Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

1. Name and address of the compiler of this form:

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DD MM YY

Designation date | Site Reference Number

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2. Date this sheet was completed/updated:
May 10, 2005

3. Country:
Albania

4. Name of the Ramsar site:
Lake Shkodra and River Buna

5. Map of site included:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps.

a) hard copy (required for inclusion of site in the Ramsar List): ***yes*** ☐ -or- *no* ☐

b) digital (electronic) format (optional): ***yes*** ☐ -or- *no* ☐

6. Geographical coordinates (latitude/longitude):
Lake Shkodra: 42°10'N 19°15'E
River Buna: 41°50'30"N 19°20'19"E; 42°03'15"N 19°30'30"E
Velipoja: 41°52'N 19°26'E

7. General location:

The proposed area is located in the North West part of Albania, on the east of borderline between Albania and Montenegro. The northern part of Lake Shkodra belongs to the district of Malesia e Madhe, whose town is Koplik (pop. est. 14.000). The rest of the area belongs to the district of Shkodra, whose town has the same name (pop. est. 120.000). A lot of small villages occur within the area of the proposed

Ramsar site: 12 villages on the coast of Lake Shkodra (pop. est. 11.000) and 22 villages along River Buna sides and Velipoja area (pop. est. 17.000).

8. Elevation: (average and/or max. & min.)
Min: 0 m; Max: 544 m (Maja e Zeze - Kolaj Mountain)

9. Area: (in hectares)
49.562 ha

10. Overview:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The hydrographical net Lake Shkodra-River Buna-Velipoja Coast covers a very important wetland area in regional level, well known for its natural richness, old civilization and historical significance. The proposed area is composed by the eastern side (14.900 ha) of the biggest lake in the Balkan Peninsula (shared with Montenegro); River Buna (44 km) flowing from Lake Shkodra to the Adriatic Sea and shared with Montenegro from its middle stream up to the famous delta, which is a rare example of a real natural delta in the East Adriatic coast; coastal brackish lagoon of Viluni (390 ha) with an interesting hydrologic regime; floodplain forests, whose most important is the forest of Velipoja (a natural reserve of 694 ha); 13 km coast line with sand dunes from mouth of Buna River in west, up to Rana e Hedhun in east; alluvial island (Franz Joseph Island in Buna delta); rocky island (Shiroka Island in Shkodra Lake); freshwater marshlands; calcareous mountains (Taraboshi and Mali i Rrencit); karst formations; subterranean waters, human-made ponds, irrigated lands etc. Besides sheltering a very rich biodiversity, the international importance of the area is linked to the connection/junction Shkodra Lake - River Buna - River Drin. Through Buna mouth, this connection ensures the migration of aquatic species (mainly fish) from Shkodra Lake to Adriatic Sea (and vice-versa), but also from Ohrid and Prespa Lakes (through connection with Drin River). The main activities are agriculture, stock raising, fishing and tourism. Shkodra, the biggest town of the area, over 2000 years old, with a very interesting history and architecture, formerly has been known as *"the door of communication with the west"* and *"cradle of culture"* of Albania.

11. Ramsar Criteria:
Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1 • 2 • 3 • 4 • 5 • 6 • 7 • 8

12. Justification for the application of each Criterion listed in 11. above:
Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1
The hydrographic net Lake Shkodra – River Buna – Velipoja Coast represents a wide variety of habitats, communities and landscape values. They consist in transboundary freshwater ecosystems (lake and river), Buna delta, seacoast (Velipoja), coastal lagoon (Viluni), floodplain forests, sand dunes, freshwater marshlands, calcareous and karst formations, subterranean waters, human-made ponds, irrigated lands, wet pastures, arable lands, etc. All these habitats shelter a high diversity of flora and fauna and make the relevant area one of the most diverse and abundant sites in the South Balkan and Adriatic coast.
In the hydrologic aspect, the role of this hydrographic net affects a very large area. Connection Shkodra Lake - River Buna - River Drin determines the hydrologic regime of Shkodra Lake, River Buna itself, their tributaries in the catchment area and has an important impact on the morphology of Buna delta. Through Buna mouth, this connection ensures the migration of aquatic species from Shkodra Lake and its tributaries to Adriatic Sea, but also from Ohrid and Prespa Lakes (through connection with Drin River), affecting a large area covered by the hydrographic net of the south western Balkan.

Criterion 2
The proposed Ramsar area supports 36 global threatened animal species. Referring to IUCN Red List of Threatened Species (2005), 3 of those species are Critically Endangered (CR), 3 Endangered (EN), 8 Vulnerable (VU), 10 Lesser Risk (LR), 3 Data Deficient (DD) and 7 species have NT status. (see table below and item *20. Noteworthy fauna* for details).

Insecta
Cerambyx cerdo – VU

Pisces
Acipenser sturio – CR A2d
Acipenser naccarii – VU A1ac
Acipenser stellatus – EN A2d
Salmothymus obtusirostris – EN A1ace
Chondrostoma scodrensis – CR A1a

Aves
Pelecanus crispus – VU A2c
Anser erythropus – VU A2bcd
Branta ruficollis – VU B2ab
Oxyura leucocephala – EN A2b
Marmaronetta angustirostris – VU A2cd
Numenius tenuirostris – CR 2a

Mammalia
Rhinolophus euryale – VU A2c
Myotis capaccinii – VU A2c

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36 plant species found at the proposed Ramsar area belong to the Albanian Red Book, 12 of them are considered as Endangered, 12 as Vulnerable, 10 as Rare and 2 species are Insufficiently known. The presence of 1 endemic subspecies should also be noted (Querqus robur (L.) subsp. Scutariensis). (further details see section 19)

Criterion 3
The relevant area shelters a high proportion of biodiversity of Albania and Southwestern Balkan, with importance for maintaining the biological diversity in the region. One of the most important regional ecological features of the area is the biological migration, especially for fish and birds.
For ichthiofauna, this area maintains the presence and reproduction of migratory species of a large area covered by the hydrographic net of the Southwestern Balkan, connected with Shkodra Lake, rivers Buna and Drin (including Ohrid and Prespa lakes). This area contains 14 fish species and subspecies of global conservation concern (see item *20. Noteworthy fauna* for details).
According to bird counts of Schneider-Jacoby et al. (2003 - 2004), this area appears to be an important wintering area in the Eastern Mediterranean for Woodlark *Lullula arborea*, which may hold about 1% (over 10.000 individuals) of the species European population.
In national level, this area supports an important proportion of the biodiversity, in qualitative and quantitative aspect. In the following, there is a list with the species number of the most known animal groups of the area and its percentage in national scale.

Biological groups	Nr. of species	National %
Vascular plants	900-1000	28%
Mollusks	115 - 130	22%
Fish	150	47%
Amphibians	11	68%
Reptiles	31	81%
Birds	246	74%
Mammals	34	48%

As it is seen from the table above, the role of that area is particularly important for certain groups of species such as birds, reptiles, amphibians, mammals and fish.

Criterion 4

This area is a part of one of the three migration roads of European birds in the direction north – south. So, it plays a very important role for maintaining bird diversity in regional level. It is a shelter for 9 bird species of global conservation concern (see item *20. Noteworthy fauna* for details).
This area is a nesting site also for bird species of European conservation concern, such as Levant Sparrow Hawk *Accipiter brevipes,* European Nightjar *Camprimulgus europaeus, Coracias garrulus, Emberiza melanocephala, Lanius minor, Lanius senator, Oenanthe hispanica, Otus scops,* Eurasian Spoonbill *Platalea leucorodia* and Common Redshank *Tringa totanus*. Considerable breeding populations have been recorded also for *Actitis hypoleucos,* Kentish Plover *Charadrius alexandrinus, Charadrius dubius,* Stone Curlew *Burhinus oedicnemus* and Oystercatcher *Haematopus ostralegus*.

