Drin Dialogue

Consultation process for the establishment of a
Shared Vision for the management of the extended Drin Basin

Albanian National Consultation Meeting

Tuesday, 5 April 2011
Tirana, Albania

Background Note

Setting the framework and the background for the discussions

Organized with the support and collaboration of:
Albanian Ministry of Environment, Forests and Water Administration
United Nations Economic Commission for Europe
Global Water Partnership - Mediterranean
Mediterranean Information Office for Environment Culture and Sustainable Development

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Within the frameworks of
UNECE Water Convention
and
Petersberg Phase II / Athens Declaration Process

Prepared by the Global Water Partnership – Mediterranean Secretariat and UNECE
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Background – the context for the discussions during the National Consultation Meeting

The **Drin Dialogue involves** in a coordinated and structured consultation process the competent Ministries of the Drin Basin riparian countries, the existing (Lake Ohrid Watershed Committee, Lake Skadar-Shkoder Commission) and to be established (Prespa Park Management Committee) joint Commissions/Committees in the sub-basins and key stakeholders at national and transboundary levels.

The **aim** of the **Drin Dialogue** is to develop a Shared Vision for the sustainable management of the Drin Basin and to explore ways towards enhancing transboundary cooperation in this regard, in compliance with the provisions of the UNECE Water Convention and other related multi-lateral Agreements, as well as the EU Water Framework Directive. The Dialogue is conducted within the frameworks of the UNECE Water Convention and the Petersberg Phase II / Athens Declaration Process. Activities implemented and to be developed in support of the Drin Dialogue contribute directly to and are part of the Mediterranean Component of the EU Water Initiative and of the GEF Med Partnership.

The National Consultation Meeting

The Albanian National Consultation Meeting is organized on Tuesday, 5 April 2011. It is the second of the Consultation Meetings within the Drin Dialogue following the one organized in 2010 in the former Yugoslav Republic of Macedonia. It is organized with the support and collaboration of: Albanian Ministry of Environment, Forests and Water Administration, United Nations Economic Commission for Europe (UNECE), Global Water Partnership – Mediterranean (GWP-Med), Mediterranean Information Office for Environment Culture and Sustainable Development (MIO-ECSDE) and UNDP. It is financially supported by the Swedish Environmental Protection Agency.

The National Consultation Meeting will:
- discuss and elaborate on management issues, needs and actions for the sustainable management of the Drin Basin extended in the country i.e. Prespa, Ohrid, Drin, Shkoder and Buna sub-basins, thus;
- facilitate the development of the Strategic Shared Vision for the management of the Drin Basin.

Targeted representatives of national and local stakeholders including national, regional and local authorities, important economic sectors (such as agriculture, energy, industry, tourism etc.), water users associations, academia, private sector, NGOs and civil society organizations will be invited to participate.

Introduction

Aim of the document

This document aims to provide the framework as well as the background for the discussions during the National Consultation Meeting in Tirana (5 April 2011) conducted in the framework of the Drin Dialogue.

The document has two parts:

- Part A. outlines the structure of the discussion during the Consultation Meeting and the steps to follow to reach its objectives:
  - Identification of the water-related environmental **issues and problems** in the Drin sub-basins, namely Prespa, Ohrid, Drin, Shkoder and Buna as well as:
    - the driving forces that lead to these including those of socio-economic, political and institutional nature;
    - their impacts, both environmental and socio-economic.
  - Development of the **Vision** of the stakeholders regarding the management of the Drin Basin including aspects such as ecosystem quality, economic development, quality of life and cooperation with the other riparian/littoral countries.

- Part B. is a preliminary attempt to describe the water-related environmental issues and problems[1] of the Drin sub-basins referring to the causes[2] and impacts.

[1] Pressures and State in the DPSIR framework – see Box 1
[2] Driving forces in the in the DPSIR framework – see Box 1

A. Organizing the discussion

(i) Structure of the discussion

The discussion is structured to be highly participatory so as the:

