27.3

Mechanisation in Pogradec district in 2014 (Source: Regional Directorate of Agriculture)

Area	Wheeled tractors	Mini-tractors	Freza	Auto-combines	Sowing machinery	Mower	Total	%
Hudënisht	18	13	27	0	3	0	61	13.2%
Buçimas	22	25	12	2	13	4	78	16.9%
Subtotal	40	38	39	2	16	4	139	30.1%
Pogradec	129	141	98	17	55	22	462	100%

Production of FISH species (*source*: fishery inspector, Pogradec)

Species	Production in %
Koran	75
Belushke	4
Krap	8
Cironke	13

Forests according to ownership (source: Regional Directorate of Forestry)

Ownership	Surface
State ownership	9,454
Communal ownership	19,300
Private ownership	80
Total	28,834