Rrenci Mountain, in the southeastern part of the proposed Ramsar area, has a significant bio-ecological role, as a migration corridor for the big mammals of the Montenegrin side of Buna area toward Adriatic Sea in Albania. So, it plays the role of a natural bridge for terrestrial animals who cross Buna River (brown bear *Ursus arctos*, jackal *Canis aureus*, wolf *Canis lupus*, wild bore *Sus scroffa*, fox *Vulpes vulpes*)

Criterion 5
According to bird counts in Shkodra Lake, Buna River, Velipoja Reserve, seashore, Viluni Lagoon and marshes in surrounding areas (Domni, Pentari, Murtemza) included in the proposed Ramsar area, maximal number of wintering water birds has reached 24.000 – 30.000 individuals. These counts belong to Hagemeijer et al. 1993; Kayser et al. 1995, 1997; Bino et al, 1996; Bino 2001; Bino 2002, Schneider-Jacoby et al. 2003, 2004 (see item *32. Bibliographical references*).

Criterion 6
According to Schneider-Jacoby et al. 2004, their results of bird counts (2003 – 2004) and comparison with the results of the Wetlands International "Waterbird Population Estimates", 3d edition, 2002, 3 species reach the 1% criterion of the Ramsar Convention. In the following are these species name and their individual number counted in the relevant area, after Schneider-Jacoby et al. 2004:

Phalacrocorax carbo (3100)
Pelecanus crispus (30)
Tringa erythropus (1000)

Criterion 7
Buna River is a migration road for reproduction or feeding of 13 fish species and subspecies from- and to the sea, for the waters connected with Shkodra Lake, rivers Buna and Drin (including Ohrid and Prespa lakes). Among these migratory species, 6 of them are globally threatened species: *Acipenser sturio, Acipenser naccarii, Acipenser stellaus, Alosa fallax, Lampetra fluviatilis* and *Lampetra planeri.*

Criterion 8
The proposed Ramsar area offers important food sources for fish, spawning grounds, nursery and migration paths on which fish stocks depend (either within the wetland or other habitats connected to them). This area has a high diversity of fish species, due to diversity of its water resources (fresh water, brackish water, marine water), (see also item *20. Noteworhty fauna*).
Coasts of Shkodra Lake and freshwater marshes of the area are very important spawning grounds for cyprinids (Fam. Cyprinidae). For some other species, such as mugillids (e.g. *Mugil cephalus, Liza ramada*) and sparids (e.g. *Sparus aurata*) coastal and lagoon waters are important spawning grounds, serving as a nursery for their young.

13. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):
Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:
Mediterrranean region

b) biogeographic regionalisation scheme (include reference citation):
Eastern Mediterranean Region (according to *Waterbird Population Estimates, 3rd Edition*, 2002)

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14. Physical features of the site:
Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The proposed Ramsar area has a surface of 49.562 ha. It comprises a wide variety of landscape features: seacoast, lake, river, coastal lagoon, freshwater marshes, alluvial forests, pastures, karst hills etc. It concerns a Mediterranean Climate situation. The main wetland area comprises Shkodra Lake, River Buna with its delta, Velipoja forest, Viluni Lagoon and a system of freshwater marshes (Domni, Murtemza, Pentari).

Shkodra Lake is situated in the lower part of the Shkodra rift, between Taraboshi Mountain, Field of Mbishkodra (Fusha e Mbishkodres), Field of Podgorica (Fusha e Podgorices) and Shkodra town. The lake is surrounded by carstic calcareous formations and dolomites of Palaeozoic, Mesozoic and Tertiary. The area is characterized by an active tectonic process. Origin of the lake is tectonic-karstic, during Tertiary or Quaternary. Shkodra Lake is the biggest lake in Balkan Peninsula, with a surface of 36.800 ha, from which 14.900 ha belong to Albania. Maximal surface of the lake reaches 54.200 ha. Maximal length of the lake is 45 km and maximal width 26 km. Its perimeter is 207 km, from which 57,5 km belongs to Albania. Average depth of the lake is 8 m, while maximal depth in the Albanian part is over 40 m in the karstic holes called "Syri i Sheganit" and "Syri i Virit". The small depth and wide oscillation of water level do not enable the development of littoral, sublittoral and abyssal zones of the lake. Water surface of the lake is situated 5,6 m over sea level. Transparency of the water (by Secchi disc) varies from 2 to 5 m. The main tributary of the lake is River Moraça with its two branches, which discharge 62% of the total water volume. 30% of the water volume is provided by underground water, as sources or "eyes". River Buna is the only emissary of the lake, discharging 320 m^3/sec from the lake. Fluctuation of water level is 5m. Water temperature in August reaches 26,4°C, while in January it falls very rare in 0°C. Average water temperature in February is 6,4°C. The water of the lake has a high content of dissolved oxygen (7 – 12 mg/l) and low content of mineral salts. In the ionic balance, 92% of the anions belong to bicarbonates and 96% of the cations belong to Calcium. The value of nutrient content in the coastal water is high, showing the eutrophisation of the coast, while the other parts of the lake have oligotrophic character. The soil around the lake is mainly brown (Podsol). In a morphological point of view the coast of the lake consists in two main types: (i) abrasive coast, in the west side and (ii) accumulating coast in the east side. The yearly average rainfall is 1600 – 2000 mm and the average temperature of the air is 14°C – 16°C. In January the average air temperature is 3°C – 7°C, while in August 23°C – 26°C.

River Buna springs from Shkodra Lake, in its southeastern part and has a length of 44 km. It pours in the Adriatic Sea, forming a typical delta. The river is shared between Albania and Montenegro from the village Samrish (Alb.) and Gorica (MN) up to its mouth. In its delta is created Ada Island which divides the river in two branches flowing to the sea. Ada and the west branch belong to Montenegro. The east branch of the delta is shared between the two countries. In the Albanian side of that branch is situated the Franz Joseph Island (4,5 ha) with a variable shape and size. In a distance of 1,3 km from its spring, Buna is connected with River Drin (which springs from Ohrid Lake and Kosovo). This connection defines the water regimen of Shkodra Lake, River Buna and its delta. Buna discharges from the lake 320 m^3/sec, but after its connection with Drin the amount of water discharge reaches 680 m^3/sec. Buna has a small depth, especially in the first 12 km in the upstream where are some small islands. Buna is a river with a slow flow, because the inclination of its bed is small, with an average 1,2m/km. Big water capacity and soft consistence of the riverbed have favoured the erosion process. As a result, several meanders have been created. Water regimen of delta is defined from the relation of water flow of Buna with thalasographic parameters. In waving regimen mostly influence the winds at a speed of 10 – 20 m sec. The average amplitude of daily variation of the water level is 20 – 30 cm. Sea currents vary at an average speed of 0,2 – 0,3 m/sec. Transport of sea and river sediments is

very active. Delta and riverbanks are characterized by strong processes of accumulation and abrasion. In Buna area the yearly average rainfall is 1600 – 1800 mm and the average temperature of the air is 16°C – 18°C, with minimal absolute extreme 0°C up to –4°C. The soil of Buna banks is dominated by alluviums.