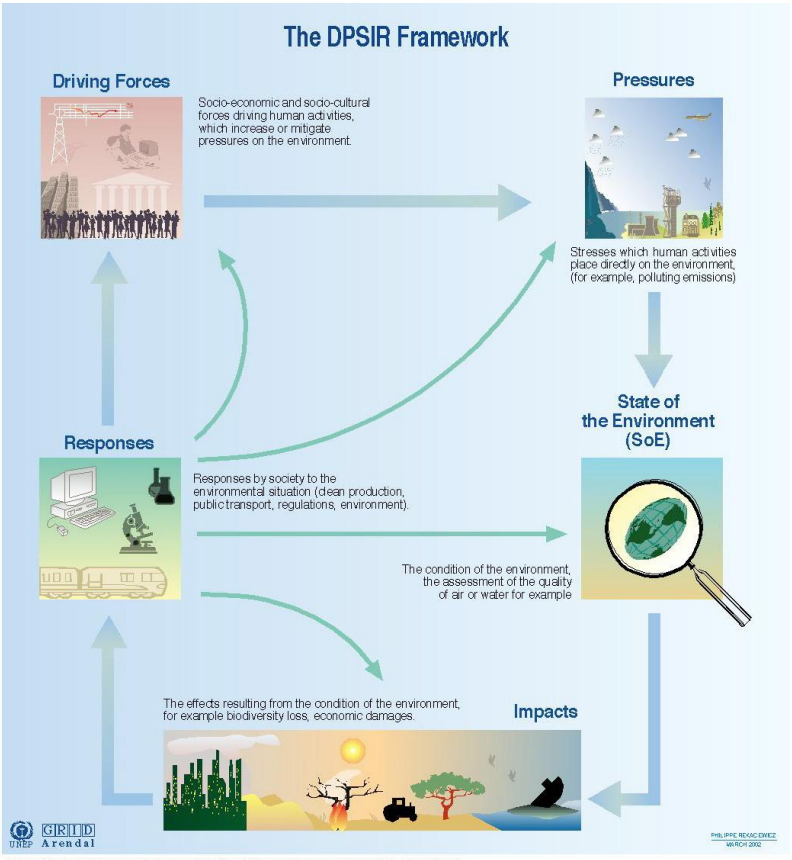
- Drin Dialogue process to be informed by the knowledge and experience of a broad range of stakeholders.
- Outcomes of the meeting to reflect the aspirations of the stakeholders with regard to the management of the basin and its future state in terms of development and ecosystems quality.

The DPSIR framework will be used for the needs of the consultation, to enable a structured discussion for each one of the following:
(i) **Driving forces**,
(ii) **Pressures**,
(iii) **State**,
(iv) **Impacts**,
(v) **Responses**.

Information about the DSPIR framework is given in the Box 1. below.

Box 1. ***The DSPIR Framework***

The DPSIR is a causal framework for describing the interactions between society and the environment adopted by the European Environment Agency (extension of the PSR model developed by OECD).



Source : Global International Water Assessment (GIWA), 2001 ; European Environmental Agency (EEA).

- ***Driving forces:*** *Socioeconomic and socio-cultural factors driving human activities which increase or mitigate pressures on the environment (e.g. EU accession, national regulatory framework, development planning, economic activities e.g. industrial production)*

- ***Pressures:*** *Stresses that human activities place directly on the environment (e.g. pollution emissions)*

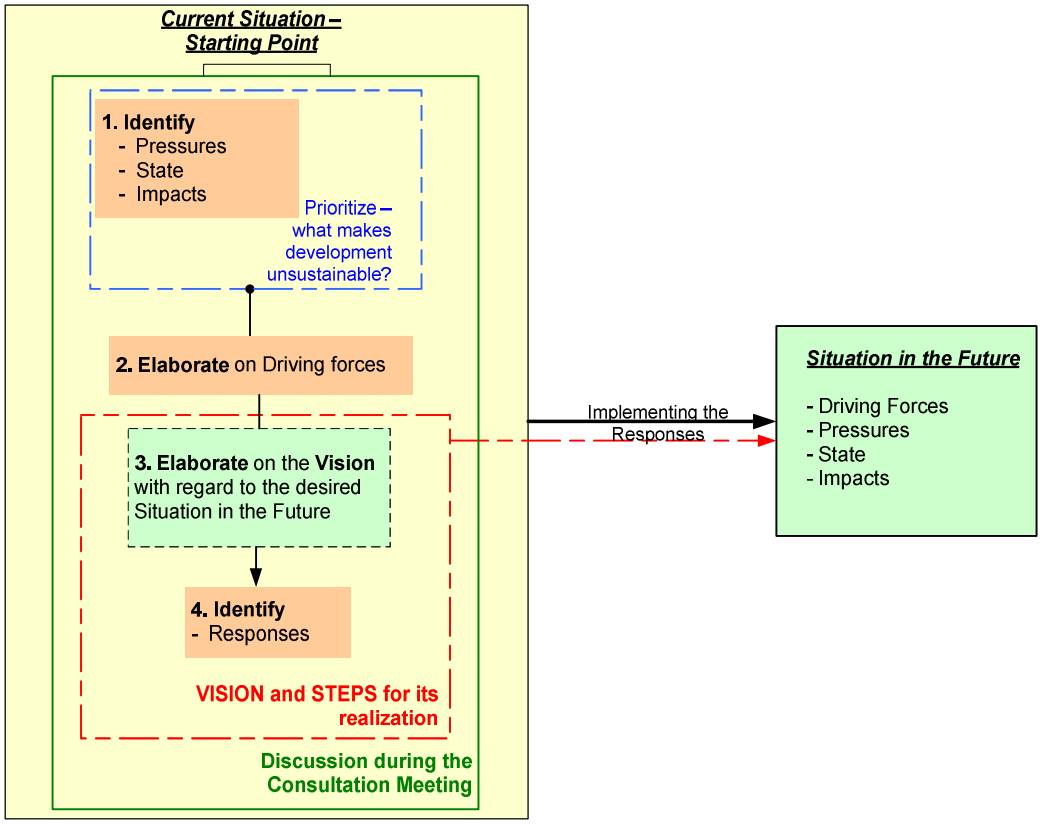
- ***State of the environment:*** *The condition of the environment (e.g. water quality in rivers and lakes)*