Velipoja area includes Delta of Buna, Velipoja beach, Velipoja forest, Viluni Lagoon, a system of freshwater marshes (Domni, Murtemza, Pentari), pastures and arable land. Development of Velipoja complex could be decribed as a dynamic short and long – term process based on: high sediment loads of the mountainous catchments of the Drin River, hydrographical variability of the Shkodra Lake and the Drin River, marine variability and littoral zone based on short-term events (storm waves and tides) and long-term processes (sea transgressions), tectonic changes such as uplift and abatement (several earthquakes are recorded for the area). The low tidal currents in the Adriatic Sea (about 20 cm) as well as the high sediment load of the Drin River support the delta formation whereas the delta growth with 1-1,5 km in the last 100 years is relatively low compared with other Mediterranean deltas. Velipoja forest is a natural reserve of alluvial mixed forest, with a surface 638 ha. There are 4 marshes within the forest. Their depth varies from 0,4 m in summer to 1,6 m in winter. Hydrology of that marsh system is interesting and influenced directly by the regimen of Buna River.
Viluni lagoon has a surface of 380 ha, longitude 3 km and width 0.9 km. This lagoon represents the remained wetland area from the degradation of former wetland complex of Viluni, Mërtemza, Luarzi, Pentari, Reçi etc. The water of Murtemza channel pours into the lagoon. This channel collects the waters from the field of Nënshkodra. The amount of water running from this channel to the lagoon varies according to the seasons. Lagoon is connected with the sea through a 300 m long channel, which is never blocked. The amount of water coming from the rainfalls is 1450 mm and evaporation is 780 mm per year. The average depth of the lagoon varies from 0,8 to 1 m, but in some sectors it reaches 2 – 3 m. The yearly average temperature of the air is 16°C – 18°C. In July - August the average temperature is 23 – 24°C, while in January 5°C - 8°C.

15. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

In the Albanian side, catchment area of Shkodra Lake has a surface of 1025 km^2. The average altitude of the catchment area is 770 m. Geological formation consists in calcareous rocs, dolomites and pebbles of Quaternary. As a result of calcareous formations and abundant rainfall carstic processes are widely developed. Surface hydrographical net is reduced. The downstream of the torrents, such as Perroi i Thate, Perroi i Vrakes and Perroi i Rrjollit are dried for almost the half of the year. River Cemi flows from a very high mountain region (Kelmendi) and pass the border toward Moraça River in Montenegro, which is the main tributary of the lake and covers 2/3 of its catchment area. Soils are mainly brown, with subtypes of pasture-brown, reddish-brown and humus carbonatic. Around the lake the yearly average rainfall is 1600 – 2000 mm, while in the mountain area 2500 – 3000 mm. 75 – 82 % of the rain falls during May – October. Average temperature of the air around the lake is 14 – 16°C, while in the mountain region of the catchment area 2 – 10°C.
Buna River, in a distance of 1,3 km from its spring in Skadar Lake, is connected with the River Drin, which has a length of 285 km. The main branches of Drin are Shala River in Albanian Alps, Valbona River in north-east of Albania, White Drin in Kosovo and Black Drin in Macedonia. The last one springs from Ohrid Lake, which provides its water from Prespa lakes. River Kiri which flows from Dukagjini highland is connected also with River Drin. Obviously, the River Buna takes water from a very complex hydrographical net, which lies almost in the 1/5 of Balkan Peninsula, in Albania, Montenegro, Kosovo, Macedonia and Greece. The average altitude of this catchment area is 909 m. A high number of streams runs from Anamali side to Buna, where the longest is the Stream of Milla (25 km) and the second is the Stream of Megjureç (21,6 km). In Buna flows also the water from Lake Shasi in Montenegro, through Vija e Shengjergjit.
The population in the Ramsar proposed area and its catchment area is 180.000 inhabitants, where over 120.000 belong to Shkodra town. The main activities are agriculture (crops, vegetables, fruits), livestock raising (cattle, sheep, goats, pigs, horses) fishery (Shkodra Lake, Buna River, Viluni Lagoon) and tourism (Velipoja Beach, Shkodra Lake, Buna River, Shkodra town, mountains).

16. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Connection Shkodra Lake – Buna River – Drin River has a very important role in the aspect of hydrological values. Shkodra Lake serves as a retention basin for surplus waters coming from its mountainous catchment area. In its southeastern edge, River Buna plays the role of a drainage channel evacuating the surplus waters from the lake. In this way Buna prevents and reduces the risks of heavy flooding of the area around the lake. Buna plays the same role also for River Drin and its catchment area, at least in its downstream. Alluvial forests in Velipoja area with their marshes, surface and underground communication of Buna with a system of marshes and Viluni lagoon serve as discharging basins for Buna waters, keeping the water balance and reducing the flood.
Lake Shkodra, Viluni lagoon and marshes in the southern part (Velipoja) of the proposed Ramsar area serve as retention basins for sediments and nutrients that are used by wetland vegetation. Different domestic animals and fish use this vegetation as a major food resource. Buna and Drin rivers, by bringing sediments down from the neighboring mountain region, help in the advancement of the shoreline and the retreat of seawaters. This retreat reduces the influence of seawaters on inland aquifers and helps in the de-salinization of the agricultural land.
This hydrologic net has important climatic values, too. Yearly average temperature of the water of Shkodra Lake is 1,4C° higher than yearly average of air temperature. That means that the lake plays a mitigation role in the thermal regime of the area. Floodplain forests, especially in the Buna downstream and Velipoja reserve transpire into the air a big amount of water, purifying it at the same time. Apart from it, they have a significant impact on agriculture. The characteristic Mediterranean summer droughts in Velipoja area are mitigated by the strong evaporation of water from floodplain forests. This helps local community and its domestic animals to overcome the dry and hot summer.

17. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: **[A]** • **B** • **C** • **D** • **[E]** • **[F]** • **[G]** • **[H]** • **I** • **[J]** • **K** • **Zk(a)**

Inland: **[L]** • **[M]** • **[N]** • **[O]** • **P** • **Q** • **R** • **Sp** • **[Ss]** • **[Tp]** **[Ts]** • **U** • **Va** • **Vt** • **W** • **[Xf]** • **Xp** • **[Y]** • **Zg** • **[Zk(b)]**

Human-made: **[1]** • **[2]** • **[3]** • **[4]** • **5** • **6** • **7** • **8** • **[9]** • **Zk(c)**

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

1. O Permanent freshwater lakes
2. A Permanent shallow marine waters
3. Ts Seasonal/intermittent freshwater marshes/pools
4. 4 Seasonally flooded agricultural land
5. 3 Irrigated land
6. M Permanent rivers/streams/creeks
7. J Coastal brackish/saline lagoons
8. Tp Permanent freshwater marshes/pools
9. H Intertidal marshes
10. 1 Aquaculture ponds

11. Xf Freshwater, tree-dominated wetlands
12. G Intertidal mud, sand or salt flats
13. F Estuarine waters
14. Ss Seasonal/intermittent saline/brackish/alkaline marshes/pools
15. 9 Canals and drainage channels, ditches
16. N Seasonal/intermittent/irregular rivers/streams/creeks
17. L Permanent inland deltas
18. 2 Ponds
19. E Sand, shingle or pebble shores
20. Y Freshwater springs
21. Zk (b) Subterranean karst and cave hydrological systems.

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18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The proposed Ramsar area includes a high variety of habitats: freshwater (lake and river), brackish water (estuary and lagoon), woodland, freshwater marshes, wet pastures, sandy shore and rocky habitats. The vegetation of the area is rich, with 900-1000 plant species.