- ***Impacts:*** *The effects resulting from the condition of the environment on population, economy, ecosystems (e.g. water unsuitable for drinking, biodiversity loss, less overnight stays in hotels)*

- **Responses:** *Responses by the society to the environmental situation (e.g. laws and regulations, incentives and disincentives, integrated basin management planning etc.)*

The discussion will focus first on the **Pressures**, and the resulting **State** of the Environment and the **Impacts** caused; the **Driving forces** as these are perceived by the stakeholders are expected to come up during the discussion. Time will be dedicated later on to elaborate on the **Vision** of the stakeholders in relation to the sustainable development of the Drin Basin and the envisaged societal **Responses** to address issues and problems.

Figure 1 depicts the structure of the discussion, its envisaged outcome and the general framework that the discussion during the consultation meeting falls under; figure 2 depicts the sequential steps to ***be followed during the facilitated discussion***.



(ii) The steps to be followed during the facilitated discussion are presented below:

Steps / Sessions	*What*			
1.	**Introduction by the Facilitator on the structure of the discussion**		Short discussion	
2.	**Pressures, State, Impacts**	Introduction by the Facilitator - Stakeholders asked to provide input	Discussion	
3.	***Review and prioritize – what makes development unsustainable?***	Stakeholders asked to provide input	Discussion	A rapporteur will be capturing the main points of the discussion
4.	**Driving forces** **Vision** **Responses**	Stakeholders asked to provide input	Discussion	
5.	**Wrap-up / Conclusions**	Rapporteur		

(iii) Rules for the discussion

- All participants will participate in the discussions on an equal basis.
- The working language will be English - Interpretation will be used to secure communication among all stakeholders, national and international.
- Two breaks will take place: at 12.00 hrs and at 16.15 hrs.

B. Main Issues and Problems in the part of the Drin Basin extending in Albania

I. Introduction – Basin management

All previous meetings, analyses and discussions concerning the overall Drin Basin have concluded that the current frameworks for the management of the sub-watersheds of the Prespa, Ohrid, Drin, Shkoder and Buna at both transboundary and national levels need to be strengthened.

At transboundary level there is already a basis for coordinated management of the Prespa, Ohrid and Shkoder watersheds provided by the Agreements[3] signed by the riparian, in each case, countries and the management bodies that have been established (Lake Ohrid Watershed Committee and Skadar/Shkoder Lake Commission) or expected to be established soon (Prespa Park Management Committee). Gains achieved, though, are until now rather "fragile". To overcome this "fragility" the countries need to take the actions necessary to fulfil the obligations undertaken through the Agreements as well as to provide sustained support to the management structures to work towards integrated and coordinated management in the whole extended basin of the river and lake system.

At national level, in Albania, the significance of transboundary waters is demonstrated by the fact that an Inter-ministerial Commission for shared water issues has been established by a decision of the Council of Ministers.

The sub-basins of Drin and Buna Rivers as well as the one of the Shkoder Lake form together one of the six river basin districts in the country i.e. this of the Drin-Buna. Despite the fact that the sub-basins of Prespa and Ohrid Lakes are not officially part of the respective basin district are dealt with as part of the Drin-Buna Basin.

The National Council for Water (NCW) chaired by the Prime Minister is the central decision-making body. The Water Resources Section within the Ministry of Environment, Forests and Water Administration (MEFWA) has been serving as the Technical Secretariat in support of the NCW. River Basin Councils have been established by the NWC in each of the basin districts. The Councils serve as local authorities responsible for managing water resources in the respective districts; a Water Agency (part of the Ministry of Environment Forestry and Water Administration structure) is the executive unit of the respective Council. A re-organization is expected soon; a new administrative structure has been recently approved.

The Law on Water Resources has been amended a number of times since it was introduced in 1996. It is the main piece of legislation regarding water resources management regulating among others the relevant institutional structure; it incorporates modern principles of water management. A number of framework laws as well as secondary legislation directly or indirectly covering water resources management issues have been also adopted. A new law that will transpose the EU Water Framework Directive and integrate legal acts dealing with water resources management is being prepared -since 2009- under an EU supported project.

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[3] - "Protection and Sustainable Development of Lake Ohrid and its Watershed" (17 June 2004 – Albania, FYR Macedonia)

- "Protection and Sustainable Development of the Prespa Park Area" (3 February 2010 – Albania, FYR Macedonia, Greece)
- "Protection and Sustainable Development of the Skadar/Shkoder Lake" (28 December 2007 – Albania, Montenegro)

Although some steps have been made, there is still a lot to be done towards integrated water resource management.

Efforts for the improvement of the overall institutional capacity to deal with challenges related to water resources management should continue. Related difficulties are attributed to the lack of adequate human and financial resources as well as to the inadequate coordination among the competent authorities at the national and local levels.

In general, the scientific and research institutes responsible for the monitoring of the state -hydrological, physicochemical and biological- of the environment suffer substantial financial difficulties. The 2008 reorganization of the scientific institutes seem to have rather an adverse effect to the overall capacity of the system than actually addressing existing issues. At present the work of these institutes is financed in large by donor countries and international organizations. In addition, availability and dissemination of information generated is an issue; institutes do not always share their data. Finally, the administration mechanisms to coordinate the various institutes collect and integrate information so as to be used for decision making and reach out to the various sectors and stakeholders need improvement.

The weaknesses with regard to the integrated basin management framework are coupled and reflect to a certain extend weaknesses in the spatial planning and management framework. These weaknesses in land management, particularly after the '90s, have led to significant pressures on water bodies and ecosystems. As a result of the lack of integrated approach, urban and economic development planning do not take into account the potential impacts of the consequent changes in the balance of the lake and riverine systems.

II. State of the environment, Pressures and Impacts

A major concern is that the assessment of the state of the system is based on observations and scattered scientific evidence rather than on systematic and comprehensive scientific monitoring and research. As an instance in the case of the Prespa Lakes there are considerable data gaps with regard to flora and fauna; official monitoring data on the status as well as trends with regard to biodiversity is missing and in addition there are insufficient data with regard to the changes on forest coverage, land use, fish populations and habitat structure. Unfortunately the case of Prespa is not an exception. Overall, the spatial and time scales as well as the level of the pressures across the Drin Basin cannot be easily assessed in a reliable way; this is also true with regard to their impacts.

The effects of pressures exerted on the system are manifold. The degradation of sites, such as the wetlands adjacent to the three lakes, which are of paramount ecological importance from a European and international conservation perspective, should be noted.

v *Water Balance*

Water Level in Micro Prespa Lake

The diversion of a branch of Devoll River (in the 70's) to discharge water into the Lake during winter months and use it as an irrigation reservoir for the summer months (related activities stopped in 2001) has led to the permanent alteration of the hydrological system in this lake due to increased sedimentation (see also below under "Sediment balance"). It has been reported that underground springs have been blocked.

A significant decrease of the water level has resulted in an obvious shift in the habitats on the Albanian side and probably in some alteration in the composition of the ecosystem. This decrease is considered to be part of the natural hydrological cycle; pressures due to irrigation are currently minimal in Albania.

Water Level in Macro Prespa Lake

There has been an oscillation of the water level during the past decades - an increase of about 1 meter during the recent 1-2 years followed a considerable decrease of water level during the previous 30 years. Much of it is attributed to changes in precipitation in conjunction to the karstic geomorphology. Overuse of water for irrigation in the neighbouring FYR Macedonia –mostly through illegal groundwater abstractions- lead to additional losses that is believed to have an effect on the water level. Water abstracted for irrigation and drinking purposes on the Albanian side has a rather insignificant effect in this regard.

The outcome has been loss of priority shoreline wetland habitats and biodiversity. Spawning areas have been lost, impacting the fish population, especially the one of carp. It further has caused changes in the food chain potentially endangering the overall balance of the aquatic ecosystem.

Furthermore, some parts of the area where the water level has decreased are used for the grazing of livestock, leading to a greater potential for organic pollution.

Flow patterns in Drin and Buna rivers and water level in Shkoder Lake

The connection of Drin River with Buna River which drains Shkoder Lake affects the hydrological regime of the area as well as the morphology and function of the Buna Delta in the Adriatic Sea. The flow of Buna itself is dependent on the level of water table in Shkoder Lake but also to the flow patterns and discharge of the Drin River.