Freshwater habitats

These habitats belong mostly to Shkodra Lake and Buna River.

Shkodra Lake

Within the lake surface there is a high variety of habitats and communities. Dominant vegetation types are: 1) submerse macrophytes, dominated by Potamogeton, Myriophyllum, Najas and Vallisneria; 2) floating macrophytes, with *Nuphar luteum, Nymphaea alba, Nymphoides peltatea* and *Trapa natans*; 3) reed beds, dominated by *Phragmites australis* and *Typha latifolia*, in association with Scirpus, Sparganium, Equisetum, Juncus, etc. The most important plant associations are: Najadetum marinae, Potametum perfoliati, Potametum lucentis, Potametum natantis, Potameto-Najadetum, Potameto-Vallisnerietum, Myriophyllo-Nupharetum lutei, Nymphoidetum peltata, Trapetum natantis, Phragmitetum australis, Scirpo Phragmitetum, Typhaetum latifolia, Eleochari-Hippuridetum, Ludwigietum palustris, Leucojo-Fraxinetum angustifolia. In Shkodra Lake are known more than 685 species of phytoplankton and 350 species of both zooplankton and microfauna. From the macrobenthos are known 39 mollusc species and 35 species of insects. Fish fauna is rich, with 61 species and subspecies. It is dominated by the Family Cyprinidae, with 27 species and subspecies. 13 taxa are marine migratory species and 22 species and subspecies are aloctone (non-indigenous) species. Shkodra Lake is a very important habitat for nesting, feeding and migration of birds. In the Albanian part of the lake and its catchment area have been recorded 236 bird species. The most presented groups are Anatidae, Ardeidae, Falconiformes, Charadriiformes, Lariformes, Passeriformes, Strigiformes. 56 bird species are nesting in that area, from which 11 belong to waterfowls and 45 to non-aquatic bird species. Mamalofauna of the lake and its catchment area consists in 37 species. The most presented are Carnivora (11 species) and Chiroptera (9 species).

Buna River

The associations of aquatic plants of Buna River can be divided in three groups. 1) Submerse macrophytes, including mainly species of the genus Potamogeton, Myriophyllum, Najas and Vallisneria. 2) Macrophytes with floating leaves, with *Nymphaea alba, Nuphar luteum, Trapa natans and Nymphoides peltata*. 3) Helophytic plants, half-submerse, dominated by *Phragmites australis* and *Typha latifolia*. Plankton is very richer compared to many rivers in the region, because River Buna has an abundant water mass, quiet flow and high quantity of nutrients in the water. The main groups of phytoplankton are Chlorophyta, dominated by Pediastrum; Diatome, presented mostly by Cyclotella and Synedra; Cyanophyta, with predomination of Microcystis and Merismopedia. In the eutrophic parts, during hot season, is found an abundance of Oshillatoria and Navicula. From macrobenthos, the most known are molluscs with 18 species. Ichthiofauna of Buna is very interesting, with 70% dominance of cyprinids. There are known 30 freshwater fish species of Buna (excluding its delta) and 13 migratory species and subspecies from Shkodra Lake to the sea and vice-versa.

Buna River plays the role of a migrating corridor for the ornithofauna of the area, closely linked with Shkodra Lake and Velipoja area. In the river basin 170 bird species have been recorded, including waterfowls and non-aquatic birds. The half of this number belongs to Passeriformes. High species number belongs also to Falconiformes and Anseriformes.

Brackish water habitats

These habitats include the Coastal Lagoon of Viluni and Buna Delta.

Aquatic macrovegetation of the Viluni Lagoon is relatively poor. It is dominated mostly by *Zostera noltii* and in some small parts is present also *Ruppia cirrhosa* and *Cymodocea nodosa.* From green macroalgae, the most present are Chaetomorpha, Cladophora and Enteromorpha. Hydro - hygro and halophylic vegetation is characterized by a relatively high number of species. Its associations are mostly dominated from Potamogeton, Ceratophyllum, Phragmites, Pycreus, Alisma, Butomus and Typha. From macrobenthos, there are known 21 mollusc species. Ichthiofauna of the lagoon is rich, due to the active communication with the sea. The most common species are those which are also most known for their commercial values: *Mugil cephalus, Liza ramada, Liza saliens, Anguilla anguilla, Dicentrarchus labrax, Sparus aurata* and *Solea vulgaris*. Periodically common are also *Chelon labrosus, Diplodus sargus sargus, Lithognathus mormyrus, Atherina hepsetus, Gobius bucchichi, Mullus barbatus.*

The most evident characteristic for the communities of Buna Delta is the high diversity of fishes. This is mostly linked to the high abundance of organic matter and nutrients transported to the river mouth. In Buna mouth at least 50 fish species have been recorded.

Both Viluni Lagoon and Buna Delta are important feeding and nesting habitats for some bird species of international concern, such as Pygmy cormorant (*Phalacrocorax pygmeus*), Sandwich tern (*Sterna sandvincensis*), Kentish plover (*Charadrius alexandrinus*), Common redshank (*Tringa tetanus*).

Woodland

Woodlands of the relevant area consist in alluvial forests in Buna banks, mostly along its downstream, mixed forest of Velipoja Reserve, coastal pine forest of Velipoja and Viluni and freshwater wood in the east coast of Shkodra Lake. Key species of the most important associations of alluvial forests of Buna and mixed forest of Velipoja belong to white poplar (*Populus alba*), tamarisks (*Tamarix parviflora, Tamarix hampeana*), willows (*Salix fragilis, Salix alba*), alder (*Alnus glutinosa*), narrow-leaved ash (*Fraxinus angustifolia*) *Vitex agnus castus, Ulmus compestris, Rosa sempervirens* etc. Coastal pine forest is composed by stone pine (*Pinus pinea*) and aleppo pine (*Pinus halepensis*). Freshwater woods in the east coast of Shkodra Lake are mostly composed by several species of willows (*Salix alba, S. purpurea, S. fragilis, S. pentandra, S. incana*), tamarisk (*Tamarix parviflora*), white poplar (*Populus alba*) and narrow-leaved ash (*Fraxinus angustifolia*). These woodland areas are the most important nesting and feeding habitats for the bird species, such as Falconiformes, Passeriformes, Ciconiformes, especially Ardeidae. These woods are almost the only remained habitats for big mammals, like jackal (*Canis aureus*), fox (*Vupes vulpes*), badger (*Meles meles*), rabbit (*Lepus capensis*) etc.

Freshwater marshes

The majority of freshwater marshes are created from Buna River. The most important are those of Pentari, Çasi, Murtemza, Domni and those in the Velipoja Reserve. They have a rich vegetation, composed by floating meadows dominated by *Nymphea alba, Nuphar luteum, Hydrocharis morsus-ranae, Trapa natans* etc., submerged species as *Myriophullum spicatum, Ceratophyllum demersum, Potamogeton pectinatus* and helophytic species, such as *Phragmites communis, Typha latifolia, Schoenoplectus lacustris, Cyperus longus* and green macroalgae. These marshes are important habitats for fish spawning. A considerable number of bird species use these marshes for shelter and food, especially during their migration. Herpethofauna of these habitats is very interesting, with a high diversity of species.

Wet pastures

Wet pastures cover a huge surface in Velipoja area, Pentari, Gjo Luli, Domni and east coast of Shkodra Lake. These pastures are continuously flooded. They are the most important grazing habitats for domestic animals of the area. They are also important feeding habitats for many bird species, some of them of

international conservation concern: Ardea, Egretta, Larus, Charadrius, Platalea, Motacila Emberizia, Lullula and many falconiforms of Aquila, Circus, Circaetus, Accipiter, Falco, Pandion, Buteo, Milvus.