The hydrology of Drin River had been dramatically altered by the construction of a cascade of dams for hydropower production; the significance of the river in this regard is high since the capacity of the plants installed equals about 70% of the total hydro and thermal installed capacity in the country. A new hydropower plant is currently under construction (Ashta area). Dam construction has caused the interruption of the bio-corridors in this area exerting major pressure on biodiversity. Furthermore, the flow patterns in Drin downstream the dams are influenced by both licensed as well as uncontrolled gravel extraction.

The alteration of the physical characteristics of the Drin has a number of effects: it leads to erosion of land adjacent to the river; it has an impact on the distribution of sediments hence it is a contributing factor with regard to the erosion of the Adriatic coast (see below under “Sediment balance”); it results in disturbances to the supported ecosystems.

Interventions in the watershed are the main reason for the high oscillations in the water level of Lake Shkoder; the lake’s outflow through the Buna River is impeded during periods of high waters in the Drin River (a result of water releases from the artificial lakes upstream). This results to frequent alterations of the coastal habitats in the lake and is also reflected in the state of flora and fauna, as well as in the agriculture and the microclimate around the lake.

Increased in frequency and intensity flooding in the Shkoder – Buna area during the past two-three years have had detrimental socioeconomic effects in the region. While there is a need for

these phenomena to be further studied it is believed that they come as a result of the combined effect of the following:

- high sediment input through the tributaries of Drin downstream the dams due to erosion caused by gravel extraction;
- accumulation of alluvium in the tributaries of Drin, Drin itself and Buna. In the case of Drin this is due to the decreased sediment transport capacity as a result of the controlled outflow from the artificial lakes; in the case of Buna[4] the latter is combined with the low gradient of the riverbed;
- aforementioned water releases from the dams on Drin River.

Climate change variability leading to the increase of the frequency of extreme precipitation events should be taken into consideration while flooding phenomena in that area are to be explained.

Lack of close coordination between Albania and FYR Macedonia with regard to the management of the outflow from the dams in both countries is an additional factor to be taken into account. It should be noted though, that deficiencies in the basin management in Albania could have direct and indirect impacts in upstream countries in this regard. For instance, at least in one case during the winter of 2009-2010, the reduction of the flow of water from Ohrid to Black Drin in FYR Macedonia as a precautionary measure to avoid floods in Albania led to the raising of the water level in the Lake Ohrid by 50 cm affecting negatively the anthropogenic and natural environment.

v *Sediment balance*

Prespa Lakes

The diversion of Devoll River (in the 70's) into Micro Prespa has lead to the deposition of considerable amounts of solid material along the coast of the lake covering a zone of 1-1.5 km. The diversion has caused a permanent alteration of the character and functions of the site, transforming it from a shallow lake into a marshland. The impacts on the properties, quality and functioning of habitats had been substantial. Furthermore, it has had a negative effect on the local economy.

Increased sediment loads entering both lakes has been the outcome of deforestation and overgrazing.

Drin and Buna Rivers

Soil erosion caused by deterioration and destruction of plant cover as a result of grazing, illegal logging, forest fires etc. lead to high sediment loads, in addition to normal inputs, in the Drin River. According to estimates, erosion from mismanaged high altitude land, reach 300 tons/ha/year at 2 cm depth; the average rate of land erosion for Albania is 30 tons/ha/year. High levels of erosion result in significant loads of material transported into the lake of the Hydro-Power Station of Vau i Dejes may result in the increase of the rate of filling up of the lake.

[4] Natural sediment accumulation in the bed of Buna River result to frequent flooding of nearby land; change in the land uses in the adjacent to the river channel area had led to downsized floodplain hence alteration of the ecosystem structure. Before the intensive drainage and melioration of the area, almost 50 percent of the whole Buna/Bojana River and Delta region was regularly flooded (over 280 km^2). Nearly 90 km^2 are still regularly flooded; flooding in coastal and lagoon areas depends on precipitation in the lowlands.

Erosion in the lowlands followed by increased sediment input is a result of the deterioration of vegetation due to grazing, overexploitation of forests and shrubs to be used for fuel wood and fodder and unsustainable agricultural practices including inappropriate irrigation methods. Gravel extraction along Drin and its tributaries as well as the damaging of the flood protection constructions (barriers) in the channels of the latter coupled with the steep gradient of their bed exacerbates these phenomena.