Sandy shore

Sandy shore covers the coastal area from Buna mouth in the west to Viluni Lagoon and Baks-Rrjolli area in the east. Psamophtytes plant associations are dominated by *Amophila arenaria, Lagurus ovata, Medicago marina, Pancriatum maritimum, Atriplex hastata, Agropyrum junceum, Eryngium maritimum*. In that habitat nest several bird species, such as *Himantopus himantopus, Haematopus ostralegus, Glareola pratincola, Sterna albifrons, Burhinus oedicnemus, Caprimulgus europaeus* and especially *Charadrius alexandrinus* and *Charadrius dubius.*

Rocky habitats

Rocky habitats belong to Taraboshi Mountain in the western coast of Shkodra Lake and Rrenci Mountain in the southeastern part of the proposed Ramsar area. Their composition is calcareous – karstic with a poor vegetation of woods and shrubs where grow few species, such as: Brood-leaved mock (*Phillyrea latifolia*), Olive-tree (*Olea europaea var. europaea*), Macedonian oak (*Quercus trojana*), Christ's thorn (*Paliurus spina-christi*), Wild Pomegranate (*Punica granatum*), but rich with herbs vegetations of meso- and xerophytes. The most significant bio-ecological feature is the role of Rrenci Mountain as a migration corridor for the big mammals of the Montenegrin side of Buna area toward Adriatic Sea in Albania. So, it plays the role of a natural bridge for terrestrial animals who cross Buna River (brown bear *Ursus arctos*, jackal *Canis aureus*, wolf *Canis lupus,* wild bore *Sus scroffa*, fox *Vulpes vulpes*). These mountain areas have suitable habitats also for falconiform birds and other species who need to be far from human presence.

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19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS*.

36 plant species found at the proposed Ramsar area belong to the Albanian Red Book, having an unfavorable conservation status. 12 of them are considered as Endangered, 12 as Vulnerable, 10 as Rare and 2 species are Insufficiently known. The presence of 1 endemic subspecies should also be noted (*Querqus robur* (L.) *subsp. Scutariensis*).

Endangered species
1. *Marsilea quadrifolia* L.
2. *Hydrocotile vulgaris* L.
3. *Hidrocharis morsus-ranae* L.
4. *Orchis laxiflora* L.
5. *Orchis palustris* L.
6. *Pancratium maritimum* L.
7. *Lycium europeum* L.
8. *Desmazeria marina* (L.) Drude
9. *Ephedra distachya* L.
10. *Olea oleaster* L.
11. *Laurus nobilis* L.
12. *Querqus robur* (L.) *subsp. scutariensis*

Vulnerable species
1. *Butomus umbellatus* L.
2. *Cladium mariscus* R. Br.
3. *Nuphar luteum* (L.) Sibth. et Sm.
4. *Nymphaea alba* L.
5. *Nymphoides peltata* O. Künze
6. *Sagittaria sagittifolia* L.
7. *Trapa natans* L.
8. *Adiantum cappilus-veneris* L.
9. *Baldelia ranunculoides* (L.) Parl.
10. *Spirodella polyrhiza* (L.) Schlied.
11. *Ulmus campestris* L.
12. *Ulmus laevis* L.

Rare species	
1. *Potamogeton gramineus* L.	2. *Potamogeton nodosus* Poiret
3. *Hippuris vulgaris* L.	4. *Roripa amphibia* (L.) Besser
5. *Leucojum aestivum* L.	6. *Polygonum amphibium* L.
7. *Groenlandia densa*	8. *Lemna trisulcata* L.
9. *Vallisneria spiralis* L.	10. *Alnus glutinosa* (L.) Moench

Species insufficiently known
1. *Salix pentandra* L.
2. *Salix fragilis* L.

In the relevant area there are also 6 plant associations with national unfavorable conservation status, all of them belonging to Shkodra Lake.
4 of them are considered as Vulnerable:
Nymphoidetum peltatea
Myriophyllo-Nupharetum lutei
Trapetum natantis
Leucojo-Fraxinetum angustifolia.
While 2 others plant associations are considered as rare:
Potameto-Vallisnerietum
Phragmitetum australis

108 plant species from the proposed Ramsar area are listed in the *Red List of Peatlands of International Biodiversity Conservation Importance in Europe* (Heinicke & Joosten). *(see the list in the Annex 1).*

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Shkodra Lake – Buna River – Velipoja area has a very rich fauna, including species of national and global conservation concern. According to national and international inventories and existing bibliographical data, in the relevant area have been recorded 216 fauna species with national unfavorable conservation status and 36 fauna species with global unfavorable conservation status, as following:

Fauna groups	Species of National Conservation Concern	Species of Global Conservation Concern
Molluscs	34	1
Insects	13	2
Fish	44	14
Amphibians	11	1
Reptiles	10	1
Birds	88	9
Mammals	16	8
Total	**216**	**36**

Since the list of species is too extensive, species names are only given for species of global conservation concern (included in the IUCN Red List of Threatened Animals, 2004), with the endangered status for each species:

Mollusca
1. *Unio crassus* – LRnt

Insecta
1. *Cerambyx cerdo* – VU
2. *Lycaena dispar* – LRnt

Pisces
1. *Acipenser sturio* – CR A2d
2. *Acipenser naccarii* – VU A1ac

Aves
1. *Phalacrocorax pygmeus* – NT
2. *Pelecanus crispus* – VU A2c
3. *Anser erythropus* – VU A2bcd
4. *Branta ruficollis* – VU B2ab
5. *Oxyura leucocephala* – EN A2b
6. *Marmaronetta angustirostris* – VU A2cd
7. *Aythya nyroca* – NT
8. *Numenius tenuirostris* – CR 2a
9. *Gallinago media* - NT

3. *Acipenser stellaus* – EN A2d
4. *Alosa fallax* – DD
5. *Salmo marmoratus* – DD
6. *Salmothymus obtusirostris* – EN A1ace
7. *Chondrostoma scodrensis* – CR A1a
8. *Pachychylon pictum* – LRnt
9. *Chondrostoma nassus ohridanus* – LRnt
10. *Cyprinus carpio* – CR A2c
11. *Lampetra fluviatilis* – LRnt
12. *Lampetra planeri* – LRnt
13. *Alburnus alburnus alborella* – VU A2c
14. *Alburnoides bipunctatus ohridanus* – DD

Amphibia
1. *Hyla arborea* NT

Mammalia
1. *Sciurus vulgaris* – NT
2. *Glis glis* – LRnt
3. *Rhinolophus ferrumequinum* – LRnt
4. *Rhinolophus euryale* – VU A2c
5. *Rhinolophus blassi* – NT
6. *Myotis myotis* – LRnt
7. *Myotis capaccinii* – VU A2c
8. *Lutra lutra* – NT

Reptilia
1. *Emys orbicularis* – LRnt

21. Social and cultural values:

e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

The proposed Ramsar site covers a well-known area for its natural richness, old civilization and historical significance. Hydrographic map of the area corresponds to the population distribution map, what means that the hydrographic developments of the area are reflected in the demographic developments. The population within the Ramsar proposed area is 160.000 inhabitants, where over 120.000 belong to Shkodra town. The main activity of the local community in the villages is agriculture and livestock raising. Traditional economy is appreciated for crops, cereals, potatoes, bean, different vegetables and fruits, olive oil, wine, milk and meat products, honey, leather, silk, wool etc., for its own necessities of the population, but also for trade within the country. Raising of cattle, sheep, goats, pigs, horses and donkeys it's an old tradition of the community. There are several old breeds of domestic animals in the area, what increases its biodiversity and touristic value. Although not much developed, fishery is an important activity for several villages in the coast of Shkodra Lake (Shiroka, Zogaj, Sterbeqi, Kamica, Flaka), Buna River (Oboti, Samrishti, Reçi, Pulaj), Velipoja coast and Viluni Lagoon. Tourism has been developed mostly on the west side of Shkodra Lake (Shiroka and Zogaj) and Velipoja beach. Recently, tourism is expanding along the whole hydrographic net. The high diversity of habitats, as well as natural and cultural potentials of the area offer a high variety of tourism types: balneary, safari, rural, mountainous, cultural etc.

Shkodra (Skadar, Scutari) with an over 2000 years history, is a well-known town in regional level. It has been known in Southern Europe for the navigation and commerce through Buna to Adriatic Sea and for his high level of culture and civilization. Rozafa Castle, with its famous legend and architecture, built at the entrance of Shkodra, represents a precious historical and cultural monument. Its Illyrian walls and archeological sites around are testimony of the old civilization of Shkodra. Ruins of antic dwellings have been found also in Koplik area (east coast of Shkodra Lake), Shiroka (south-west coast of Shkodra Lake) and Pulaj (Buna downstream). In the village Shirq (Buna middlestream) exists a remained wall and cemetery of a 600 years old catholic church, which is still a peregrination site for the people of surrounding villages.

Three main religions of the relevant area are muslim, catholic and orthodox, with the dominance of the first one. Influence and coexistence of these three religions have let important traces in the development, history, art and culture of Shkodra, what makes that town attractive in many aspects.

22. Land tenure/ownership:

(a) within the Ramsar site:

A considerable part of the territory proposed for Ramsar is private property. State property includes aquatic basins (lake, marshes, river, lagoon), Velipoja reserve with Buna delta, tourist sites near the coasts of Shkodra Lake and Buna River, Velipoja beach, islands of Buna and majority of the mountain areas (Taraboshi, Mali Kolaj). Commune and provincial land tenure has yet to be decided by the Albanian Government for this region, especially for the inundated areas in the coasts of Shkora Lake, Buna River and Velipoja area.

(b) in the surrounding area:

The majority of surrounding area is private property, except aquatic basins (mostly rivers and streams) and the upper part of mountains and hills, which are state property.

23. Current land (including water) use:

(a) within the Ramsar site:

The majority of the land is used for agriculture and livestock raising. A considerable surface is sown by cereals, different vegetables and fruits, vineyard, olive trees, etc. A large area (c. 5000 ha) has the characteristics of wet pastures and is exploited almost for domestic animals only, such as Fusha e Pentarit, Fusha e Gjo Lulit, Keneta e Domnit, Fusha e Velipojes, Livadhet e Shkodres and the east coast of Shkodra Lake. A big amount of sheep, cows, horses, goats and pigs graze on those pastures. These pastures area regularly flooded and overgrazed on at list 75% of the surface. 25% of the area is mown and

then grazed for nine months. Most of the domestic animals migrate with the shepherds from the surrounding areas with cold winter.
Fishery has been mostly concentrated in some villages in the coast of the Shkodra Lake, Buna River and Viluni Lagoon. Recently, fishing is uncontrolled and exact statistics do not exist. In the early 80' fish yield in Shkodra Lake has been 50 kg/ha per year, while in Viluni Lagoon the yearly average yield was 20 t for eel, 38 t for grey mullet and 8 t for sea bass. Actually, fishing is an activity for less than 10% of the families living near the coasts. Aquaculture is almost undeveloped in the area, except any very small private fishpond near the lake and Buna. In village Reçi (Buna downstream) there is a fishpond area of 114 ha, which has been used until 90' for freshwater fish farming, taking water from Buna River. The production has been stopped some years ago. The aqueduct and system of channels have been destroyed, but most of the basins large fishponds are still filled with shallow water of underground character.
Tourism has been developed mostly on the west side of Shkodra Lake and Velipoja beach. Shiroka and Zogaj are known as old tourist sites, with a small capacity (actually 400 – 500 beds), while Velipoja started to be used as an important summer tourist site since 1970, with the actual capacity of 2000 beds. Number of daily tourists is very high during the summer, even in Buna and Drini sides. During the maximal capacity period (July-August) in Velipoja coast the number of tourist can reach 20.000 per day. Generally in the area, tourist settlements are of small and medium size. Last years in Velipoja coast tourist settlements are hugely expanding in its northern part and toward Viluni Lagoon in the west.

(b) in the surroundings/catchment:
In the surrounding Ramsar proposed area (in its east) the majority of the land is similarly used for agriculture and livestock raising. Crop products, cereals, vegetables, vineyard and other fruits cover the most part of agricultural land. Large areas are used as pastures for domestic animals: sheep, cows, horses, goats, pigs and donkeys. Milk products, wine, honey, leather, silk, wool and meat products from domestic cattle and birds are important economic resources for the community.
In the hill and mountain areas, especially in the western and northern part of Shkodra Lake, woodlands and shrubs cover a considerable part, which are used from the local community for fire or as building and industrial material.

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24. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:
(a) within the Ramsar site:
The proposed Ramsar area, especially Velipoja area, experienced big changes during 1950 - 1960 through the drainage of a huge marshland area for creating new agricultural land. The same phenomenon happened with the forests in the coasts of Buna and Shkodra Lake. These actions resulted in loss, degradation and fragmentation of habitats and impoverishment of flora and fauna. After the changes of the communist regime in 1991, a new negative phenomenon appeared: degradation of administrative structures leading to uncontrolled development and illegal practices.
The main impacts on the ecological character of the area are:

<u>Land reclamation</u>
This process covered a huge area, especially in Velipoja and Buna fields. Marshes which were taking water from Buna, such as the system of Pentari, Çasi, Murtemza, Domni and Viluni have been dried up in a considerable part of their surface. These processes continued until near 1970. Many alluvial and freshwater forest areas in the coasts of Shkodra Lake and River Buna have been also transformed in agricultural land. The loss of wetland areas was accompanied with the extinction or high reduction of certain species.

<u>Development of agriculture</u>
The new agricultural lands were intensively used for crop production and grazing. The pressure from overgrazing is very high. The impact of the agriculture development on the biodiversity of the area is increasing, especially from the use of fertilizers and introduce of non-indigenous agricultural plants and domestic animals. It has damaged the natural habitats and indigenous flora and fauna.

Changes in water regime

Since River Drin started to pour in Buna River (more than 100 years ago), Shkodra Lake has a very sensitive regime. In big water discharge periods, Drin blocks Buna while taking water from the Lake and for this reason the surface of the lake highly increases, up to almost its double. Meanwhile Buna was filled with sediments from Drin. This has reduced marine migratory species in Buna and Shkodra Lake.

Last 30 – 40 years several Hydro Plants have been built on the River Drin (Fierza, Vau i Dejes, Komani) and a new one was recently approved (Bushati). Their dams have reduced the sediment flow to Buna, what has a strong impact to Buna delta. Sea erosion is highly increasing and a considerable coastal area is loosing. A good example for this might be the Franz Joseph Island (4,5 ha) in Buna delta, which is expected to disappear in a near future.