Coastal erosion in the delta of the river Buna is mainly the result of the entrapment of alluvium of the upper part of Drin in the dams. The quantity of alluvium that results from erosion in the tributaries of Buna and Drin as well as in the downstream part of the latter is not enough to invert the coastal erosion process. In addition the reduction of the sediment transport capacity of the Drin in combination with the natural low gradient of the channel of Buna River result in the accumulation of alluvium from erosion in the bed of Drin and Buna preventing this from reaching the Buna mouth at the Adriatic Sea. The progression of the sea along Buna mouth since 1936 has been about 500 m.

The sea line has progressed by 400 m during the same period along the Lezha seashore where the other branch of Drin flows into the Adriatic Sea. This is attributed to the lowered alluvium transport capacity of Drin coupled with the fact that the dams trap inert material.

The changes in the coastline affect the ecosystems in the Buna Delta and the Kune Vain lagoon drastically.

- ***Water Quality***

Prespa Lakes

The Albanian part of Micro Prespa Lake is currently heading towards eutrophication. According to reports from local population, water transparency in the Micro Prespa Lake has decreased to only a few centimetres. This exerts major pressure on fish. Overall, it has an effect on the balance of the ecosystem; the lake provides habitat for many species including endangered ones. Inadequate waste collection and lack of wastewater treatment is an issue; wastewater is discharged untreated in surface waters or underground. The level of diffuse pollution can not be estimated.

Macro Prespa has been classified as oligotrophic in the past; nevertheless according to available water quality data, its actual state today is mesotrophic to eutrophic and this has an impact to the ecosystem of the lake. Transboundary pollution due to nutrients input as a result of agricultural activities (apple production) and lack of sufficient wastewater management is considered to be the main cause.

Diffuse pollution from agriculture in the Albanian part is minimal and where present it should be of local character; chemical fertilizers are very little used. There is no available information to the authors with regard to pollution caused by cattle breeding. Wastewaters are predominately discharged untreated to the lake or underground. The nutrient and organic loads entering the lake in this regard is a factor of pollution that may have –data are not available- an impact of local character with regard to the water quality and the ecosystems; it should be of less importance if compared to the transboundary pollution.

In contrast, the impact of the wastewater discharge practices is major in the Albanian part in terms of bacteriological pollution; the situation becomes critical at certain locations during

particular periods of the year. The health risks are high for people who use untreated water abstracted from the lake for drinking purposes or when using the lake for recreation.

Disposal of solid waste in improper landfill sites (20 locations in Macro Prespa and 7 locations in Micro Prespa) close to the shore or directly to the streams lead to a quantity of solid waste entering the surface waters throughout the system; in addition, leaching may affect groundwater. Nevertheless, taking into account the quantities of solid waste deposited, it is believed that the effect should not be very significant due to the high dilution potential of the lake.

Ohrid Lake

Nutrient loading from both littoral countries exert pressure to the system causing eutrophication , accelerating the "aging" process of the lake. Concentrations of phosphorus and nitrogen have been increasing over time. Both the phytoplankton and zooplankton communities are shifting to a species composition more characteristic of a mesotrophic condition and so do the macrophytes and benthic fauna in the shallow-water zone. Water quality deterioration is most intense at the littoral zone, especially at sites adjacent to the urban area of Pogradec city and in the shoreline where recreational activities take place (Drilon, Pojska, Lin).

Urban wastewater discharge has been the main source of nutrients from the Albanian side leading also to organic and bacterial pollution –of local importance- at the littoral zone. This input has been adding up to the considerable nutrient loads deriving from the FYR Macedonian side of the watershed.

The treatment of urban wastewaters of the Pogradec area, since 2009, is expected to have a positive effect with regard to the organic matter and phosphorous concentration trends as well as to the bacterial contamination of water. According to observations some improvement in the water quality in the adjacent part of the lake is evident.

Mining activities at the Albanian shoreline has been a source of heavy metals pollution (e.g., chromium, copper, cobalt, nickel as well as iron, etc.). Residue landfills and slag piles drainage had ended untreated directly or through groundwater to the lake. Currently, from nine in total mines located within a range of 10 km from the lakeshore -six of them as well as one mineral enrichment plant are found within a range of 2.5 km- only one is still in function. Nevertheless, large depositions of residual material left in open pits in abandoned mines and adjacent sites are exposed in rainfall and constitute a constant pollution source. A potentially significant risk to living organisms is still there in this regard.

Sediments in the littoral zone in adjacent to the mines areas are substantially polluted, presenting a potential toxic risk for the aquatic life and through the food chain also to humans. According to publications, flora and fauna (especially some fish species) of the lake have been seriously affected in the Guri i Kuq adjacent lake area. Furthermore, there is a potential risk for the drinking water resources to be polluted. After the closing down of mining activities and the clean up of the mineral stock in Guri Kuq, published data indicate an improvement with regard to the concentration of heavy metals in the water column.