Deforestation

A considerable area of alluvial forests in Buna, mixed forest in Velipoja, oak and willow forest in Shkodra Lake coasts was destroyed, mainly through drainage and creation of agricultural lands. Deforestation is still continuing for taking wood for fire or industry, as well as for opening new grazing areas.

Macrophyte vegetation is also damaged in the coasts. They are the most important producers of the aquatic ecosystems, shelter for many fauna groups and reproducing habitats for many species.

Damage of forests and macrovegetation has destroyed not only the flora and fauna but also soil nutriments and has increase erosion.

Tourism development

The actual development of tourism is problematic, as the natural values have not been preserved in time. Most critical is the situation in Velipoja, where building of houses and tourist settlements impact directly the seascape. The impacts include off-road car running along the beaches, new roads and trails built to reach remote parts of the dune landscape, water pollution, solid waste and sewage. (Local government of Shkodra is preparing a construction plan for tourist settlements in Velipoja beach and Shkodra Lake Coast and management of territory in those areas).

Fishing

Fishing is uncontrolled in the majority of the area. Closing of the mouth of Buna in Shkodra Lake and estuary of the Viluni Lagoon by nets and hindering migration of fish is an unsustainable use, which threats the fish populations and reproduction of several species. There are no protection measures for fish migration form the sea to Shkodra Lake and vice-versa. Using of explosives for fishing is still a serious problem for the area. There are no protected areas for spawning. Nets are seen all along the coasts and inside the wetlands. Information on fish stocks and use is very scarce. The number of local people who practices fishing is increasing. Number of restaurants and tourists, which have to be supplied by fresh fish from the area is also growing. (Inspectorate of Fishing in Shkodra has the responsibility for controlling and managing fishing activities, but its role has been weak and unsupported from other state institutions).

Hunting

Illegal hunting is often practiced in the area. Hunting season is not respected and hunting occurs during the whole year. Usage of automatic guns and hunting of protected species is a problem of great conservation concern. The capacity of the area for breeding and migrating birds is already strongly limited by the hunting impact and degradation of habitat. Populations of birds and mammals are hugely decreased. The value of the area for tourism is also decreasing, as the attractive species are not visible there.

Pollution

Solid waste is a problem at all waters in the relevant area, as it is shifted with the currency. Solid waste is transferred through the tributaries to Lake Shkodra and through the Buna River to the Adriatic Sea. Riverbanks, coast of the lake and the large costal dune and beach areas are covered by solid waste. More critical is the situation during July-August, when the area is frequented by a very high number of tourists.

The wastewater is another urgent problem for the area. Sewage and industrial waters of Shkodra, as well as the chemically polluted waters from agriculture of the adjacent areas are directly poured in the lake,

Drin and Buna without any preliminary elaboration. These pollutions are endangering the tourist destinations at the coast. The lack of adequate facilities and improper management leads to an increasing water pollution. This impact is increasing also by the fast rising of inhabitants and tourists number.

Human disturbance
Human disturbance is closely linked to the uncontrolled development in the area. Human disturbance is very high and a serious contributing factor to the reduction of biodiversity values. It is expressed through the overall presence of humans in every natural and semi-natural, aquatic and terrestrial habitat. As a result, the density of many animal populations has been strongly reduced. A good example for the impact of human disturbance is the fact that many bird species, which feed in the Albanian part, nest only in the Montenegrin part of Shkodra Lake and Buna delta. Illegal methods of fishing and hunting are also a major source of disturbance.

Introduced species
In Shkodra Lake, 22 fish species and subspecies (more than 1/3 of all fish species and subspecies of the lake) are aloctone. Half of them have been introduced by humans last 30 – 40 years. Many of them are exotic species, which reproduce artificially, but the populations of some others like *Carassius auratus gibelio, Perca fluviatilis* and *Pseudorasbora parva* are highly increased and are dominating the indigenous (autoctone) fish populations of the lake. These introductions have negatively impacted the population structures of the most important fish species of economic and genetic diversity interest, such as cyprinids, especially the native (autoctone) *Cyprinus carpio*.

Low level of environmental education
Like generally in the wetlands and protected areas of Albania, the protection of biodiversity is difficult because of the low level of public awareness on environmental issues. Many habitats and species are endangered due to a lack of knowledge and appreciation of their importance to the overall environmental well-being of the area and their importance to the future tourism development.

(b) in the surrounding area:
In the surrounding area the main impacts on the ecological character are generally similar to them of the proposed Ramsar area. As in the surrounding area tourism development is lower, human disturbance is also in a lower level. However, in the surrounding area of the proposed Ramsar area many critical factors have e negative impact, such as: land reclamation, development of the agriculture, deforestation, changes in water regime (especially linked with Drin and Buna rivers), hunting, pollutions and low level of environmental education.

25. Conservation measures taken:
List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

The proposed Ramsar area is already a national protected area, including several categories (IUCN), as following: Shkodra Lake, Buna River, Buna Delta, Velipoja beach, Domni Marsh and Viluni Lagoon are under the Category IV (Habitat/Species Management Area); Rrenci Mountain is under Category V (Protected Landscape); while Velipoja Forest has the status of the Nature Reserve (Category I) and has been claimed as a Hunting Reserve from the communist government since 1964.
As regards to the management of the area, several proposals have been designed from the local and central government, NGO-s, in collaboration with scientific institutions. Many of them derived from small projects during 1992 – 2001 (see *32. Bibliographical references*). These projects served as a good database on biodiversity values, environmental situation, legal framework and management practices for Shkora Lake, River Buna, Velipoja Reserve and Viluni Lagoon. In most cases, those proposals were treated separately, not for the whole area. Some of them have been integrated in the Regulation and Urbanization Plan of Shkodra (including Shkodra Lake coasts), designed in 1998.
The most complex project dealing with protection and management practices, which is under implementation since 2000 is the REReP project *"Promotion of networks and exchanges in the countries of the South Eastern Europe"* (SDC, REC). This project promotes transboundary collaboration between Albania

and Montenegro in environmental issues, focused on Shkodra Lake area. Up to now there are prepared a Bibliography on Shkodra Lake, Report on risks and potentials, Biodiversity database, Study on roles and responsibilities of Shkodra Lake stakeholders, many capacity building activities are organized in the level of trainings, workshops and seminars, aiming cross-border cooperation.
Cooperation in government level between the two countries is becoming more active and two memorandums for cooperation in the field of environment protection and sustainable development principle implementation between the Ministry of Environment of the Republic of Albania and the Ministry of Environment and Physical Planning of the Republic of Montenegro have been signed (see material attached).

26. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

A Management Plan for the Coastal Zone of Albania was prepared in 1996 and only recently approved by the Albanian Government. Proposals for management of Velipoja area, designed in that plan, are not implemented yet.
In 1999 it was published the first Biodiversity Strategy and Action Plan of Albania. One of the goals of this strategy was the enlargement and enforcement of the transboundary protected areas. It was published a list of the habitats for which an Action Plan was planed to be prepared within 1 – 5 years. In that list was included also River Buna – River Drin, sand dunes, alluvial forests and Shkodra Lake (habitats with macro vegetation and forests). Those action plans have not been prepared yet.
The project *"Rapid assessment of the ecological value of the Bojana-Buna Delta"* implemented during 2003 – 2004 from EURONATURE in collaboration with APAWA (Association for Protection of Aquatic Wildlife of Albania) has prepared a zonation of the Buna and Velipoja area, based on Biosphere Reserve concept.