Drin River

Overall, there is no adequate information with regard to water quality especially in the upper part of the Drin river basin (from the point it enters Albania to the Vau i Dejes dam). According to some data, water quality in few tributaries coming from the mountain areas is good; there were cases that some metal ions were found but at low concentrations.

The main sources of pollution are considered to be the following:

- Domestic sewage that is discharged untreated along the course of the river as well as in the artificial lakes; unsustainable wastewater management may impact groundwater as well. Sewage from the Skhodra city is collected into a pool and then pumped into the Drin River in a small distance before its confluence with Buna. Spills due to inappropriate functioning of the sewerage system pose a threat to the quality of groundwater.
- Inappropriate disposal of solid waste throughout the watershed; deposits are present on the river banks and lake shores in residential areas. Considerable quantities of urban solid wastes end up on the banks of both Black Drin and White Drin as well as in the Fierza and Koman artificial Lakes. In the case of the latter these include also some hospital waste. The amount of waste transported and deposited there increases during periods of high rainfall and runoff (spring and autumn).
- Agriculture.
- Mining and industrial activities throughout the watershed and in particular in the Kukes region where mining industries are placed.

There is no sufficient data with regard to the subsequent impacts, nevertheless, the nature of pressures as well as their intensity in some cases, lead to the conclusion that there has been a threat to the ecosystem as well as to local population. It is also evident that solid waste pollution seriously undermines the potential of eco-tourism in the area.

Shkoder Lake and Buna River

Available information does not allow for the identification of a well defined pollution trend. However existing information suggests that water quality has been varying in space and time. While hazardous substances pollution (heavy metals, PAHs, PCBs, etc.) had been observed in the period prior to 2000, in the most recent years water quality seems to have improved. The pollutants that have reached the lake in the past seem to have been accumulated in the sediments; moderate and, in few cases, high concentrations of heavy metals and nutrients have been (monitored) identified at specific sites of the lake in the sediments.

Overall, the quality of the lake's water is considered to be reasonably good due to the high renewal rate (2-3 times per year), the inaccessibility of the higher parts of the catchments and the sharp reduction in the industrial effluents discharged and the agricultural run-off (due to collapse of industries and large agricultural enterprises in the basin). According to opinions of experts, the Lake Shkoder is in better environmental condition than the Prespa Lake. Buna's water quality seems to be in the same, generally good, condition of the Shkoder Lake.

Poorly treated wastewaters from cities, communes and industries in the Montenegrin part have been entering the hydrological system ending up in the lake through the tributaries or through underground karstic connections; diffuse pollution has been following the same paths. The situation with regard to impacts of hazardous substances has been improved.

On the Albanian side the Drin contributes, to some extent, with trace metals originating from mining activities upstream. Inappropriate wastewater management result in pollutants entering the Shkoder Lake - Buna River system. While related infrastructure is under construction, at the moment wastewater from Shkoder city discharged in the Drin affects the Buna River –there are incidents where high nutrient values have been identified. Bacteriological contamination of local importance is also an issue. Nevertheless, in periods of high waters in Drin and floods (see above "*Flow patterns in Drin and Buna rivers and water level in Shkoder Lake"*) the lake is affected as well.

Insufficient solid waste management has led, in many cases, to the use of lakeshore, canals, and river banks as convenient sites for illegal disposal of wastes. Flood incidents exacerbate the situation. Solid waste (mostly plastic - including also in some cases hospital waste) negatively impacts the fresh water as well as the coastal marine ecosystems and pose a threat to localpopulation. It has been reported that significant amounts of solid wastes reaching the sea through the river are occasionally further transferred by currents to the coast of Montenegro and Croatia.

- ***Other issues***

Deforestation

Severe degradation of extensive forest areas in the watershed of the Prespa Lakes –in some cases the natural regeneration capacity of the forest has been lost- have been caused by illegal logging as well as by wood cutting - for firewood and for fodder, all practiced for subsistence economy and income generation. Uncontrolled grazing exacerbates the situation; nevertheless, the declining trend of livestock is positive in this regard.

The districts of Diber, Kukes, Puke and Malesia e Madhe, in the Drin watershed, host the largest areas of forest in Albania and their role in water balance and prevention of erosion is crucial. Deforestation, wild fires and illegal logging, coupled with inappropriate management practices (forests have been managed with a view to resource production -timber and firewood- with only limited attention to ecosystem management) are major issues.

Further to the erosion mentioned above that can lead to sedimentation and additional eutrophication pressures, degradation of forests have an impact on the biodiversity of the region dependent on woodland habitats as well as on the economic value of the timber available. Studies related to the economic value of timber etc versus the value of ecological services have not been carried out until now.