Ministry of Environment of Albania is preparing the official proposal to the government for the designation of the Lake Shkodra and the River Buna area as protected areas (Category IV and V of IUCN), which include the zoning according to the Albanian law and regulations for the Natural Protected Areas. This will establish the administration for the management of the PA and in the same time will facilitate the management of this area.
The WB/GEF project for the sustainable management of the Lake Shkodra, which is in the PDF phase, will prepare a modern management plan for the area of Shkodra Lake. In the same time there is a project proposal made together with IUCN office for Balkans in Belgrade to the Italian government, for supporting a management plan for the River Buna and its delta (Velipoja). The project is expecting to start next year.

27. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Scientific research is mainly focused on Botany, Zoology, Hydrology and Geomorphology of the area.

Botany and Zoology
As the relevant area represents high biodiversity values in regional level, studies on the botany and zoology of the area are numerous. These studies have been conducted mostly by scientific institutions such as University of Shkodra, Faculty of Natural Sciences of the University of Tirana, Institute of Biological Research, Ministry of Environment, Ministry of Agriculture and Food. Several studies and publications were carried out by the local and international environmental NGO-s, too. Studies have been focused on macrovegetation, phytoplankton, macrobenthos, fish, amphibians, reptiles, birds and mammals. Since 1997 in Shkodra University has been created the "Sector of Bio-Ecology of Shkodra Lake" which publishes a small scientific brochure "Bio & Eko". Shkodra Lake is the target study of the so-called "Conference of the Rectors" of Albania and Germany. Since 2000, almost every year, Museum of Natural Sciences and Institute of Biological Reserach with the financial support of the Ministry of Environment have carried out a monitoring of flora and fauna of Velipoja coast and Viluni Lagoon.

Results of the studies are published in different scientific papers, university dissertations, technical reports and brochures (see bibliography in 32).

Hydrology and Geomorphology

Studies on hydrology and geomorphology have been conducted mainly by the Institute of Hydro-Meteorology and Albanian Geological Service. These studies have been focused on water regime, limnology, hydrothermic and hydrochemical regime, climate, geological history, formations and sedimentations of Tertiary and Quaternary. For several years the water regime of Shkodra Lake and Buna River has been monitored by the Institute of Hydro-Meteorology.
Results of the studies are published in different scientific papers, university dissertations, monographs and technical reports (see bibliography in 32).

Archaeology

Some archaeological surveys have been carried out from the Institute of Archaeology until some years ago in the surroundings of "Rozafa" Castle, in the entrance of Shkodra town. Archaeological findings have testified the old Illyrian civilization of that area and have a very important historical and cultural value. Archaeological findings have been recorded also in Koplik area (District of Malesia e Madhe), in the northeastern cost of Shkodra Lake.

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28. Current conservation education:
e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The relevant area, especially Shkodra Lake, but also Velipoja Reserve and Viluni Lagoon has often been target site for environmental and biodiversity education. Several local NGO-s, in the framework of many projects, have organized educational activities, especially with school pupils and students. Those activities have been scarce with the tourists. Several informative and educational brochures and leaflets have been published, mostly by NGO-s.
Despite the relative high number of the local NGO-s of Shkodra area, a special infrastructure for conservation education does not exist.
The proposed Ramsar area offers excellent natural possibilities and capacities for an organized infrastructure with several centres of education for tourists and scholars. For this purpose, a system of trails and hides, suitable boards and guides has to be developed in order to give access to the visitors and minimize the disturbance to the wildlife in the same time. The visitors could be acquainted with many items, such as: site's history, land reclamation, formation processes of the main wetlands (e.g. Shkodra Lake, Delta of Buna, Viluni Lagoon), ecological demands of the most known animal groups, migration of fish and birds, old characteristic breeds of domestic animals of the area, grazing impact on the area's vegetation, benefits of the local community from the sustainable use and wise management of the natural resources etc. The relevant area is also very suitable for an international naturalist centre. Its permanent tasks would be local management and formation of nest-sites for fauna, guidance, control, monitoring, etc.

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29. Current recreation and tourism:
State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Tourism is seasonal, practiced mostly in summer (June – August). It has been developed mostly on the west side of Shkodra Lake and Velipoja beach. Small villages Shiroka and Zogaj, in the western coast of Shkodra Lake, are known as old tourist sites, not only for bathing, but also for the curative air and climate, influenced by Taraboshi Mountain in the west coast of the lake. These villages have a small tourist capacity (total 400 – 500 beds). East coast of the lake and some small beaches in the Buna banks have recently been frequented from a high number of daily tourists during the summer.

Velipoja started to be used as an important summer tourist site since 1970. Its actual tourist capacity is 2000 beds, but the number of daily tourists is very high during the summer, recorded until 20.000 (July-August). Generally, tourist settlements are of small and medium size. Last years in Velipoja area tourist settlements are hugely expanding.
The relevant area offers possibilities for cultural tourism, too, but this type of tourism has not been sufficiently appreciated and practiced. Shkodra town, with an over 2000 years history, is a well-known town for his high level of culture and civilization. Rozafa Castle, with its famous legend and architecture, built at the entrance of Shkodra, represents a precious historical and cultural monument. Its Illyrian walls and archeological sites around are testimony of the old civilization of Shkodra. Ruins of antic dwellings have been found also in Koplik area (east coast of Shkodra Lake), Shiroka (south-west coast of Shkodra Lake) and Pulaj (Buna downstream). In the village Shirq (Buna middle stream) exists a remained wall and cemetery of a 600 years old catholic church, which is still a peregrination site for the people of surrounding villages.
Surrounding area of the proposed Ramsar area, especially in the eastern and northern side of Shkodra Lake, offers possibilities also for mountain tourism and winter sports, as it is includes high mountains. This type of tourism is not often practised in that area.

30. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

The proposed Ramsar area is under the territorial jurisdiction of Shkodra Prefecture, belonging to two districts: Malesia e Madhe (eastern and northern coast of Shkodra Lake) and Shkodra (the whole remaining part of the proposed area).
Functional jurisdiction is divided between different institutions (like other Albanian wetlands). Thus, management is done according to different institutional (sector) policies, as in the table below:

Responsible institutions for the management of the area Shkodra Lake – Buna – Velipoja

Sectors	Institutions
Forests	General Directorate of Forests and Pastures (Ministry of Agriculture and Food)
Fishing	Department of Fishery Resources (Ministry of Agriculture and Food)
Tourism strategy	Ministry of Territorial Planning and Tourism
Environmental Legislation and approval of Management Plans	Ministry of Environment
Territorial Planning	Council of Territorial Planning
Waters	National Water Council
Archaeology	Institute of Archaeology (Academy of Sciences)

As seen in table above, different Albanian institutions are responsible for the activities concerning the administration of the area. Forests and pastures are managed by the General Directorate of Forests and Pastures; fishing by the General Directorate of Fisheries (both under the Ministry of Agriculture and Food). Ministry of Territorial Planning and Tourism is responsible for tourism strategies through the National Tourism Agency. The Ministry of Environment is the main public institution responsible for environmental protection. The highest consultative bodies at national level are the Council of Territorial Planning (KRT) and the National Water Council, both chaired by the Prime Minister of Albania.

31. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

The proposed Ramsar will fit with the border of the protected area that will be designated soon. The management authority for the Ramsar area will be the administration that will be established for this

reason. For the River Buna such administration is already in place for the reason of the existing Velipoja Management Reserve.
For the moment the Ministry of Environment and the General Directory of Forestry Service are under restructuring so the name of the persons that will be in charge of the management is not decided. Also the office in Lake Shkodra will be finished soon and the address will be forward to the Secretariat latter.

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scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

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