Unsustainable fishing practices

Further to water pollution and degradation of shoreline habitats there are additional pressures that may lead to the decline of the native fish stocks as well as of the biodiversity in the extended Drin watershed in Albania.

In Prespa lakes fishing is exercised by part of the population to complement their income or for food. Illegal fishing, the inappropriate means of harvesting and fishing during spawning coupled with competition from alien species introduced in the past are considered to be significant factors leading to the decline of native fish stocks, changes in the structure of fish populations and species composition, loss of biodiversity and risk of potential loss of revenue for fishermen.

The total catch is not known for either of the lakes.

The statistics on fish numbers and catches are limited in the Prespa Basin as whole. A key conclusion of a recent detailed study on the fish stocks of the basin (under the UNDP-GEF Prespa project) is that whilst the overall fish biomass may be constant (or even increasing) there is concern that commercial fish stocks are under threat due to over-fishing. As the result of all three littoral countries having experimented with restocking native species and fish farming, 9 non-native species of fish have been “introduced” to the Lake Prespa Basin.

In Lake Ohrid the native fish populations are under pressure as a result of over-fishing, illegal fishing and introduction of non-native species. Pressure is major to the Ohrid trout that has a higher commercial value; it is believed that conservation measures in the FYR Macedonian side are more efficient and that pressures exerted in the Albanian side has an impact at transboundary level. The introduced golden trout (Oncorhynchus mykkis aquabonita) represents a threat to the native Ohrid trout.

Although the commercial value of fishing is not very high in the Drin River, the use of non-discriminatory and destructive fishing methods lead to the decline of fish stocks.

Fisheries in the hydrological system including the water reservoir of Vau Dejes on Drin, the Buna River, tributaries of both rivers, Shkoder Lake and the marine area from the Buna outlet until the town of Velipoja, has been also subject to over-fishing, over-harvesting of commercial species and the use of non-discriminatory and destructive fishing methods (including explosives and high voltage electrical shock and poisons). This had led to considerable decline of fish stocks and reduction in the number of fish species; some non-commercial fish species are also under threat. In the case of Buna River and Shkoder Lake additional pressures include destruction of reproduction sites; water regime disturbances along the migration routes to the Adriatic Sea; manmade barriers for fishing purposes along the migration routes to the Adriatic Sea; introduction of alien species (1/3 of the species and subspecies of the lake are alocthone); potential toxic contamination; habitat alterations. The commercially valuable fish populations have declined in favor of less valuable species and there was also a significant decline on migratory fish in the overall production. Socioeconomic challenges in the near past, growing populations in coastal settlements and growing tourism as well as lack of law enforcement are major driving forces in this regard.

Residential and tourism infrastructure development

Residential and infrastructure development for tourism is a pressure exerted mainly along the lakes shores and the coastal area. Summer/weekend houses, tourism facilities and infrastructure construction and in general allocation of land for construction is an ongoing process in the most touristic zones of the extended Drin Basin in Albania. These developments result in soil sealing hence amplification of runoff processes into the lakes as well as in localised microbial pollution and alteration or loss of shoreline habitats. The system of sand dunes in the coastal areas at the Buna mouth is under threat.

Uncontrolled development leads to the deterioration of the shoreline habitats in the Shkoder Lake. Illegal construction exerts pressure on the immediate shore zone. It is noteworthy that 32 percent of the population of the area lives in illegal settlements.

In Velipoja in the coastal zone, immigration has led at an increase of construction at the expense of the pine forest; the forest area has been significantly reduced (presently about 19 ha remain). Sanitation infrastructure in the area is inadequate with consequent problems.

Hunting

Unsustainable legal and illegal hunting is an issue for the entire ecosystem of the Shkoder Lake and the Buna River and delta that has affected the populations of birds –some species are endangered- and mammals. There are violations with regard to both the hunting period and the protection status of certain areas. The exact impact cannot be assessed since data on the status of several fauna groups are limited due to the lack of a regular and coordinated monitoring both at national and transboundary level. Hunting, also during the hunting ban period, seems to be an activity related to tourism (foreigners).

Plans for Development

The area has considerable potential for economic and social development and several services. Communities and individuals have made proposals for a variety of activities. Since the system is not fully assessed and at least parts of it are considered “vulnerable” the impacts of any development proposals in the Drin-Buna-Shkoder area -involving eventually alternative uses of the waters and the water bodies of the region- need to be thoroughly assessed and clearly understood before any final decisions are taken. The interventions could potentially seriously affect the hydrological, physicochemical and ultimately ecological characteristics of the system and may have adverse effects to the long term developmental potential of the area.